unionGas
An Enbridge Company

January 8, 2018

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Dear Ms. Walli:

RE: EB-2017-0255 – Union Gas Limited – 2018 Cap-and-Trade Compliance Plan – Updated Redactions

On November 9, 2017, Union Gas Limited ("Union") filed its Application and pre-filed Evidence for its 2018 Cap-and-Trade Compliance Plan ("2018 Compliance Plan") with the Ontario Energy Board (the "OEB"). At the request of OEB Staff, Union is filing an Update to its Application with the OEB, Parties to the proceeding and on the OEB's RESS. Please note that this Update **only** reflects changes to redactions, **no content changes** were made.

Union's filing is compliant with the OEB's EB-2015-0363 Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (the "Framework"). As defined by the OEB, the Framework was developed in order to:[1]

> *"facilitate the recovery of costs incurred by rate-regulated natural gas utilities (Enbridge Gas Distribution Inc., Natural Resource Gas Limited, and Union Gas Limited) in meeting the legislated requirements of Ontario's Cap and Trade program which comes into effect as of January 1, 2017."*

In accordance with the Framework, Union requested that various portions of its 2018 Compliance Plan be classified as "Strictly Confidential".[2] As noted in Section 4: *Confidentiality of Cap and Trade Information,* the Framework states:

> *"The OEB recognizes that the Ontario Cap and Trade market is still nascent, and that the protocols and procedures surrounding confidential information must evolve as the market matures. The OEB believes that, in the early stages of the market's development, the appropriate approach must not only **comply with the Climate Change Act** (emphasis added) and associated regulations, it should also be cautious and have **regard to market integrity** (emphasis added) in order to protect customers from undue costs while still making appropriate information publicly available where possible."*

In a letter dated December 14, 2017, OEB Staff stated that in its view certain portions of the Strictly Confidential version of the Application are not clearly prohibited disclosures according to the Climate Change Act or the Framework and should be reconsidered by Union Gas for inclusion in the public version of its Application. Upon further review and at the request of OEB Staff, Union agrees that certain information identified by OEB Staff can be placed on the public record. Union's Updated redacted 2018 Compliance Plan is enclosed. However, there remains certain information that Union

[1] OEB Letter, Report of the Board: Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities, September 26, 2016, p. 1.
[2] Exhibit 1, p.16.

maintains need to be treated as Strictly Confidential. One example of such information is Union's general criteria used to guide decision making with regard to the assessment of compliance instruments. Union's general criteria are compliant with the Climate Change Act and are consistent with the OEB's Guiding Principles for assessment of the reasonableness of Compliance Plan costs for recovery in rates: Cost-effectiveness, Rate Predictability, Cost Recovery, Transparency, Flexibility, and Continuous Improvement.[3] However, Union strongly believes that disclosure of the detail of its general criteria, especially in the context of information that has been unredacted, could result in the disclosure of Strictly Confidential elements of the 2018Compliance Plan itself.

In the Framework, the OEB discussed different aspects of confidentiality as Strictly Confidential and confidential information. Strictly Confidential relates to:[4]

- **"Market Sensitive"** information relating to transactions of emissions units on secondary or tertiary markets or offset credits and information relating to compliance instruments used by a Utility to meet its GHG obligations.
- **"Auction Confidential"** information related to participation at auctions for emissions allowances that is prohibited from disclosure by the Climate Change Act.

OEB Staff also notes that the Framework includes consideration of certain types of strategically or commercially sensitive information for which a utility may wish to claim confidentiality.

The Framework specifies that *"information relating to compliance plan instruments used by a utility to meet its GHG obligations"* is Market Sensitive, and therefore Strictly Confidential.[5] The Framework also acknowledges that trading and 'tipping' of generally non-disclosed information is contrary to the Climate Change Act and this information is considered Market Sensitive.[6] The Climate Change Act prohibits disclosure of information that could have an impact on the price of an allowance:[7]

> *"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."*

While Union asserts that maintaining the Strict Confidentiality of Auction Confidential and Market Sensitive content is critical, Union recognizes the need for parties to understand the impacts of Cap-and-Trade. In this light, Union carefully evaluated OEB Staff's suggestion to disclose certain evidence references previously deemed Strictly Confidential publicly. Union believes the updated redactions in its 2018 Compliance Plan provide an effective balance between transparency and the importance to maintain market integrity and to comply with legislation.

---

[3] Framework, Section 3.1, pp. 7-8.

[4] Section 32 (7) of the Climate Change Act prohibits Union from disclosing information related to participation at auctions: "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."

[5] Framework, p. 10

[6] Framework, p. 13

[7] Climate Change Act, section 29 (5) and (6)

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

Yours truly,

[original signed by]

Adam Stiers
Manager, Regulatory Initiatives

cc: C. Smith (Torys)
M. Seers (Torys)

November 9, 2017

BY COURIER & RESS

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

RE: EB-2017-0255 – Union Gas Limited - 2018 Cap-and-Trade Compliance Plan

Dear Ms. Walli,

Enclosed is Union Gas Limited's ("Union") Application and pre-filed evidence for its 2018 Cap-and-Trade Compliance Plan (the "2018 Compliance Plan"). The 2018 Compliance Plan has been filed through the Ontario Energy Board's (the "OEB") RESS and will be available on Union's website at: www.uniongas.com.

Union is filing its 2018 Compliance Plan pursuant to the OEB's EB-2015-0363 Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities. As part of this filing, Union is seeking: an OEB determination that the cost consequences of Union's 2018 Compliance Plan are just and reasonable; approval of up to $2 million of cost consequences associated with the Low Carbon Initiative Fund in the Greenhouse Gas Emissions Impact Deferral Account ("GGEIDA"); approval of the Renewable Natural Gas mechanism and associated cost consequences no later than the end of January 2018; interim approval of Union's 2018 Cap-and-Trade costs and unit rates for recovery from customers effective January 1, 2018; and, final approval to dispose of the 2016 balance in Union's GGEIDA.

Union's 2018 Compliance Plan reflects experience gained in Ontario's Cap-and-Trade market, significant new developments that occurred in 2017, an expanded view of abatement, continuous improvements in Union's compliance processes and activities, and direction from the OEB's 2017 Compliance Plan Decision and Order (EB-2016-0296).

To meet the OEB's commitment to transparency and to maintain market integrity and comply with legislation, Union has redacted portions of this filing. An un-redacted version of this filing will be filed in confidence with the OEB.

Union respectfully requests the OEB approve Union's interim rates proposal as filed no later than November 30, 2017. Union will file its proposal for final rates following the issuance of the OEB's Decision and Order for this Application.

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

Yours truly,

[On behalf of]

Adam Stiers
Manager, Regulatory Initiatives

Encl.

cc: EB-2016-0296 Participants
C. Smith (Torys)

EB-2017-0255

ONTARIO ENERGY BOARD
IN THE MATTER OF the Ontario Energy Board Act, 1998, S.O. 1998, c.15 (Sched. B);

AND IN THE MATTER OF an Application by Union Gas Limited, pursuant to section 36(1) of the *Ontario Energy Board Act, 1998*, for an order or orders approving rates resulting from the 2018 Cap-and-Trade Compliance Plan.

APPLICATION

1. Union Gas Limited ("Union") is a business corporation incorporated under the laws of the province of Ontario, with its head office in the Municipality of Chatham-Kent.

2. Union conducts both an integrated natural gas utility business that combines the operations of distributing, transmitting, and storing natural gas, and a non-utility storage business.

3. On September 26, 2016, the Ontario Energy Board (the "OEB") issued the Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (the "Framework"). The OEB noted that the natural gas utilities are expected to file applications with their Compliance Plans by August 1st annually in order for the OEB to set rates to allow for the recovery of Cap-and-Trade compliance costs. In a letter dated July 27, 2017 the OEB stated that the natural gas utilities may file their 2018 Compliance Plans three weeks following the issuance of the OEB's Decision and Order on the 2017 Compliance Plans, and in the event that a natural gas utility requires additional time prior to filing its 2018 Compliance Plan, it may request a further extension. In a letter dated October 3, 2017, Union requested a further extension for filing its 2018 Compliance Plan to November 9, 2017. In a letter dated October 11, 2017 the OEB granted Union an extension to file its 2018 Compliance Plan by November 9, 2017.

4. Accordingly, Union hereby applies to the OEB, pursuant to section 36 of the Act and pursuant to the Framework, for an order or orders approving or fixing just and reasonable rates and other charges for the sale, distribution, transmission, and storage of gas effective January 1, 2018. To meet this effective date, Union respectfully requests the OEB approve Union's interim rates proposal as filed no later than November 30, 2017. Final rates will be filed with the OEB following the issuance of the OEB's Decision and Order for this application.

5. Union further applies to the OEB for the following:
    a. A determination that the cost consequences of Union's 2018 Compliance Plan are just and reasonable;
    b. Approval of up to $2 million in cost consequences associated with the Low Carbon Initiative Fund in Union's Greenhouse Gas Emissions Impact Deferral Account ("GGEIDA");
    c. Approval of the Renewable Natural Gas mechanism and associated cost consequences no later than the end of January 2018; and,
    d. Final approval of the 2016 balance in the GGEIDA.

6. Union further applies to the OEB for all necessary orders and directions concerning prehearing and hearing procedures for the determination of this application.

7. This application is supported by written evidence that has been filed with this application and may be amended from time to time as circumstances may require.

8. The persons affected by this application are the customers resident or located in the municipalities, police villages, and First Nations Reserves and Métis organizations served by Union, together with those to whom Union sells natural gas, or on whose behalf Union distributes, transmits, or stores natural gas. It is impractical to set out in this application the names and addresses of such persons because they are too numerous.

9. The address of service for Union is:

Union Gas Limited
P.O. Box 2001
50 Keil Drive North
Chatham, Ontario
N7M 5M1

Attention: Adam Stiers
Manager, Regulatory Initiatives
Telephone: (519) 436-4558
Fax: (519) 436-4641

- and –

Torys
Suite 3000, Maritime Life Tower
P.O. Box 270
Toronto Dominion Centre
Toronto, Ontario
M5K 1N2

Attention: Crawford Smith

Telephone: (416) 865-8209
Fax: (416) 865-7380

DATED: November 9, 2017

UNION GAS LIMITED

[Original signed by]

____

Adam Stiers
Manager, Regulatory Initiatives

UNION GAS LIMITED 2018 CAP-AND-TRADE COMPLIANCE PLAN

ADMINISTRATIVE DOCUMENTS

The purpose of this evidence is to summarize Union's 2018 Cap-and-Trade Compliance Plan (the "2018 Compliance Plan") application including the assumptions made in Union's 2018 Compliance Plan, the approvals sought from the OEB, and the deviation made from the Framework. This evidence is accompanied by administrative documents and incorporates consideration of the confidentiality of the materials herein.

This exhibit of evidence is organized as follows:

1. Executive Summary
    1.1. Key Developments, Expanded Compliance Plan Scope and Continuous Improvement
    1.2. Continued Market Development and Remaining Uncertainties
2. 2018 Approvals Requested
3. Deviation from the Framework
4. Administration
5. Confidentiality

1. EXECUTIVE SUMMARY

In accordance with the OEB Framework, Union is filing its 2018 Compliance Plan to be compliant with the Climate Change Mitigation and Low-Carbon Economy Act (the "Climate Change Act"). Union, as a natural gas distributor, has the following compliance obligations:

- A facility-related obligation for facilities Union owns and operates;
- A customer-related obligation for Union's residential, commercial and industrial customers who are not Large Final Emitters ("LFE") or voluntary participants; and,
- Greenhouse Gas ("GHG") emissions reporting and verification requirements.

Ontario continues to take steps to meet its GHG emissions reductions targets. The carbon market has been operational during 2017, and the government of Ontario has begun to earmark the proceeds of its allowance auctions for future investment. The OEB has also continued efforts to support the government of Ontario's direction with respect to climate change, most recently through measures described in the Long Term Energy Plan ("LTEP").

Union believes that it can play a significant role in partnership with the government of Ontario in offering balanced solutions that support provincial emission reductions targets and maintains energy affordability for consumers. In addition to its compliance obligations under the Climate Change Act, Union can offer solutions to reduce its own emissions as well as the emissions of its customers. Union's track record of successful project execution, operation and development of physical assets, and established program delivery systems (such as those which administer a wide range of energy efficiency programs) can be leveraged going forward. Therefore, Union's

2018 Compliance Plan outlines market-ready solutions for near term abatement as well as initiatives to explore for future abatement. With the use of existing regulatory frameworks, alternative funding models, and collaboration across utilities, government, and regulators, these initiatives could provide tangible progress towards the transition to the low-carbon economy.

Union's 2017 Compliance Plan reflected the nascence of Ontario's Cap-and-Trade program and the associated carbon market, the speed with which the program and the OEB Cap-and-Trade framework was implemented, and the significant uncertainties outstanding at the time of filing. Union's 2017 Compliance Plan was simple, flexible (to adapt to the market), minimized risk, and achieved compliance at a reasonable cost. The OEB subsequently found that the cost consequences resulting from Union's 2017 Compliance Plan were reasonable.[1] In making this determination, the OEB found that Union's plan was based on reasonable option analysis and decision-making, governance and risk management. The OEB also found that its 2017 administrative cost forecast was "consistent with the expectations established in the Cap and Trade Framework."[2]

Union's 2018 Compliance Plan is expanded in scope and analyses compared to its 2017 Compliance Plan. It reflects both Union's experience and significant new developments that have occurred throughout 2017. It also reflects continuous improvement advancements in

---

[1] EB-2016-0296 Decision and Order, p.3 (dated September 21, 2017).
[2] EB-2016-0296 Decision and Order (dated September 21, 2017), p. 16.

Union's compliance processes and activities. Key new developments since Union's 2017 Compliance Plan and their impact on Union's 2018 Compliance Plan are described below.

1.1. Key Developments, Expanded Compliance Plan Scope and Continuous Improvement

- Union received the OEB's Decision and Order on its 2017 Compliance Plan on September 21, 2017 and has applied the direction from that Decision to its 2018 Compliance Plan.
- Union's 2018 Compliance Plan reflects the September 22, 2017 announcement that Ontario will link its carbon market with the Western Climate Initiative ("WCI") carbon market effective January 1, 2018.
- [redacted] Union has also incorporated knowledge gained from the development of the Ontario carbon market in 2017 and from a ClearBlue Markets ("ClearBlue") consulting report that reflects WCI linkage.
- Union has expanded its consideration of both customer and facility abatement in its 2018 Compliance Plan. It has analyzed and applied the OEB issued Long-Term Carbon Price Forecast ("LTCPF") and Marginal Abatement Cost Curve ("MACC") received on May 31, 2017 and July 20, 2017 respectively. Union has also explored complementary support structures that are consistent with the province's climate

change plans and the Framework in order to advance the development of abatement over the long-term.

- Union has worked with Enbridge Gas Distribution Inc. (“EGD”) to develop an Abatement Construct (“AC”) in order to facilitate and guide development of incremental abatement initiatives by the utilities. The AC introduces the concept of an initiative funnel, which depicts the stages of new technology development from concept to specific application. Time, resources, and funding are all required in order to identify and advance technologies through the initiative funnel and deliver future benefits. In some cases, particularly when initiatives are not cost-effective and may not be consistent with existing regulatory frameworks, support and funding from provincial and/or federal governments is required to proceed.
- Union proposes to establish a Low Carbon Initiative Fund within the GGEIDA, as described at Exhibit 3, Tab 5, section 4.2. The Fund ensures a stable and predictable level of funding of up to $2 million per year (beginning in 2018) so that Union can proactively identify and develop abatement ideas to consistently feed and move through the development process, with the goal of realizing abatement over the longer-term.
- Pursuing new technologies and innovations is consistent with the CCAP and the LTEP and is similar to actions taken in other jurisdictions. Union has also received favorable support from its customers in regards to technology and innovation rate-payer funded investment by the utility.

- Union's customer abatement plan for 2018 includes the pursuit of new technologies including Renewable Natural Gas ("RNG"). In Exhibit 3, Tab 4, Union has included a request for OEB approval, no later than the end of January 2018, to allow Union to proceed with its RNG procurement proposal. Union has proposed, for OEB approval, the mechanism to fund the RNG program, including the methodology to establish long-term gas supply and carbon prices in rates. Other technologies such as integrated air-source heat pump ("ASHP")/natural gas solutions, ground-source heat pump ("GSHP"), net zero energy and net zero energy ready homes, hydrogen and power to gas, micro generation, building skins, carbon capture, biomass conversion (thermochemical) to RNG, and automatic meter reading are also being explored. These technologies are described in Exhibit 3, Tab 4.
- Union has applied the LTCPF and MACC to analyze incremental customer abatement with respect to energy efficiency measures. Union has completed analyses using the MACC report and the underlying Conservation Potential Study ("CPS") (see Exhibit 3, Tab 1) and has determined that within the existing DSM Framework and considering the cost-effectiveness filter for abatement within the (Cap-and-Trade) Framework, there is no incremental customer abatement that would be prudent to pursue at this time. Union has identified abatement opportunities that could proceed with government funding (i.e. Climate Change Action Plan ("CCAP"), Ontario Climate Change Solutions Deployment Corporation ("GreenON"), federal programs).
- Union has completed a facilities abatement study, utilizing the OEB-issued LTCPF. Union's facilities abatement study outlines potential projects that result in GHG

reductions and projects expected to be completed in future years related to anticipated federal methane legislation. Exhibit 3, Tab 4, includes the results of this study and next steps associated with this work.

- In the weeks immediately preceding this filing, the Ontario Ministry of the Environment and Climate Change ("MOECC") released several proposed new regulations and amendments. These include a draft Ontario Offset Credits Regulation ("Draft Offset Regulation") and a draft Landfill Gas Offset Protocol on October 4, 2017; and draft regulation amendments and draft administrative penalties legislation on September 22, 2017. Union has considered the impacts of these proposals where applicable, noting these proposals are subject to the MOECC's consultation process and subsequent finalization.
- Union and EGD have developed a standardized set of monitoring and reporting templates for future consideration by the OEB Working Group. Per the OEB's direction in the 2017 Compliance Plan Decision and Order, Union has included year-to-date monitoring and reporting for 2017 in Exhibit 4, Schedule 1 and Exhibit 4, Schedule 2.
- Union's governance and control processes, outlined in Exhibit 3, Tab 2, have been validated by an audit review and have continued to evolve and expand in scope.
- Union's customer outreach plan has been updated to reflect the implementation of the Cap-and-Trade program and customer responses and feedback.

1.2. Continued Market Development and Remaining Uncertainties

A number of the significant uncertainties remain as of the date of this 2018 Compliance Plan. These uncertainties include:

- Release and/or finalization of outstanding Cap-and-Trade Regulations, such as Early Reduction Credits and Compliance Offset Credits Regulations;
- Development and release of outstanding Offset Protocols;
- Full details of CCAP/GreenON funding required to support potential abatement initiatives outlined in Exhibit 3, Tab 4. Although some CCAP/GreenON programs have been announced, significant uncertainty still remains;
- Definition of the post-2020 Cap-and-Trade program design for Ontario, including the publication of declining cap and the impact of program changes in California; and,
- The impact of the Pan-Canadian Framework on Clean Growth and Climate Change.

These uncertainties could influence the carbon market in Ontario either by impacting the market for compliance instruments, or by impacting the province's ability to abate its GHG emissions.

While the province has taken significant steps to implement Ontario's Cap-and-Trade program in 2017 including the successful establishment of the provincial carbon market, the persistence of the uncertainties noted above reflects the continued nascence of the Ontario Cap-and-Trade program. It also illustrates the interconnectivity of Ontario's program with other jurisdictions. In addition, the secondary market in Ontario has experienced low trading activity since the Intercontinental Exchange Inc. ("ICE") began trading allowances early in 2017. These are all strong signals that the Ontario program and carbon market are still in their infancy and will continue to evolve, particularly when Ontario links with the WCI.

Union's 2018 Compliance Plan has expanded and evolved, reflecting the program's nascence as well as new information and experience gained since it authored its 2017 Compliance Plan. Similar to its 2017 Compliance Plan, Union's 2018 Compliance Plan continues to be guided by compliance with The Climate Change Mitigation and Low-Carbon Economy Act, Ontario Regulation 144/16, and the Ontario Cap-and-Trade program (together the "Cap-and-Trade Regulations") and Framework. The 2018 Compliance Plan is just and reasonable and demonstrates all of the principles defined in the Framework: cost-effectiveness, rate predictability, cost recovery, transparency, flexibility and continuous improvement.

2. 2018 Approvals Requested

As stated in the OEB's 2017 Compliance Plan Decision and Order, the OEB expects Union Gas Limited, Enbridge Gas Distribution Inc., and Natural Resource Gas Limited (together the "Utilities") to develop Compliance Plans that outline how they will meet their obligations under Ontario's Climate Change Act and Cap-and-Trade Regulation.

"The OEB will review these Plans for cost-effectiveness, reasonableness and optimization in meeting cap and trade compliance obligations to determine the appropriate associated costs to be recovered from natural gas customers in rates."[3]

[3] EB-2016-0296/EB-2016-0300/EB-2016-0330 Decision and Order, p.9 (dated September 21, 2017).

Consistent with the OEB's Decision and Order and with the Framework, Union is seeking a determination by the OEB of the reasonableness of its 2018 Compliance Plan costs for recovery in rates.

Union hereby applies to the OEB, pursuant to Section 36 of the Act and pursuant to the Framework, for an order or orders approving or fixing just and reasonable rates and other charges for the sale, distribution, transmission, and storage of gas effective January 1, 2018. To meet this effective date, Union respectfully requests the OEB approve Union's interim rates proposal as filed no later than November 30, 2017. Final rates will be filed with the OEB following the issuance of the OEB's Decision and Order for this application.

Union is requesting approval for up to $2 million of cost consequences associated with the Low Carbon Initiative Fund in the Greenhouse Gas Emissions Impact Deferral Account ("GGEIDA"). Union is requesting approval of the Renewable Natural Gas mechanism and associated cost consequences no later than the end of January 2018. Union is also requesting approval of the 2016 balance in its GGEIDA. Interim disposition of this account was a matter of settlement as part of Union's Disposition of Deferral Account Balances and 2016 Utility Earnings proceeding (EB-2017-0091) but the OEB deferred final disposition of this account until a future proceeding. As detailed in Exhibit 6, Union expects to bring forward the 2017 balance in deferral accounts No. 179-152, 179-154 and 179-155 no later than with its 2019 - 2020 Cap-and-Trade Compliance Plan. The Framework identifies the deadline for filing of this plan to be August 1, 2018. Union expects to begin disposition of the balances beginning January 2019. However, this does not preclude Union from filing for disposition at an earlier time as contemplated by the OEB in the Framework.[4]

3. DEVIATION FROM THE FRAMEWORK

Union's 2018 Compliance Plan includes one deviation from the Framework related to cost recovery. Union has used the annual carbon price forecast, as outlined in the Framework, as the proxy carbon price for setting Cap-and-Trade charges.[5] Union has calculated the 2018 annual carbon price forecast to be $18.99/tonne of carbon dioxide equivalent ("CO_2e") as provided at Exhibit 2, Schedule 2, p.1. Union has set rates based on the proxy carbon price, not the weighted average cost of compliance as stipulated in the Framework. As outlined in Exhibit 7, the use of a proxy carbon price ensures that Cap-and-Trade charges are set using information from a verifiable public source, which provides transparency for customers and stakeholders.

4. ADMINISTRATION

1. Table of Contents	Please see Exhibit 1, Schedule 1.
2. Glossary of Terms	Please see Exhibit 1, Schedule 2.
3. Glossary of Acronyms and Short Forms	Please see Exhibit 1, Schedule 3.
4. Parties Affected by the Application	The parties affected by this application are the customers resident or located in the municipalities, police villages, and First Nations Reserves and Métis organizations served by Union, together with those to whom Union sells natural gas, or on whose behalf Union distributes, transmits, or stores natural gas. It is impractical to set out the names and addresses of such parties because they are too

[4] Framework, p. 33.
[5] Framework, p. 31.

	numerous.
5. Internet Address for Viewing the Application	https://www.uniongas.com/about-us/regulatory/rate-cases, EB-2017-0255
6. Primary Contact Information	Adam Stiers Union Gas Limited Manager, Regulatory Initiatives 50 Keil Drive North P.O. Box 2001 Chatham, Ontario N7M 5M1 Telephone: (519) 436-4558 Fax: (519) 436-4641 Email: astiers@uniongas.com
7. Bill Impacts	Including the impacts of the customer-related obligation costs of the Cap-and-Trade program, the bill impact for a typical residential customer consuming 2,200 m^3 annually in Union South and Union North is an increase of $5 per year. Excluding the impacts of the customer-related obligation costs of the Cap-and-Trade program, the bill impact of the Cap-and-Trade program for a residential customer consuming 2,200 m^3 annually in Union South and Union North is a decrease of less than $1 per year.
8. Specific Approvals Requested	- Determination by the OEB that the cost consequences of Union's 2018 Compliance Plan are just and reasonable - Approval of up to $2 million in cost consequences associated with the Low Carbon Initiative Fund in Union's GGEIDA - Approval of the Renewable Natural Gas mechanism and associated cost consequences no later than the end of January 2018 - Approval of interim rates effective January 1, 2018 by November 30, 2017 - Final approval to dispose of the 2016 balance in Union's GGEIDA
9. Deviation from Filing Guidelines	Please see Exhibit 1, Section 3.

5. CONFIDENTIALITY

Given Union's obligation to comply with Cap-and-Trade regulations, confidentiality is a critical element of Union's 2018 Compliance Plan, just as it was in the 2017 Compliance Plan. Confidentiality is critical to the integrity of Ontario's nascent carbon market and Cap-and-Trade program. In 2018, Union will continue to operate in a carbon market that is competitive, dynamic, and sensitive to disruption. Therefore, this carbon market requires the protection of market sensitive information through continued use of the Strictly Confidential classification of certain information as outlined in the Framework and in alignment with the Climate Change Act. Failure to take the necessary precautions and safeguards could jeopardize Union's competitive position, leading to escalated costs for Union's ratepayers. This is especially true considering Union's size relative to the market.[6]

As noted in Section 4 of the Framework: Confidentiality of Cap-and-Trade Information, "The OEB recognizes that the Ontario Cap-and-Trade market is still nascent, and that the protocols and procedures surrounding confidential information must evolve as the market matures. The OEB believes that, in the early stages of the market's development, the appropriate approach must not only comply with the Climate Change Act and associated regulations, it should also be cautious and have regard to market integrity in order to protect customers from undue costs while still making appropriate information publicly available where possible." In the Framework, the OEB discussed different aspects of confidentiality such as Strictly Confidential information. The classification of information as Strictly Confidential relates to:

---

[6] Exhibit 3, Tab 3, Appendix A, p.11, Figure 9.

- Auction Confidential information related to participation at auctions for emission allowances that is prohibited from disclosure by the Climate Change Act.[7]
- Market Sensitive information relating to transactions of emissions units on secondary or tertiary markets or offset credits and information relating to compliance instruments used by a Utility to meet its GHG obligations.[8]

Furthermore, the Framework acknowledges that trading and tipping of generally non-disclosed information is contrary to the Climate Change Act and this information is considered market sensitive.[9] The Climate Change Act prohibits disclosure of information that could have an impact on the price of an allowance:

- "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."[10]
- "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

---

[7] Section 32 (7) of the Climate Change Act prohibits disclosure of information related to participation at auctions: "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."
[8] Framework p. 10.
[9] Framework, p. 13.
[10] Climate Change Act, Section 29 (5).

> expected to have a significant effect on the price or value of an emission allowance or credit."[11]

Union believes that market opportunities would be obvious if certain information was made public and thus Union's ability to pursue those opportunities would be compromised, especially if considered in the context of other Strictly Confidential information. Union reaffirms its position on the appropriate confidential treatment of abatement and offset credits ("offsets") made during the 2017 Compliance Plan proceeding.[12] During the 2017 proceeding, Union stated that abatement should be classified as confidential information as per the OEB's Rules of Practice and Procedure and Practice Direction on Confidential Filings. Union also stated that it will consider on a case by case basis any abatement projects or volumes it can make public. Furthermore, Union stated that offset activities should be classified as Strictly Confidential, since offsets are a compliance instrument acquired in a competitive market.

Union continues to take steps internally to manage access to Compliance Plan development and execution strategies and plans (as further described in Exhibit 3, Tab 2), and has also redacted the following sections of evidence to protect the Strict Confidentiality of its 2018 Compliance Plan:

---

[11] Climate Change Act, Section 29 (6).
[12] EB-2016-0296, Exhibit B.Staff.7.

References		
Exhibit	Page Number	Justification
1	4	Market Sensitive
1 Schedule 1	2	Auction Confidential & Market Sensitive
1 Schedule 3	1	Market Sensitive
3 Tab 1	2, 6-7, 9	Auction Confidential & Market Sensitive
3 Tab 2	2, 10	Market Sensitive
3 Tab 3	1-2, 4-8, 13-22	Auction Confidential & Market Sensitive
3 Tab 3 Appendix A	2-11, 13, 18-27, 32	Auction Confidential & Market Sensitive
3 Tab 5	1-3	Auction Confidential & Market Sensitive
3 Tab 5 Schedule 1	1	Auction Confidential & Market Sensitive
3 Tab 6	4-6, 8-14, 25	Auction Confidential & Market Sensitive
3 Tab 6 Schedule 1	1-2	Auction Confidential & Market Sensitive
3 Tab 6 Schedule 2	1-2	Auction Confidential & Market Sensitive
3 Tab 6 Schedule 3	1-3	Auction Confidential & Market Sensitive
3 Tab 6 Schedule 4	1	Market Sensitive
4	1, 3-5	Auction Confidential & Market Sensitive
4 Schedule 1	1	Auction Confidential & Market Sensitive
4 Schedule 2	1	Auction Confidential & Market Sensitive

2018 CAP-AND-TRADE COMPLIANCE PLAN

Exhibit	Tab	Contents
1		Administrative Documents
2		Forecasts
3		Compliance Plan: Overview
3	1	Compliance Plan: Overview and Key Developments
	2	Compliance Plan: Governance and Resources
	3	Compliance Plan: Compliance Option Analysis and Optimization of Decision Making - Compliance Instruments
	4	Compliance Plan: Compliance Option Analysis and Optimization of Decision Making - Abatement
	5	Compliance Plan: Performance Metrics and Cost Information
	6	Compliance Plan: Risk Management
	7	Compliance Plan: Long-Term Investments
	8	Compliance Plan: New Business Activities
4		Monitoring and Reporting
5		Customer Outreach
6		Deferral and Variance Accounts
7	1	Cost Recovery: 2018 Cap-and-Trade Compliance Plan
7	2	Cost Recovery: 2016 Cap-and-Trade Deferral Accounts

Schedules

Exhibit	**Tab**	**Schedule**	**Description**
1		1	Table of Contents
1		2	Glossary of Terms
1		3	Glossary of Acronyms and Short Forms
2		1	Volume and Emission Forecast
2		2	Calculation of Annual Carbon Price Forecast
3	4	1	Achievable Potential by 2020
3	5	1	Forecasted Compliance Cost
3	5	2	Forecasted Cap-and-Trade GGEIDA Costs
3	6	1,2,3	Scenario Analysis
3	6	4	Calculation of Shared Purchase and Holding Limits
4		1	Actual vs. Forecast Compliance Portfolio
4		2	[redacted]
6		1	Cap-and-Trade Deferral Account Balances
7	1	1	Derivation of 2018 Cap-and-Trade Forecast Compliance Costs
7	1	2	General Service Bill Impact Comparison
7	1	3	Calculation of Sales Service and Direct Purchase Bill Impacts
7	1	4	Calculation of Supplemental Service Charges
7	1	5	Blackline Version of Rate Schedules
7	2	1	Allocation of 2016 Greenhouse Gas Emissions Account
7	2	2	Unit Rates for Disposition
7	2	3	General Service Bill Impacts

Appendices

Exhibit	Tab	Appendix	Description
3	2	A	Cap-and-Trade Compliance Instrument Procurement Procedures, Governance and Operating Controls
3	2	B	ClearBlue Markets Resumes
3	3	A	ClearBlue Compliance Instrument Purchasing Strategy
3	4	A	Customer Abatement Programs
3	4	B	Potential Facilities Abatement Projects
5		A	Results of Customer Telephone Surveys
7		A	Proposed Changes to Rates
7		B	Black-lined Rate Schedules
7		C	Summary of Interruptible Rate Changes
7		D	Customer Notices
7		E	Miscellaneous Non-Energy Charges

GLOSSARY OF TERMS

The glossary is intended to serve as a reference for the benefit of stakeholders in their overall understanding of the Cap-and-Trade terminology used in Union's evidence. It provides guidance to a broad audience; more detailed definitions may apply to specific terms when used by stakeholders in the context of this application.

ALLOWANCE – A limited tradable authorization to emit up to one metric tonne of carbon dioxide equivalent.

AUCTION RESERVE PRICE – The minimum price that may be paid for an allowance at auction. This term is also referred to, in this document, as "auction floor price" or "minimum auction reserve price".

CAP-AND-TRADE REGULATION – O. Reg. 144/16 (The Cap and Trade Program) made under the Climate Change Act.

CAPPED PARTICIPANT – As defined under the Cap-and-Trade Regulation, means a mandatory participant or a voluntary participant.

CLIMATE CHANGE ACTION PLAN – Ontario's five year plan to fight climate change, reduce greenhouse gas pollution and transition to a low-carbon economy.

CLIMATE CHANGE MITIGATION AND LOW-CARBON ECONOMY ACT, 2016 – The ("Climate Change Act") Ontario government legislation related to climate change, which enables the Cap-and-Trade Regulation.

CARBON DIOXIDE EQUIVALENT ("CO_2e") – Carbon dioxide equivalent is a standard metric used for the quantification of emissions from greenhouse gases.

COMPLIANCE INSTRUMENT – An emission allowance, offset credit, or early reduction credit authorized by the Ontario government for use in the Ontario Cap-and-Trade Program. Each compliance instrument currently can be used to fulfill a compliance obligation equivalent to one metric tonne of CO_2e.

COMPLIANCE INSTRUMENT TRACKING SYSTEM SERVICE – The web-based system (administered by Western Climate Initiative, Inc.) used to register participants and track compliance instruments from issuance to retirement.

COMPLIANCE OBLIGATION – The amount of compliance instruments to be surrendered by a capped participant at the end of a compliance period.

COMPLIANCE PERIOD – Each time period to which the compliance obligation applies. The first compliance period for Ontario's Cap-and-Trade Program is January 1, 2017, to December 31, 2020.

CUSTOMER-RELATED OBLIGATIONS – The Cap-and-Trade Compliance Obligation related to GHG emissions associated with the natural gas delivered by Union and used by customers who are not capped participants.

FACILITY-RELATED OBLIGATIONS – The Cap-and-Trade Compliance Obligation related to the GHG emissions associated with the natural gas used by Union to operate its facilities and deliver natural gas to customers.

GREEN INVESTMENT FUND – An Ontario government program which, among other things, offers assistance to consumers in the adoption of energy efficiency measures that are additional to current DSM programs.

GREENHOUSE GAS ("GHG") – Means carbon dioxide (CO2), methane (CH4), nitrous oxide (N20), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF6), and nitrogen trifluoride (NF_3).

LARGE FINAL EMITTER – A customer who is a mandatory participant in Ontario's Cap-and-Trade Program as per the Cap-and-Trade Regulation.

LONG-TERM CARBON PRICE FORECAST – An OEB-issued report which provides a long-term carbon price forecast for the 2018-2028 period.

MANDATORY PARTICIPANT – Mandatory participant in Ontario's Cap-and-Trade Program as per the Cap-and-Trade Regulation.

MARGINAL ABATEMENT COST CURVE – An OEB-issued tool that provides a basis for comparison of the relative cost-effectiveness of a range of GHG abatement activities.

MARKET PARTICIPANT – As defined under the Cap-and-Trade Regulation means a Cap-and-Trade Program participant who is not an owner, operator or employee of a mandatory or voluntary participant.

OEB CONFIDENTIAL – A designated level of confidentiality which allows certain confidential information to be made available to the OEB (and potentially the intervenors) to aid in their examination of a Utility's compliance plan, while still protecting the confidentiality of such information.

OFFSET CREDIT – A compliance instrument that represents a GHG reduction, avoidance or removal of one metric tonne of CO_2e achieved by a project of a type approved by the Ontario government and according to the applicable Ontario offset protocol.

OFFSET PROTOCOL – The conditions that must be met in order for a project to be eligible for registration under Ontario's offset credits program and for offset credits to be created and issued by the Minister in respect of the project.

ONTARIO CLIMATE CHANGE SOLUTIONS DEPLOYMENT CORPORATION – A corporation established to further the provincial deployment of clean technology for reducing greenhouse gas emissions (now referred to as the Green Ontario Fund or GreenON).

REPORTING REGULATION – O. Reg. 143/16 (Quantification, Reporting and Verification of Greenhouse Gas Emissions) made under the Climate Change Act.

THE GREENHOUSE GAS REDUCTION ACCOUNT ("GGRA") – The GGRA will hold all proceeds from the government auction or sale of emission allowances. Funds from the GGRA may only be used for purposes specified in the Climate Change Act.

VOLUNTARY PARTICIPANT – Voluntary, or opt-in, participant in Ontario's Cap-and-Trade Program as per the Cap-and-Trade Regulation.

WESTERN CLIMATE INITIATIVE – A collaboration of Canadian and U.S. jurisdictions (including Ontario, Québec, and California) to identify, evaluate, and implement emissions trading policies and program design to tackle climate change at a regional level.

Glossary of Acronyms and Short Forms

Acronym	Definition
AC	Abatement Construct
AEC	Advanced Energy Centre
AMR	Automatic Meter Reading or Smart Meters
ARB	California Air Resources Board
ASHP	Air Source Heat Pump
Backstop	ECCC paper on the Federal Carbon Pricing Backstop
Cap-and-Trade Regulations	The Climate Change Mitigation and Low-Carbon Economy Act; Ontario Regulation 144/16; and, The Ontario Cap-and-Trade Program
CBT	Computer-Based Training
CC	California Carbon
CCA	California Carbon Allowance
CCAP	Climate Change Action Plan
CCO	California Carbon Offset
CEPA	Canadian Energy Pipeline Association
CEPEI	Canadian Energy Partnership for Environmental Innovation
CETMA	California Emissions Trading Master Agreement
CGA	Canadian Gas Association
CH_4	Methane
CIPP	Compliance Instrument Procurement Procedures, Governance and Operating Controls
CITSS	Compliance Instrument Tracking System Service
ClearBlue	ClearBlue Markets
Climate Change Act	The Climate Change Mitigation and Low-Carbon Economy Act
CNG	Compressed Natural Gas
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
Communication Plan	Union's 2018 Cap-and-Trade Customer Outreach and Communications Plan
Compliance Plan	Union's 2018 Cap-and-Trade Compliance Plan
CPS	Conservation Potential Study
CRES	Corporate Real Estate Services
[redacted]	[redacted]
DCF	Discounted Cash Flow
DER	Design Effectiveness Review
Draft Offset Regulation	Ontario Offset Credits Regulation
Draft Proposal	MOECC draft Offsets Credits Regulatory Proposal
DSM	Demand Side Management
DSM Framework	EB-2014-0134, Report of the Board – Demand Side Management Framework for Natural Gas Distributors (2015-2020)
EAP	Energy Assistance Program

ECCC	Environment and Climate Change Canada
EGD	Enbridge Gas Distribution Inc.
EHS	Environmental, Health and Safety
ETMA	Emissons Trading Master Agreement
Framework	The OEB's Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap-and-Trade Activities (EB-2015-0363)
FTE	Full Time Employees
GGEIDA	Greenhouse Gas Emissions Impact Deferral Account
GHG	Greenhouse Gas
GIF	Green Investment Fund
GreenON	Green Ontario Fund Operated by Ontario Climate Change Solutions Deployment Corporation
GSHP	Ground-Source Heat Pump
Guideline	The Ontario MOECC Guideline for Quantification, Reporting and Verification of Greenhouse Gas Emissions, January 2017
ICE	Intercontinental Exchange Inc.
ICF	ICF International
IETA	International Emissions Trading Association
ISDA	International Swaps and Derivatives Association
LCI	Large Commercial and Industrials
LEAP	Low Income Energy Assistance Program
LED	Light-Emitting Diode
LEED	Leadership in Energy and Environmental Design
LFE	Large Final Emitter
LFG	MOECC Landfill Gas Protocol
LTCPF	Long-Term Carbon Price Forecast
LTEP	Long Term Energy Plan
MACC	Marginal Abatement Cost Curve
MOE	Ministry of Energy
MOECC	Ministry of the Environment and Climate Change
Mt	Megatonnes
N_2O	Nitrous Oxide
NAC	Normalized Average Consumption
NAESB	North American Energy Standards Board
NGIF	Natural Gas Innovation Fund
NZE	Net Zero Energy
NZER	Net Zero Energy Ready
OCA	Ontario Carbon Allowance
OEA	Ontario Energy Association
OEB	Ontario Energy Board
OEB Staff	Ontario Energy Board Staff
Offsets	Offset Credits
OMS	Operations Management Systems
OTC	Over-the-Counter
PGVA	Purchase Gas Variance Account
RNG	Renewable Natural Gas
SQM	Standard Quantification Method
TAG	Technical Advisory Group
tonne CO_2e	One Metric Tonne of Carbon Dioxide Equivalent
UFG	Unaccounted for Gas
Union	Union Gas Limited

Utilities	Union Gas Limited, Enbridge Gas Distribution Inc, and Natural Resource Gas Limited.
UWCNEO	United Way Centraide North East Ontario
UWSM	United Way Simcoe Muskoka
WACC	Weighted Average Cost of Compliance
WACOG	Weighted Average Cost of Gas
WCI	Western Climate Initiative

UNION GAS LIMITED 2018 CAP-AND-TRADE COMPLIANCE PLAN

FORECASTS

The purpose of this evidence is to provide the forecast data, methodology and assumptions that underpin consumption volumes and accompanying GHG emissions in Union's 2018 Compliance Plan. It also includes the annual carbon price forecast.

This exhibit of evidence is organized as follows:

1. Forecasting Period
2. 2018 Volume Forecast
   Customer Emissions
   2.1. General Service Market
   2.2. Contract Market
   Facility Emissions
   2.3. Unaccounted for Gas ("UFG")
   2.4. Compressor Fuel and Blowdowns
   2.5. Buildings and Line Heaters
3. 2018 GHG Emissions Forecast
   3.1. Customer-Related Emissions Forecast
   3.2. Facility-Related Emissions Forecast
4. Annual Carbon Price Forecast

1. FORECASTING PERIOD

As stated in Union's 2017 Compliance Plan,[1] Union elected to use Option 1 from the Framework's two forecasting period options for Compliance Plans during the first compliance period.[2] Option 1 includes a one-year forecast for 2017, a one-year forecast for 2018, and then a two-year forecast for 2019-2020. This filing represents Union's 2018 Compliance Plan, underpinned by the one-year forecast for 2018. Union plans to file its 2019-2020 Compliance Plan in 2018.

2. 2018 VOLUME FORECAST

Union's total 2018 customer-related and facility-related volume forecast is 7,957,882,556 m^3. The details of this forecast are included in Exhibit 2, Schedule 1. This is comparable to the 2017 customer-related and facility-related volume forecast of 8,310,348,868 m^3.

Consistent with the Framework, Union's 2018 volume forecast excludes customers that have been identified by the MOECC as capped participants (both mandatory and voluntary participants). To calculate its volume and emissions forecast, Union used the June 7, 2017 list of capped participants provided by the MOECC. Any changes to the MOECC's list of mandatory and voluntary participants that occur during 2018 will be addressed on an actual basis. Union continues to work with customers to validate the MOECC's list of mandatory and voluntary participants and to provide sufficient detail (such as account and meter numbers) to these customers in order to support accurate compliance obligation tracking and billing. As per the

[1] EB-2016-0296, Exhibit 2, p.1.
[2] Framework, Appendix A: Filing Guidelines, pg. iv.

Framework,[3] Union has also excluded the volume forecast for wholesale customers since these customers are not covered by Union's compliance obligation.[4]

The volume forecast consists of five components, covering both customer emissions and Union's facility emissions:

Customer Emissions:

1. General Service Market
2. Contract Market

Facility Emissions:

3. Unaccounted for Gas ("UFG")
4. Compressor Fuel and Blowdowns
5. Buildings and Line Heaters

The forecast described below employs methodologies which were approved by the OEB in Union's 2013 Cost of Service Proceeding (EB-2011-0210) and in the 2017 Cap-and-Trade Compliance Plan proceeding.[5] Union has included both utility and non-utility components of forecasted volumes to ensure that non-utility costs are allocated to those non-utility volumes, and removed from regulated rates. Reflected in Union's volume forecast are reductions to volumes

---

[3] Framework, pp. 17-18.
[4] Wholesale customer volumes of 359,543,250 m^3 include customers within T3, M9 and M10 rate classes that distribute natural gas.
[5] EB-2016-0296 Decision and Order, p. 19 (dated September 21, 2017)

related to DSM and the Government of Ontario's Green Investment Fund ("GIF") (see Exhibit 3, Tab 4).

CUSTOMER EMISSIONS

2.1 GENERAL SERVICE MARKET

Union's General Service volume forecast for 2018 is 5,420,551,919 m^3 net of the impact of DSM volumes, GIF volumes, and volumes of capped participants as shown at Exhibit 2, Schedule 1, line 7, column (a). This compares to 5,570,485,824 m^3 forecasted for 2017. The decline in 2018 volumes compared to the 2017 forecast is due to updated demand drivers which resulted in a lower use per customer estimation.

Union's General Service Market is comprised of Rate M1, Rate M2, Rate 01 and Rate 10. The General Service demand forecasting methodology is based on a multiple regression analyses. The methodology meets generally accepted practices regarding demand forecasting in terms of accuracy. The historic database underlying the multiple regression analyses contains monthly data from January 1991 to December 2016.

The General Service demand forecast combines four separate estimation steps:

1. *Forecast the total number of billed customers for each rate and service class* - The customer forecast is a combination of historical customer counts and forecasted attachments. There are four focal categories of attachments: new housing starts,

residential conversions, commercial customer additions, and small industrial customer additions.

2. *Forecast the normalized average consumption ("NAC") for each rate and service class* – The NAC forecast for residential customers incorporates several variables including: weather normal, energy efficiency, and price signals. The USD/CAD foreign exchange rate is incorporated into the non-residential NAC forecast.
3. *Combine the customer and NAC forecasts to obtain the total General Service throughput volumes*
4. *Remove the volumes for capped participants, future consumption savings of DSM programs, and abatement volumes from the total General Service throughput forecast* – The DSM volume impact corresponds to the 2016-2020 DSM plan approved by the OEB in EB-2015-0029 and amounts to 98,317,116 m^3. Additionally, the GIF volume impact amounts to 7,035,000 m^3.[6] Combined DSM and GIF volumes account for a reduction of approximately 2% of forecasted General Service volume consumption.

2.2 Contract Market

The 2018 volume forecast for Contract customers is 2,282,148,443 m^3, net of the impact of DSM, wholesale customer volumes and volumes for capped participants as shown at Exhibit 2, Schedule 1, line 7, column (b). This compares to 2,427,393,328 m^3 forecasted for 2017. The decrease in 2018 Contract Market volumes compared to 2017 is the result of declining demand,

[6] 2018 abatement volumes related to the Government of Ontario's GIF.

particularly from natural gas power generation customers due to lower consumption and non-renewal of contracts.

Union segments its Contract Market into several sectors. They include natural gas-fired power generation, steel, refinery and petrochemical, greenhouse, wholesale, and broad-based large commercial and industrials (“LCI”). The forecast for Contract customers is developed using two methodologies. For the small to mid-size Contract Market customers, represented by the LCI and greenhouse market sectors, Union uses an econometric analysis to forecast consumption requirements. This forecast is reviewed periodically so that known changes to customer and market conditions that are expected to impact consumption can be incorporated. Key demand drivers impacting the forecast for small to mid-size Contract Market customers include: number of customers, foreign exchange rate, seasonal load differences, and greenhouse acreage.

For the remainder of the Contract Market (i.e. steel, refinery and petrochemical, and power generation) Union applies a bottom-up forecast methodology. This involves a combination of historical consumption data, consultation with customers, and knowledge of specific customer production plans and expectations.

The DSM volume impact for Contract Market customers corresponds to the 2016-2020 DSM plan approved by the OEB in EB-2015-0029 and amounts to 224,817,254 m^3.

FACILITY EMISSIONS

The total facility-related volume forecast for 2018 is 255,182,195 m^3. This includes volumes for UFG, compressor fuel and blowdowns, and buildings and line heaters. This compares to 312,469,716 m^3 forecasted for 2017. The decrease in 2018 volumes compared to 2017 is due to a reduction in UFG and compressor fuel, resulting from reduced throughput as described above in the General Service and Contract Market.

2.3 UNACCOUNTED FOR GAS ("UFG")

The UFG volume forecast for 2018 is 79,179,929 m^3. It is based on the forecasted total throughput volumes for Union (combined in-franchise and ex-franchise forecasted market demand) multiplied by the OEB-approved UFG volume percentage of 0.219%. The UFG volume forecast for 2018 is lower than the 2017 forecast of 89,851,375 m^3. This decrease is attributable to a reduction in forecasted total throughput volumes for 2018 compared to 2017.

2.4 COMPRESSOR FUEL AND BLOWDOWNS

The compressor fuel and blowdown volume forecast includes transmission fuel, storage fuel, dehydration fuel, and operational blowdowns.

The total compressor fuel volume forecast for 2018 is 158,301,781 m^3, compared to the 2017 forecast of 205,196,989 m^3. The decrease is the result of a change in the forecast customer utilization percentage for 2018. This change results in a decrease in forecast customer activity and related fuel for 2018 compared to 2017.

The total blowdown volume forecast for 2018 is 4,809,232 m^3. The blowdown volume forecast for 2017 was 4,154,798 m^3.

The transmission and storage fuel components of the compressor and blowdown forecast is derived by combining forecasts for in-franchise and ex-franchise transmission and storage activity into an overall physical activity forecast. Union has allocated utility and non-utility costs in Exhibit 2, Schedule 1. Non-utility costs are excluded for rate-making purposes.

For dehydration fuel and operational blowdowns, average historical utilization is used to estimate the monthly forecasted usage.

2.5 Buildings and Line Heaters

The buildings and line heaters volume forecast for 2018 is 12,891,253 m^3, compared to the 2017 forecast of 13,266,555 m^3. The buildings and line heaters forecast is based on a three-year average for consumption by location. The decrease in volumes in 2018 compared to 2017 is due to warmer weather in the previous three year period. For new buildings with no historical information, forecast volumes are used.

3. 2018 GHG Emissions Forecast

Union's 2018 GHG emissions forecast is 14.93 megatonnes ("Mt") CO_2e comprising of 14.44 Mt for customer-related emissions and 0.49 Mt of facility-related emissions. Union's 2018 GHG emissions forecast is compared to its 2017 GHG emissions forecast in Table 1 below:

Table 1
Comparison of the 2018 and 2017 GHG Emissions Forecasts

	2018 Forecast	2017 Forecast
Customer-related	14.44 Mt	15.0 Mt
Facility-related	0.49 Mt	0.6 Mt
Total	14.93 Mt	15.60 Mt

The reduction in emissions is driven by the volume forecast reductions described in Exhibit 2, Section 2. The components of Union's emission forecast are summarized in Exhibit 2, Schedule 1 and described below.

3.1 Customer-Related Emissions Forecast

Union's 2018 customer-related emission forecast is 14.44 Mt CO_2e, compared to its 2017 customer-related emission forecast of 15.0 Mt CO_2e. For customer-related emissions forecast by rate class, and customer-related conversion factors, see Exhibit 2, Schedule 1, p.2. This forecast is calculated in accordance with standard quantification method ("SQM") ON.400 Natural Gas Distribution in the Ontario MOECC Guideline for Quantification, Reporting and Verification of Greenhouse Gas Emissions January 2017 (the "Guideline"):

- Carbon Dioxide ("CO_2") emissions were calculated as per Calculation Methodology 2 of ON.403 (a), using the default CO_2 emission value in Table 400-2.
- Methane ("CH_4") and Nitrous Oxide ("N_2O") emissions were calculated as specified in ON.404 (a) of the Guideline using the specified Residential, Construction, Commercial/Institutional, and Agriculture default CH_4 and N_2O emission factors from Table 20-4.

- The resulting conversion factor, calculated using the Global Warming Potentials as set out in Schedule 1 of O.Reg. 143/16, is 0.001875 tonnes CO_2e/m^3 natural gas.
- The total volume forecast of 7,702,700,362 m^3 multiplied by the conversion factor of 0.001875 tonnes CO_2e/m^3equals 14,439,690 tonnes CO_2e, or 14.44 Mt.

3.2 Facility-Related Emissions Forecast

The facility-related emission forecast is 0.49 Mt CO_2e, compared to the 2017 forecast of 0.6 Mt CO_2e. For facility-related emissions forecast by rate class, and facility-related conversion factors, see Exhibit 2, Schedule 1, p.3. Facility-related emissions are calculated using two separate methodologies, as facility-related sources fall under two separate GHG activities: Natural Gas Distribution (SQM ON.400) and General Stationary Combustion (SQM ON.20).

A summary of the facility-related volume forecast and the application of the two factors is provided in Table 2.

Table 1
Summary of Facility-Related Emissions Forecast

	m^3	Factor/m^3	CO_2e
General Stationary Combustion		0.001966	
Natural Gas Distribution Activity		0.001875	
UFG	79,179,929	0.001875	148,433
Blowdown	4,809,232	0.001875	9,016
Compressor Fuel Volume	158,301,781	0.001966	311,226
Buildings and Line Heaters	12,891,253	0.001966	25,345
Total	255,182,195		494,019

Facility-related emissions associated with UFG and blowdowns fall under the Natural Gas Distribution activity and as such, are calculated as described in the customer-related emissions forecast section above. Emissions associated with UFG include fugitive and vented emissions.

The remaining facility-related emission sources are classified as general stationary combustion sources and include boilers (buildings), line heaters, and compressors. Emissions from these general stationary combustion sources were calculated in accordance with SQM ON.20 of the Guideline, using the same methodology which Union uses for reporting to Ontario's GHG Reporting Program:

- CO_2 emissions were calculated in accordance with Section ON.23, Calculation Methodology 2 of the Guideline, using the Ontario default CO_2 emission factor from Table 20-3.
- CH_4 and N_2O emissions were calculated in accordance with Section ON.24, Calculation Methodology 6 of the Guideline, using the Pipelines default CH_4 and N_2O emission factors from Table 20-4, respectively. The Pipelines value was selected as it is the most applicable value for compressor units, which contribute the majority of stationary combustion emissions reported by Union under SQM ON.20.
- A higher heating value of 0.03895 GJ/m^3 was used in the SQM ON.20 calculations.
- The resulting conversion factor, calculated using the Global Warming Potentials as set out in Schedule 1 of O.Reg. 143/16, is 0.001966 tonnes CO_2e/m^3 natural gas.

4. ANNUAL CARBON PRICE FORECAST

The Framework requires that utilities provide a carbon price forecast annually. The forecast is intended to be used as an indicator of market prices to aid in the OEB's assessment of utilities'

Compliance Plans.[7] The Framework further states that the 2018 annual carbon price forecast should be calculated using the average 21-day strip of ICE daily settlement prices for a California Carbon Allowance ("CCA").[8] In its Decision and Order on Union's 2017 Compliance Plan, the OEB indicated that "as of January 1, 2018, all three Gas Utilities shall use the Ontario auction reserve price for the purpose of carbon price forecasting in the absence of linkage to the WCI."[9] On September 22, the MOECC formally announced Ontario's intent to link to the WCI effective January 1, 2018. Therefore, Union's annual carbon price forecast for its 2018 Compliance Plan is based on the methodology stipulated in the Framework (that is, the 21-day strip of ICE daily settlement prices for a CCA). As of September 30, 2017 the CCA 21-day strip calculation results in a price of $18.99/tonne (Canadian dollars). See Exhibit 2, Schedule 2 for the calculation of the 21-day CCA strip.

As noted above, the Framework specifies the annual carbon price forecast is to be used as an indication of market prices. The Framework specifies that rates will be set using "the Utility's annual weighted average costs of its proposed compliance options".[10] Union proposes that rates should be set using the annual carbon price forecast. As a result, Union has proposed a deviation from the Framework for rate setting purposes, as described at Exhibit 7.

---

[7] Framework, p. 18-19, p. 24.
[8] Framework, Appendix A: Filing Guidelines, pg. v.
[9] Decision and Order, EB-2016-0296/EB-2016-0300/EB-2016-0330, p. 21.
[10] Framework, p. 31.

Union Gas Limited
Volume and Emissions Forecast
for activity in the 12 month period ending December 31, 2018

Line	Description	a	b	c = a+b	d	e = c+d	f	g = e-f	
	Customer related forecast	**General Service Market**	**Contract Market**	**Annual Forecast - Utility (regulated)**	**Annual Forecast Amount - Non-Utility (unregulated)**	**2018 Forecast**	**2017 Forecast**	**Variance**	**Units**
1	Gross throughput	5,563,970,951	7,965,468,041	13,529,438,992	-	13,529,438,992	14,249,406,062	(719,967,069)	m^3
2	DSM volumes	98,317,116	224,817,254	323,134,370	-	323,134,370	321,405,890	1,728,480	m^3
3	GIF volumes	7,035,000	-	7,035,000	-	7,035,000	3,685,000	3,350,000	m^3
4	Net Throughput (line 1 - line 2 - line 3)	5,458,618,835	7,740,650,787	13,199,269,622	-	13,199,269,622	13,924,315,171	(725,045,549)	m^3
5	Throughput to wholesale customers		359,543,250	359,543,250	-	359,543,250	344,825,589	14,717,661	m^3
6	Throughput to capped participants	38,066,916	5,098,959,094	5,137,026,010	-	5,137,026,010	5,581,610,431	(444,584,420)	m^3
7	Net throughput to non-capped participants (line 4 - line 5 - line 6)	5,420,551,919	2,282,148,443	7,702,700,362	-	7,702,700,362	7,997,879,152	(295,178,790)	m^3
	Facility related forecast								
8	UFG volume			70,889,790	8,290,139	79,179,929	89,851,375	(10,671,446)	m^3
9	Blowdown volume			4,623,115	186,117	4,809,232	4,154,798	654,434	m^3
10	Compressor fuel volume			145,403,724	12,898,058	158,301,781	205,196,989	(46,895,208)	m^3
11	Buildings and line heater fuel volume			12,510,227	381,026	12,891,253	13,266,555	(375,302)	m^3
12	Net facility related forecast volumes (line 8 + line 9 + line 10 + line 11)			233,426,856	21,755,339	255,182,195	312,469,716	(57,287,522)	m^3
	Total Forecasted Volume								
13	Total customer related and facility related volumes (line 7 + line 12)			7,936,127,217	21,755,339	7,957,882,556	8,310,348,868	(352,466,312)	m^3
	Compliance Obligation								
14	Emission conversion factors								
15	ON.400					0.001875	0.001875		tonnes CO_2e/m^3
16	ON.20					0.001966	0.001959		tonnes CO_2e/m^3
17	Obligations								
18	ON.400 [(line 7 + line 8 + line 9) x line 15]			14,581,248.60	15,889.82	14,597,138	15,169,267	(572,128)	tonnes CO_2e
19	ON.20 [(line 10 + line 11) x line 16]			310,464	26,107	336,571	427,962	(91,391)	tonnes CO_2e
20	Total forecasted emissions (line 18 + line 19)			14,891,712	41,997	14,933,709	15,597,229	(663,520)	tonnes CO_2e
21	Customer related emissions (line 7 x line 15)			14,439,690	-	14,439,690	14,993,040	(553,350)	tonnes CO_2e
22	Facility related emissions [(line 8 + line 9) x line 15] + [(line 10 + line 11) x line 16]			452,022	41,997	494,019	604,189	(110,170)	tonnes CO_2e
23	Total forecasted emissions (line 21 +line 22)			14,891,712	41,997	14,933,709	15,597,229	(663,520)	tonnes CO_2e
24	Compliance obligation covered by compliance instruments (line 23)			14,891,712	41,997	14,933,709	15,597,229	(663,520)	tonnes CO_2e
25	Compliance obligation covered by customer abatement (line 3 x line 15)			13,188	-	13,188	6,908	6,280	tonnes CO_2e
26	Total forecasted compliance (line 24 + line 25)			14,904,900	41,997	14,946,897	15,604,137	(657,240)	tonnes CO_2e

Customer-Related Emissions by Rate Class

Line	Rate	Net Volumes m^3	CO_2 Emissions(1) Tonnes CO_2	CH_4 Emissions(2) Tonnes CH_4	N_2O Emissions(3) Tonnes N_2O	Net CO_2e Emissions(4) Tonnes CO_2e
1	Rate 01	957,238,424	1,783,335	35	34	1,794,465
2	Rate 10	358,565,538	668,008	13	13	672,177
3	Rate 100	271,275,373	505,386	10	9	508,540
4	Rate 20	377,952,153	704,125	14	13	708,519
5	Rate 25	18,917,310	35,243	1	1	35,463
6	Rate M1	2,940,150,886	5,477,501	109	103	5,511,686
7	Rate M10	-	-	-	-	-
8	Rate M2	1,164,597,071	2,169,644	43	41	2,183,185
9	Rate M4	541,361,987	1,008,557	20	19	1,014,852
10	Rate M5	67,732,620	126,186	3	2	126,973
11	Rate M7	38,566,000	71,848	1	1	72,297
12	Rate M9	-	-	-	-	-
13	Rate T1	31,819,000	59,279	1	1	59,649
14	Rate T2	934,524,000	1,741,018	35	33	1,751,884
15	Rate T3	-	-	-	-	-
16	Total	7,702,700,362	14,350,131	285	270	14,439,690

Notes:

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

Customer-Related Conversion Factors

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

Notes:

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

(2) CH_4 and N_2O Emission Factors are the 'Residential, Construction, Commercial/Institutional, Agriculture' emission factors from Table 20-4 of the Ontario Ministry of the Environment and Climate Change's "Guideline for Quantification, Reporting and Verification for GHG Emissions - January 2017"

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

Facility-Related Emissions

Line	Description	Net Volumes m^3	CO_2 Emissions[1,2] Tonnes CO_2	CH_4 Emissions[1,2] Tonnes CH_4	N_2O Emissions[1,2] Tonnes N_2O	Net CO_2e Emissions[3] Tonnes CO_2e
1	Unaccounted for Gas (UFG)	79,179,929	147,512	3	3	148,433
2	Blowdowns	4,809,232	8,960	0	0	9,016
3	Compressor Fuel	158,301,781	302,312	306	8	311,226
4	Own Use Gas Buildings & Line Heaters	12,891,253	24,619	25	1	25,345
5	Total Facility	255,182,195	483,402	334	12	494,019

Notes:

(1) The UFG and blowdown emissions = Net Volumes x Emission Factor (from 'Facility-Related Conversion Factors' table)

(2) Compressor fuel, building and line heater emissions = Net Volumes x Emission Factor x High Heat Value (from 'Facility-Related Conversion Factors' table)

(3) CO_2 Emissions + (CH_4 Emissions x GWP_{CH4}) + (N_2O Emissions x GWP_{N2O})

Facility-Related Conversion Factors

Line	Description	Units	CO_2 Emission Factor[1,2]	CH_4 Emission Factor[3,4]	N_2O Emission Factor[3,4]
1	UFG and Blowdown Emission Factors	Tonne/m^3	0.001863	0.000000037	0.000000035
2	Compressor, Building & Line Heater Emis	Tonne/GJ	0.04903	0.00004958	0.000001305
3	High Heat Value	GJ/m^3	0.03895	0.03895	0.03895
Line				CH_4[5]	N_2O[5]
4	Global Warming Potential for Carbon Dioxide Equivalent			21	310

Notes:

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

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

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

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

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

Union Gas Limited
Calculation of Annual Carbon Price Forecast - CCA
for the 12 Month Period Ended December 31, 2018

Line No.	Particulars	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Average
1	Vintage 2018 CCA 21 Day Average (US/tonne) [1]	15.28	15.32	15.35	15.38	15.41	15.44	15.47	15.51	15.54	15.57	15.60	15.63	15.46
2	Foreign Exchange	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23
3	Vintage 2018 CCA 21 Day Average (CAD/tonne)[2]	18.77	18.82	18.86	18.90	18.94	18.98	19.02	19.07	19.11	19.15	19.19	19.22	18.99

Notes:
(1) 21-Day Strip dates used: September 1 - September 29, 2017.
(2) line 3 = line 1 x line 2
Sources: CCA prices are ICE Settlement Data acquired through CaliforniaCarbon.info. Foreign Exchange rates are Bloomberg settlement data

UNION GAS LIMITED 2018 CAP-AND-TRADE COMPLIANCE PLAN

The purpose of this Exhibit is to provide the details of Union's 2018 Compliance Plan, according to the filing requirements identified in the Framework (Appendix A). Given the breadth of topics to be discussed within this section of the Compliance Plan, this Exhibit has been divided into the following tabs:

Tab 1: Overview and Key Developments

1. Overview of the 2018 Compliance Plan
2. Overview of the Western Climate Initiative and Carbon Market
3. OEB Long-Term Carbon Price Forecast and Marginal Abatement Cost Curve

Tab 2: Governance and Resources

1. Governance, Policies, and Practices
2. Cap-and-Trade Resources and Capabilities

Tab 3: Compliance Option Analysis and Optimization of Decision Making – Compliance Instruments

1. Compliance Option Analysis and Optimization of Decision Making: Compliance Instruments
2. Compliance Instrument Purchase Strategy

Tab 4: Compliance Option Analysis and Optimization of Decision Making – Abatement

1. Background
2. The Abatement Construct

3. Customer Abatement Programs
4. Facilities Abatement Programs
5. Provincial Abatement Opportunities

Tab 5: Performance Metrics and Cost Information

1. Forecasted Compliance Cost
2. Timing of Compliance Instrument Procurement
3. Timing of Abatement Activities
4. Greenhouse Gas Emissions Impact Deferral Account (GGEIDA) Cost Forecast

Tab 6: Risk Management

1. Risk Identification and Mitigation
2. Financial Hedging Activities

Tab 7: Long-Term Investments

Tab 8: New Business Activities

UNION GAS LIMITED 2018 CAP-AND-TRADE COMPLIANCE PLAN

OVERVIEW AND KEY DEVELOPMENTS

The purpose of this evidence is to provide an overview of Union's 2018 Compliance Plan and to review the impact to Union's 2018 Compliance Plan resulting from three key developments in Ontario's Cap-and-Trade landscape that occurred during 2017. These developments are the OEB's Decision and Order on Union's 2017 Compliance Plan, the recent announcement that Ontario intends to link with the WCI effective January 1, 2018, and the release of the OEB LTCPF and MACC. The impacts of Ontario linkage with WCI and the OEB LTCPF and MACC are described in more detail below.

This evidence is organized as follows:

1. Overview of the 2018 Compliance Plan
2. Overview of the Western Climate Initiative and Carbon Market
    - 2.1. Ontario Linkage with the Western Climate Initiative
    - 2.2. The WCI Carbon Market
3. OEB Long-Term Carbon Price Forecast and Marginal Abatement Cost Curve
    - 3.1. Long-Term Carbon Price Forecast
    - 3.2. Marginal Abatement Cost Curve
    - 3.3. Application to Union's 2018 Compliance Plan

1. OVERVIEW OF THE 2018 COMPLIANCE PLAN

Union's 2018 Compliance Plan adheres to the Framework and is focused on achieving compliance with Cap-and-Trade regulations at a reasonable and prudently incurred cost for ratepayers while adhering to the Framework. Union's 2018 Compliance Plan reflects the September 22, 2017 announcement of the Ontario government's intent to link Ontario's Cap-and-Trade program with the WCI, effective January 1, 2018. While certain implementation steps remain outstanding to finalize linkage of Ontario with the WCI (as described in Section 2.1), Union's 2018 Compliance Plan reflects the assumption that linkage will proceed as announced.

Union's 2018 Compliance Plan for customer and facility-related obligations is largely based on purchasing compliance instruments; [redacted]

Union recognizes the importance of abatement in contributing to provincial GHG emission reduction targets, and that in the Framework Utilities are expected to contemplate abatement in their long-term plans. In completing the 2018 Compliance Plan Union has expanded its consideration about customer and facility abatement measures. Union has evaluated incremental energy efficiency opportunities, facilities abatement initiatives, as well as new technologies. Generally, these opportunities cannot be advanced, because they are not cost-effective at this time. Given that cost recovery within the existing regulatory mechanisms (whether that be DSM, gas supply procurement, or carbon procurement) is largely predicated upon prudency and cost-effectiveness, this represents a barrier to advancing these measures.

In order to address this barrier, and recognizing that abatement is a long-term endeavor, Union has developed a three-pronged approach. The first is the joint development (with EGD) of an AC which guides the practical evaluation and incorporation of abatement opportunities into utility compliance plans. The second is to establish a Low Carbon Initiative Fund to identify, explore, and develop abatement ideas to the point of commercialization. The third is to utilize government funding (i.e. CCAP, GreenON, and federal programs) to advance programs that otherwise would not proceed within existing regulatory mechanisms. The advancement of new technologies to facilitate the transition to the low-carbon economy and continue to offer affordable energy choices to customers is supported by the province, most notably through the CCAP and the recent LTEP.

Applying the AC to Union's 2018 Compliance Plan, Union has included measures that may proceed in 2018 (and beyond) with adequate government support and funding. Specifically, Union is actively pursuing RNG for 2018, and has been jointly working with EGD, the Ministry of Energy ("MOE") and the MOECC to advance this initiative. Since this program will require provincial government support and funding to proceed, Union has not reflected any resulting emission reductions in its 2018 forecast. Union has identified a number of other abatement initiatives actively being pursued that may have an impact on future Compliance Plans. These measures are described in more detail in Exhibit 3, Tab 4.

Union has used the MACC to assess potential incremental cost-effective DSM and energy efficiency programs. Through analysis using this report and the underlying CPS (Exhibit 3, Tab

4, Appendix A) Union has determined that there is no cost-effective incremental energy efficiency program that would be prudent to pursue at this time within the existing DSM Framework. There were a few incremental cost-effective measures that could be pursued for residential customers if the existing DSM Budget and DSM Framework were revised.[1] Budget changes to the 2015 – 2020 DSM Plan could occur as a result of the DSM Mid-Term Review process, which is expected to be finalized December 1, 2018.[2] This would not have any impact on Union's 2018 Compliance Plan; however, it could impact future Compliance Plans.

In terms of existing customer abatement measures, Union continues to reflect the OEB-approved DSM impacts as a reduction to its emission forecast, as noted in Exhibit 2. As noted in Union's 2017 Compliance Plan, Union has included an additional customer abatement program, the Government of Ontario's GIF.[3] 2018 GIF volumes have been reflected in Union's volume and emissions forecast, (see Exhibit 2, Schedule 1) and are incremental to the DSM volumes.[4]

As part of the development of the 2018 Compliance Plan, Union has completed a study of facilities abatement alternatives. The results of the study are included in Exhibit 3, Tab 4. Beginning in 2017, and continuing into 2018, Union implemented a number of procedural changes, training, and process integration measures which may support future abatement efforts.

[1] EB-2015-0029/EB-2015-0049 Decision and Order, Schedule A.
[2] EB-2017-0127/EB-2017-0128, DSM Mid-Term Review Letter, p. 1.
[3] The Green Investment Fund is a government program that was announced in February, 2016. Union will receive funding of $42 million to enhance the Home Reno Rebate offering and achieve additional GHG emissions reductions through 2018.
[4] Union forecasted a reduction of 7,035,000 annual m^3 related to the Green Investment Fund in 2018 as shown in Exhibit 2, Schedule 1. Subsequent to the finalization of the forecast, Union updated the value to 8,820,000 m^3 annually. This change is not reflected in the current 2018 Compliance Plan due to materiality.

In addition, Union plans to further study a number of the initiatives, such as portable blowdown recovery units and fugitive emission management measures. Union is also investigating whether program funding at either the provincial or federal level can apply to portable blowdown recovery units in order to advance adoption of this technology.

Union's 2018 Compliance Plan adheres to the following OEB guiding principles as outlined in the Framework. These principles are applied in conjunction with Union's legal requirement to achieve overall compliance.

- **Cost-effectiveness**: Union views a cost-effective Compliance Plan as one that achieves a reasonable cost of compliance for ratepayers compared to the carbon market price for compliance options and abatement alternatives available to Ontario entities. Union believes it is important to balance cost-effectiveness with achieving compliance with Cap-and-Trade regulations. Union's commitment to achieve compliance in a cost-effective manner for ratepayers is demonstrated in both its approach to procurement and abatement. Union applies general criteria for evaluating compliance instruments, one of which is directly linked to cost-effectiveness, as outlined in Exhibit 3, Tab 3, p. 2.

  From an abatement perspective, Union has considered cost-effectiveness in the application of the LTCPF, MACC, and economic evaluations when determining which measures are appropriate to fund within existing regulatory mechanisms. Union is also proactively addressing cost-effectiveness by working collaboratively with government to pursue funding that will allow customer abatement initiatives (such as RNG) to proceed.

- **Rate Predictability**: [redacted]

  From an abatement perspective, Union is also managing ratepayer impacts and predictability by pursuing government funding for abatement initiatives that are otherwise not cost-effective.

- **Cost Recovery**: Union's 2018 Compliance Plan demonstrates reasonable and prudent procurement and compliance practices. These practices are designed to balance ratepayer costs against risks. Through the AC, Union is exploring alternative funding models to recover the cost of abatement projects which, within existing regulatory frameworks, would otherwise not proceed.

- **Transparency**: Union's 2018 Compliance Plan filing adheres to the filing guidelines included in the Framework and outlines the expected costs for 2018. The Compliance Plan follows the confidentiality guidelines laid out in the Framework and Cap-and-

Trade regulations and balances transparency with the need to maintain market integrity and regulatory compliance.

While operating within these guidelines, Union has provided stakeholders and the public greater transparency in its 2018 Compliance Plan (compared to Union's 2017 Compliance Plan) by providing the results of its facilities abatement plan and detailed analysis of its application of the MACC with respect to customer abatement. Union has also provided insight on the new technologies it is pursuing at each stage of development from conception through to proposals as described at Exhibit 3, Tab 4.

- **Flexibility**: Union has demonstrated flexibility with respect to compliance instruments as well as abatement initiatives. Specifically,

[redacted]

3. Union employs a monthly re-forecasting process that enables its compliance instrument procurement plan to adapt to changing consumption patterns (including those resulting from abatement activities) and trends.
4. Union has demonstrated flexibility by expanding the scope of potential abatement measures beyond what would be considered cost-effective within existing

regulatory mechanisms. It has identified customer abatement programs (such as RNG and GSHP) which are ready for commercialization and that may be pursued as early as 2018 given funding and/or policy support from the MOE and the MOECC. Should these programs be initiated, Union would adapt its Compliance Instrument Procurement Plan accordingly through the monthly re-forecasting process.

- **Continuous Improvement**: Union's 2018 Compliance Plan demonstrates evolution and continuous improvement in a number of areas:
    1. Union received the OEB's Decision and Order on its 2017 Compliance Plan on September 21, 2017 and has applied the OEB's findings in the 2018 Compliance Plan;
    2. Union's 2018 Compliance Plan reflects the September 22, 2017 announcement that Ontario intends to link with the WCI market, effective January 1, 2018;
    3. Union has continued to monitor and incorporate, where appropriate, applicable learnings and observations from developments in the Ontario, California and Québec carbon markets;
    4. Union has expanded its pursuit of customer abatement measures by investigating new technological innovations, proposing the establishment of the Low Carbon Initiative Fund, and advancing abatement opportunities to government;

5. Union and EGD have developed the AC to support development of new technologies over the long-term, including the pursuit of abatement initiatives that may not be cost-effective and that will require alternative funding models (i.e. CCAP, GreenON, and federal funding) to proceed;
6. Union has applied the LTCPF and MACC in its analyses of existing energy efficiency programs and incremental customer and facility abatement opportunities;
7. Union has completed a study of its facilities abatement opportunities and has begun to implement short-term process and procedural changes that support GHG abatement. It has also identified projects for further study and possible government funding;

[redacted]

10. Union has continued to evolve its governance and support structures, as described in Exhibit 3, Tab 2; and,
11. Union has reflected customer feedback and response into its communications plan.

2. OVERVIEW OF THE WESTERN CLIMATE INITIATIVE AND CARBON MARKET

On September 22, 2017, the Ontario government announced its intent to link Ontario's Cap-and-Trade program with the WCI, effective January 1, 2018. This announcement was accompanied by a linkage agreement between Québec, California and Ontario.[5] In addition, the California Air Resources Board issued a Linkage Readiness Report on November 1, 2017, along with a recommendation letter to Governor Brown, concluding that California, Québec, and Ontario are prepared to link their programs effective January 1, 2018.[6]

Québec and California launched their respective Cap-and-Trade programs on January 1, 2013 and were linked on January 1, 2014. Both jurisdictions started their programs by focusing only on large electric and industrial emissions. The scope of their programs was broadened in 2015 to include emissions from transportation fuels and natural gas distribution.

The announcement of WCI linkage means that Ontario's carbon market will be integrated into the pre-established Québec-California carbon market, effective January 1, 2018. The third compliance period in the WCI market will begin on January 1, 2018 and extend to December 31, 2020.

[5] As announced by Ontario Government on September 22, 2017 https://news.ontario.ca/opo/en/2017/09/quebec-ontario-and-california-join-forces-to-fight-climate-change.html
[6] State of California Air Resources Board, Linkage Readiness Report, November 1, 2017, pp. 19-20. https://www.arb.ca.gov/cc/capandtrade/linkage/arb.linkage.readiness report.ontario.pdf

2.1. Ontario Linkage with the Western Climate Initiative

In addition to the recent announcement of WCI linkage by the Ontario government, and the completion of the Linkage Readiness Report on November 1, 2017, certain additional steps are required before linkage is complete. These steps include:

- Finalization of Ontario's amendments to the Cap-and-Trade regulations to facilitate linkage;[7]
- Finalization of any changes required to California's and Québec's respective programs to facilitate linkage;
- Testing and evaluation of each jurisdiction's auction platforms and trading systems to ensure full compatibility.

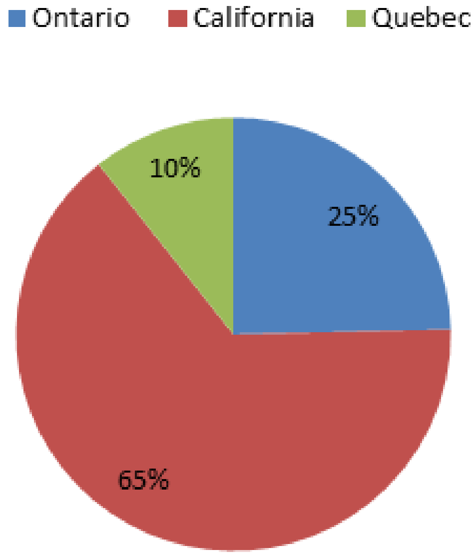
Union expects the steps identified above to be finalized to effect linkage on January 1, 2018.

2.2. The WCI Carbon Market

Once Ontario joins the WCI carbon market, the total cap for 2018 will be 554 Mt CO_2e of allowances allocated between California, Québec and Ontario. As shown in Figure 1 below, Union expects that California will be the largest participant in the WCI joint market, representing over 65% of the overall cap. Ontario will represent 25% of the total cap.

[7] On September 22, 2017, the MOECC released proposed amendments to the Cap-and-Trade program, which included proposed amendments to facilitate linkage. http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2017/013-1457_Amendment.pdf

Figure 1
WCI Market Cap – January 2018



Within the Ontario market, Union has the second largest compliance obligation and Union's compliance obligation currently represents approximately 11% of the total Ontario cap. In a joint WCI market, Union will continue to be one of the largest participants, with a compliance obligation that represents approximately 3% of the total WCI market.

The California Cap-and-Trade program recently addressed some challenges it faced in the past two years. These challenges included a legal case in which the plaintiffs[8] argued that the program constituted an illegal tax. This case contributed to undersubscribed auctions, particularly in 2016. In April 2017, a California court issued a decision in support of the Cap-and-Trade program. This decision is now final as the highest court of appeal in California

[8] California Chamber of Commerce, et al., California Air Resources Board, et al.

confirmed the ruling by dismissing any further appeals to the decision. The end of this legal challenge has resulted in more stability in the California carbon market.

Another important challenge has been the State of California's efforts to extend the Cap-and-Trade program beyond 2020 as the current program is set to expire on December 31, 2020. After multiple proposals and extensive negotiations, on July 17, 2017, the California legislature passed a new Cap-and-Trade Assembly Bill (AB 398) with a two-thirds majority support to extend the program to 2030. The new bill includes amendments to key elements of California's Cap-and-Trade program. Key aspects of the new bill include:

- Extending the program to 2030 making allowances bankable post-2020;
- Establishing a hard price ceiling along with two lower allowance price containment levels, which are intended to act as speed bumps on escalating price pressure;
- Restricting offset use to 4% between 2021 and 2025 and 6% from 2026 to 2030 (compared to the current 8%) while requiring at least 50% of credits to be sourced in-state from local projects; and,
- Making allowances available above the maximum price containment level. These allowances would be non-tradable and only issued to entities for the purpose of meeting their compliance obligations.

A number of important details remain outstanding with respect to these amendments. Union continues to monitor regulatory developments in California and Québec to identify potential impacts to the WCI carbon market and the Ontario program. Union will also be engaged in the

MOECC's consultation process on the post-2020 Ontario program design, which was launched earlier in 2017.

3. OEB LONG-TERM CARBON PRICE FORECAST AND MARGINAL ABATEMENT COST CURVE

When considering abatement projects and investments, a key benchmark identified by the Framework for consideration is the cost to ratepayers and the comparison of that cost to compliance instruments. The OEB has provided a 10 year LTCPF to enable comparison of the cost of carbon to the cost of longer-term investment projects. This forecast is to be updated and released annually in May. In addition, the OEB identified that it would complete a MACC, which would identify the incremental potential and cost of available abatement measures relative to the cost of carbon for customer and facility-related obligations. The OEB's intent is to complete a MACC curve at the beginning of each compliance period.

The OEB engaged ICF as a consultant to lead the development of the LTCPF and the MACC. In February 2017, the OEB assembled a Technical Advisory Group ("TAG") to provide input and review draft analysis provided by ICF throughout the development of both the LTCPF and the MACC. This group was led by Ontario Energy Board Staff ("OEB Staff") and included representatives from Union and EGD, industry experts and consultants, and stakeholders. The group met on two occasions between February and June. [9]

[9] The TAG consisted of: Energy Futures Group, EnviroEconomics, Navius Research, Union, EGD, Independent Electricity System Operator, Environmental Commissioner of Ontario, Canada's Ecofiscal Commission, Ministry of Energy, and Ministry of Environment & Climate Change.

Union has used the LTCPF to evaluate cost-effectiveness of existing energy conservation/DSM programs relative to the cost of compliance instruments. In addition, Union utilized the MACC report to determine if there is any incremental cost-effective abatement above and beyond the targets identified in the 2015-2020 DSM Plan.

3.1. Long-Term Carbon Price Forecast

As stated in the Framework, the purpose of the long-term forecast is to "…effectively assess the reasonableness of [longer-term] investments…[and] The OEB will use this forecast to evaluate the cost-effectiveness of multi-year abatement programs and any longer-term investments that Utilities propose as part of a Compliance Plan".[10] The OEB also notes that the LTCPF is one tool for evaluating the reasonableness of investments, but not the only consideration: for example, strategic value of investments and risk should also be considered.

On May 31, 2017, the OEB released the first 10-year LTCPF as completed by ICF for 2018-2028. The 2018 LTCPF Report acknowledges that significant uncertainties exist that can impact the price of carbon.[11] In particular, the report identifies these uncertainties as: WCI linking (which, at the time of the Report, had not yet been announced); GHG emission limits as set by government; market price as influenced by supply and demand; program design; availability of allowances; and, abatement opportunities available. As a result of these uncertainties and the significant impact that they could have on the carbon price, the 2018 LTCPF Report does not

---

[10] OEB Framework, p.23 and Appendix A, p.vii.
[11] OEB LTCPF, p. 14, Section 3.

provide one definitive forecast. The 2018 LTCPF Report provides a price range by identifying three carbon price forecast scenarios from 2018-2028, as follows:[12]

1. The **minimum carbon price forecast** assumes Ontario links with the WCI in 2018 and is equivalent to the floor price as defined in Ontario's Cap-and-Trade regulations.
2. The **mid-range carbon price forecast** (developed based on ICF's modeling and analysis of WCI and Ontario's Cap-and-Trade program) assumes Ontario links with the WCI in 2018 and follows the floor price until 2024, at which point the joint WCI market is forecast to move from a long market (more than enough allowances available to cover capped participants' cumulative emissions obligations) to a short market (not enough allowances available to cover capped participants' cumulative emissions obligations).
3. The **maximum carbon price forecast** assumes Ontario does not link with the WCI in 2018. The price forecast is equivalent to the top tier Cost Containment Reserve price as defined in Ontario's Cap-and-Trade regulations.

[12] OEB LTCPF, p. 3.

The resulting forecast range is expressed in Figures 1 and 2 below:[13]

Figure 1

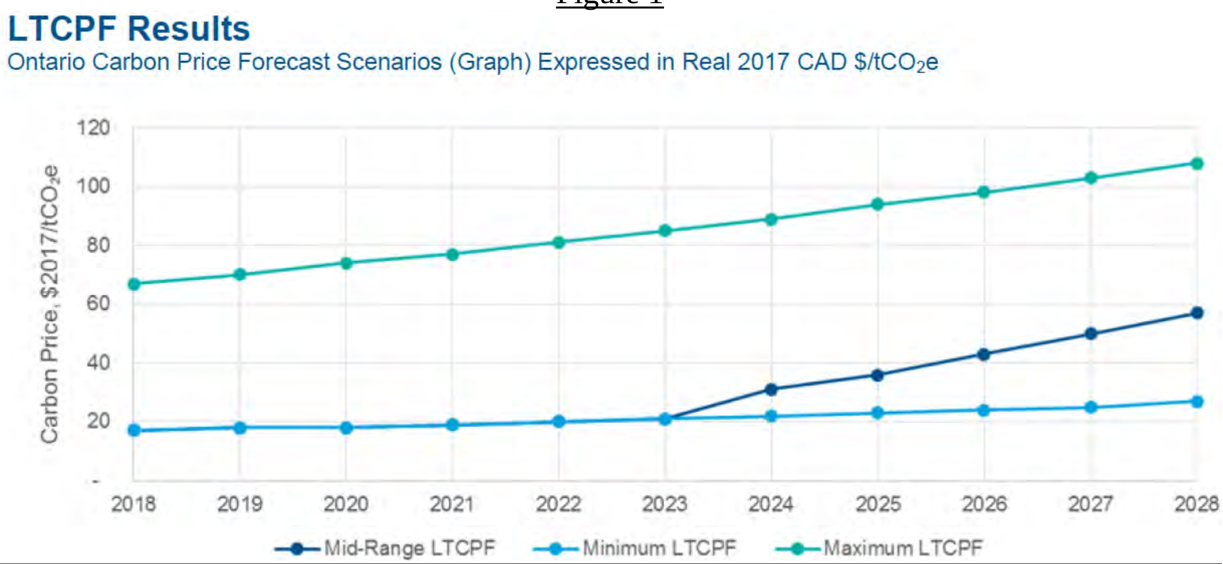


Figure 2

Ontario Carbon Price Forecast Scenario Results Expressed in Real 2017 CAD $/tCO$_2$e

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Mid-Range LTCPF	17	18	18	19	20	21	31	36	43	50	57
Minimum LTCPF	17	18	18	19	20	21	22	23	24	25	27
Maximum LTCPF	67	70	74	77	81	85	89	94	98	103	108

As concluded in the ICF report: [14]

> "…the results are sensitive to a multitude of sources of uncertainty. A significant number of factors could affect the LTCPF for Ontario from an Ontario-alone unlinked market, to any number of changes to post-2020 Cap and Trade program rules (e.g. approval of California amendment removing unsold allowances would drive up demand and carbon price, but loosening of the restriction on use of offsets for compliance to greater than 8%

[13] OEB LTCPF, p. 4.
[14] OEB LTCPF, p. 23, Section 4.

would have the opposite effect on allowance prices, by reducing demand and the associated price), to poor success of complementary measures (delivering less reductions than expected thus driving demand for reductions up as well as the corresponding carbon price). The relatively broad deviation between the minimum and maximum scenarios (a factor of > 3) reflects the sensitivity of the carbon price to assumptions around these sources of uncertainty."

Although Ontario has announced on September 22, 2017 that linkage with WCI will occur effective January 1, 2018, Union included the maximum LTCPF in the analysis of possible abatement opportunities. The analysis of all price scenarios in the LTCPF was completed prior to the WCI linkage announcement. Union has considered the maximum LTCPF in its evidence as it illustrates the possible impacts of a maximum carbon price in the event that WCI linkage is not implemented as expected.

3.2. Marginal Abatement Cost Curve

A MACC is a tool used to illustrate the potential for incremental abatement opportunities and the marginal cost of these opportunities relative to the cost of carbon. In the Framework, "…the OEB has determined that it will develop a province-wide, generic MACC for the Utilities to use as an input to the development of their Compliance Plans and as a key input to the OEB's assessment of the cost consequences of the Plans".[15]

[15] Framework, p.20.

The final MACC curve completed by ICF was published by the OEB on July 20, 2017. The study results are for the 2018-2020 period, and incorporate the OEB issued 10-year LTCPF. In this study, the MACC presents "…the cost of natural gas GHG abatement (i.e. energy efficiency) options in dollars per tonne of CO_2e of GHG abatement (also represented as dollars per cubic metre of natural gas savings) relative to a baseline."[16] The study included the following components:

1. **Energy efficiency measures for residential, commercial and industrial markets.** This work drew heavily upon the 2016 CPS that was completed for the OEB by ICF in July 2016.
2. **RNG.** This portion of the study was a "…desk-based literature review of publically available documents", which focused on three studies completed in 2011 and 2013. [17]
3. **Facilities abatement measures.** The study addresses facilities abatement, but does not include any specific measures or cost data since facilities emissions are unique for each utility. Union completed its own internal study related to facilities abatement, as detailed in Exhibit 3, Tab 4.
4. **Air source heat-pumps.** This study was an addendum to the main study. ICF noted that this data is not comparable to the main study and to include it in the same MACC would skew the results for energy efficiency measures.

[16] OEB MACC, p. 17.
[17] OEB MACC, p.8.

Union acknowledges the scope of the LTCPF and the MACC was significant and the timeline for the OEB to complete this work was aggressive. In addressing this challenge the OEB successfully engaged ICF who brought their considerable expertise to bear. This allowed the OEB and ICF to leverage the extensive work that had previously been completed for the MACC including the CPS which is a public study reviewed by a Technical Working Group.

The TAG and ICF identified a number of limitations and caveats with respect to the data utilized and the findings of the MACC study. ICF summarized these limitations in the final MACC report. Understanding these limitations is critical as they directly impact the application of the results of the study to the Utilities' Compliance Plans, as described below:

1. *Energy Efficiency Measures are inclusive of existing DSM programs*

As noted above, the MACC study was effective in leveraging the extensive and detailed CPS which allowed the MACC study to be completed within an accelerated timeline. However, the limitation of using the CPS is that it includes existing measures from OEB-approved DSM programs. Therefore, some of the potential energy efficiencies identified in the MACC are not incremental to energy efficiency measures that are already offered by Union and EGD. In addition, the cost reflected in the MACC for measure categories is also inclusive of existing cost-effective measures in DSM programs. Union asserts that it would be faulty to assume that future projects will cost the same as existing ones. As a result, and as acknowledged in the MACC study, the MACC curve represents the average cost for energy efficiency measures (existing and incremental), rather than the marginal cost for the next incremental unit of abatement.[18]

2. Energy Efficiency Measures do not consider free-ridership

Another limitation of the CPS was that it did not consider free-ridership. This is appropriate since free-ridership can vary across sectors and programs, and the MACC is intended to reflect potential generally across the entire province. However, it is important to note the absence of free-ridership when considering the potential for incremental abatement and its associated cost. When free-rider rates are taken into consideration, abatement opportunities identified will decrease due to increased costs of delivering measures (\$/tonne CO_2e).

3. Energy Efficiency Costs focus only on impacts to natural gas Utilities

As noted in the final MACC report, "the study focuses on costs to the Utilities rather than costs to their customers".[19] This means that no other customer impact was considered (such as other energy or infrastructure related costs). This distinction is important when considering the broader impact of measures on consumers. It is also important for audiences who may seek to interpret and apply the MACC report for purposes outside of the Utilities' Compliance Plans.

4. RNG data

ICF clearly noted in the MACC report that bottom-up detailed analysis was not publicly available for inclusion in this report and the project timeline was not conducive to completing such analysis as part of this study. Therefore, the data utilized in establishing the RNG

[18] OEB MACC, p. 6.
[19] OEB MACC, p. 17.

potential and associated costs is leveraged from existing studies where the detailed assumptions are either not known, or could be considered now to be outdated.[20] This has resulted in a wide range of potential costs and available supplies. Union also notes that the value of offsets has not been included in the RNG economics, recognizing that final offset regulations and protocols have not yet been released. This will be an important consideration going forward as offsets can represent another value stream associated with RNG which could impact its cost, its potential production level, and the timing of its development.

5. MACC is one of many considerations

While the MACC provides an effective basis for gauging potential abatement measures and their relative costs, it is not definitive. That is, it should be applied in conjunction with other factors critical to the decision making surrounding abatement opportunities, such as:

- Practical realities, such as timing or sequencing dependencies (e.g. program development time for an energy efficiency project or operational dependencies for a facility abatement initiative);
- Market receptivity and adoption factors which may be independent of costs;
- Interactions between programs (cumulative effects), where the potential of each program could be reduced if another measure were pursued first; and,

[20] ICFs RNG analysis referenced the following studies:

- Canadian Biogas Study: Benefits to the Economy, Environment and Energy, Biogas Association, December 2013.
- Potential Production of Renewable Natural Gas from Ontario Wastes, Alberta Innovates Technology Futures, May 2011.
- Economic Study on Renewable Natural Gas Production and Injection Costs in the Natural Gas Distribution Grid in Ontario: Biogas plant costing report, Electrigaz Technologies, September 2011.

- Other considerations such as customer input, technology adoption, alignment with other investment priorities and qualitative benefits.

The MACC does not consider alternative sources of funding available (i.e. provincial funding, CCAP, GreenON, and federal programs), which could impact the economics of programs from the Utilities' perspectives. For example, based on the MACC alone, RNG would not be feasible for Union to pursue within the existing regulatory construct rooted in cost prudence. However, when the impact of provincial funding to address cost differences between RNG and conventional natural gas is considered, this strategic initiative becomes feasible. Alternative funding could also be used to deliver programs independently that interact with the measures evaluated by the MACC. Such interactions could impact market potential and cost data in the MACC (e.g. the introduction of a new GreenOn energy efficiency program may reduce the potential of a similar program in MACC, or increase the incremental cost to achieve that potential).

In light of discussions at the TAG and the recommendations for future MACC studies identified by ICF in the final report, Union offers some recommendations for consideration going forward. The applicability of the OEB-issued MACC could be expanded if future studies also included measures that the utilities are exploring such as hydrogen, natural gas heat pumps and other technologies. In addition, it would be beneficial if a future MACC could delineate what measures are incremental to existing programs in order to provide a clearer picture of marginal costs.

Union also believes that since the impact of fuel switching measures may impact electricity infrastructure, it would beneficial for future MACC analysis to consider such cost implications.

3.3. Application to Union's 2018 Compliance Plan

Bearing in mind the limitations noted in Sections 3.1. and 3.2., Union has considered the content of the final LTCPF and MACC reports in the creation of its 2018 Compliance Plan. Specifically, Union used the LTCPF in its economic evaluation of facilities abatement alternatives as described in Exhibit 3, Tab 4. In addition, Union applied the LTCPF and MACC analysis (as well as the CPS study that preceded it) in evaluating the feasibility of incremental DSM measures as described in Exhibit 3, Tab 4.

UNION GAS LIMITED 2018 CAP-AND-TRADE COMPLIANCE PLAN

GOVERNANCE AND RESOURCES

As required by the Framework, this evidence includes a description of Union's governance, policies and practices, and resourcing and capabilities related to Ontario's Cap-and-Trade program.[1] Many of the measures described in this exhibit were initiated in 2016 as Union prepared for implementation of Ontario's Cap-and-Trade program. Also contained herein is a description of the evolution of Union's governance, policies and practices, and resourcing and capabilities compared to its 2017 Compliance Plan.

This exhibit of evidence is organized as follows:

1. Governance, Policies, and Practices
   - 1.1. Protection of Information Protocols and Training
   - 1.2. Abatement Analysis and Supporting Processes
   - 1.3. Governance of Compliance Instrument Acquisition
2. Cap-and-Trade Resources and Capabilities
   - 2.1. Expert Consulting Services
   - 2.2. Networks and Consultations
   - 2.3. Application for Holding Limit Exemption
   - 2.4. Carbon Market Transaction Mechanisms and Data Sources

[1] Framework, Appendix A, p. vi.

1. GOVERNANCE, POLICIES, AND PRACTICES

In 2016, Union established robust governance and control processes in relation to Cap-and-Trade as detailed in the 2017 Compliance Plan.[2] Beginning in 2016 and continuing through 2017, implementation and transition to sustainment of Union's Cap-and-Trade program is managed by the Cap-and-Trade department and governed by functional accountabilities as well as a cross-functional Cap-and-Trade Advisory Committee.[3] [redacted] This structure will continue to evolve in 2018 as Union gains further experience with Cap-and-Trade.

As Union prepared to operationalize its Cap-and-Trade program for January 2017, its Cap-and-Trade department led an effort to establish new and amended processes and controls across the organization. For example, these processes include GHG forecasting and reporting, procurement and payment processes, billing, compliance planning, and capped emitters tracking.

In order to evaluate the appropriateness and completeness of the established processes, governance, and controls, Union's Internal Audit team was engaged to conduct a Design Effectiveness Review ("DER"). The review took place from December 2016 through March 2017 and focused on ensuring appropriate business processes, controls, and governance were in

---

[2] EB-2016-0296, Exhibit 3.
[3] The Cap-and-Trade Advisory Committee was referred to as the Cap-and-Trade Steering Committee in Union's 2017 Compliance Plan.
[redacted]

place for Cap-and-Trade compliance. Union's Internal Audit team concluded that the design of processes and controls were appropriate.

Similarly, Union initiated a pre-audit verification process for GHG reporting related to Cap-and-Trade. Verification of natural gas distribution activities (ON.400 reporting) will be required for the 2017 reporting year. While the verification of the ON.400 reporting is not required for the 2016 reporting year, Union initiated a voluntary verification process in preparation for the future mandatory verification. The pre-audit verification process is still in progress and is expected to be completed by the end of 2017.

1.1. Protection of Information Protocols and Training

A key element of the Cap-and-Trade Regulations and the Framework is confidentiality. As discussed in Exhibit 1, confidentiality requirements are defined in the Climate Change Act and are intended to ensure a properly functioning carbon market. In addition, the OEB has defined various levels of confidentiality to be applied to the Utilities' Compliance Plans. These measures are critical to ensuring that Union's market position is not compromised and that Union is able to execute its Compliance Plan as expected.

Throughout 2016 and 2017, Union has taken steps to preserve the confidentiality of certain information to ensure compliance with all applicable laws. This includes the development of confidentiality protocols. Union's confidentiality protocols define practices and procedures that have been implemented across the company to support compliance. The protocols are designed to restrict access to sensitive information, including information classified as Strictly

Confidential.

During 2017, Union issued a series of formal communications to advise employees of the legislative requirements regarding the confidentiality of Cap-and-Trade information and reminding them of their responsibility to comply with these requirements. These communications commenced in late 2016 and continued into 2017. Also in 2017, Union developed and implemented a compulsory annual Computer Based Training ("CBT") module reviewing Cap-and-Trade confidentiality guidelines completed by employees who are external-facing and/or have involvement in the Cap-and-Trade program.

1.2. Abatement Analysis and Supporting Processes

Union initiated process changes to support the pursuit of potential abatement opportunities. For example, Union has leveraged economic evaluation models and processes to incorporate the OEB-defined LTCPF and the MACC into both customer and facility abatement analyses. In addition, Union established a cross-functional project team to investigate and evaluate facility abatement ideas. This project team delivered the facility abatement study described at Exhibit 3, Tab 4. This project team will evolve into a sustainment team which generates and evaluates new abatement ideas on an annual basis. This team also integrates its findings into Union's broader planning processes such as business planning, capital planning, and asset management planning. Union has also expanded the scope of governance processes to include integration with all functional departments impacting facility and customer abatement (e.g. Engineering and Construction, Distribution Operations, DSM, Business Development, and Technology and

Innovation).

1.3. Governance of Compliance Instrument Acquisition

Governance is an integral component of Union's Compliance Instrument Procurement Plan. The carbon market is still relatively new to Ontario participants and continues to change. As a result, Union continues to take a two-pronged approach to governance with respect to compliance instrument acquisition.

The first approach is a defined set of procurement procedures and guidelines, specific to the acquisition of compliance instruments. Union's Compliance Instrument Procurement Procedures, Governance and Operating Controls ("CIPP") are included at Exhibit 3, Tab 2, Appendix A. The objectives of the CIPP are to implement and maintain corporate governance and controls to minimize exposure to risk. The CIPP outlines the governance and controls that exist within Union's compliance instrument procurement function, including key features such as:

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

The CIPP was implemented in January 2017. Union continues to evaluate the CIPP to ensure that the specific governance and controls related to compliance instrument procurement evolve with the developing carbon market in North America. The recent announcement of WCI linkage has not resulted in any changes to the CIPP for 2018.

The second approach includes a quarterly review of Union's compliance instrument procurement activities by the Cap-and-Trade Compliance Governance Committee. This committee was established in early 2017 to provide an additional level of executive oversight on the compliance instrument procurement function, recognizing the newness of Cap-and-Trade and related processes. During 2017, the mandate of the committee was broadened to incorporate all aspects of compliance planning including abatement. The committee continues to provide governance over the development and execution of the compliance plan, including the compliance instrument procurement strategy. This involves reviewing the procurement strategy to ensure it is consistent with Union's general criteria for evaluating compliance instruments (see Exhibit 3, Tab 3) and it supports compliance with Cap-and-Trade regulations and the Framework. Union's Cap-and-Trade Compliance Governance Committee members include:

- VP, Business Development, Storage and Transportation
- VP, Sales, Marketing and Customer Care
- VP, Finance
- VP, Regulatory, Lands and Public Affairs
- VP Canada Gas and Union Gas Law
- VP, Engineering, Construction & Storage and Transmission Operations

In addition, the following subject matter experts attend Committee meetings to provide support:

- Director, Gas Supply and Customer Support;
- Manager, Cap-and-Trade Design and Implementation;
- Senior Buyer, Carbon Markets; and
- Other subject matter experts as required.

2. CAP-AND-TRADE RESOURCES AND CAPABILITIES

The following is an outline of the resources required for Union to meet its compliance obligation. As described in its 2017 Compliance Plan, Union took extensive steps in 2016 to ensure it dedicated the appropriate resources and developed the capabilities required to implement and sustain its Cap-and-Trade program. These steps included, but were not limited to, the establishment of the Cap-and-Trade department, the establishment of a carbon procurement function, the establishment of governance structures, the training and development of staff related to Cap-and-Trade and carbon markets, the implementation of process and system changes (including billing system changes), and an increased focus on innovation and technologies.

In order to ensure Union's readiness to implement the program and participate in the carbon market, Union leveraged existing organizational expertise where feasible, and developed significant and in-depth knowledge of Cap-and-Trade. This impacted many functional areas across the organization (such as the Cap-and-Trade department, Environmental Health and Safety ("EHS"), Finance, Business Development, DSM, Gas Supply, Regulatory, and Technology and Innovation). Union has identified incremental resources required to support

Cap-and-Trade, (including Full Time Employees ("FTE") requirements and associated cost details) as described in Exhibit 3, Tab 5.

Union's compliance instrument procurement function resides within the Gas Supply department. Individuals in the compliance instrument procurement function are responsible for market research, understanding carbon pricing dynamics, supplier and counterparty relationship management, execution of the Compliance Instrument Purchase Plan, and management of Union's Compliance Instrument Trading System Service ("CITSS") accounts. These individuals receive specialized training on Cap-and-Trade and carbon markets through industry events and conferences, discussions with counterparties and consultants, and training courses.

2.1. Expert Consulting Services

Union continues to engage ClearBlue for ongoing advisory services in relation to Union's compliance instrument procurement strategy. ClearBlue has the unique carbon market expertise required to advise organizations on how to manage the complexities of Cap-and-Trade programs and carbon markets. ClearBlue's expertise includes hands-on practical experience and regulatory knowledge of all aspects of the carbon market including the formation of compliance strategies, integration with operational corporate functions, and advising on the practicalities of participating in the market. See Exhibit 3, Tab 2, Appendix B for detailed information about ClearBlue's qualifications. Union first hired ClearBlue in late 2016 to aid in the development of its compliance instrument procurement strategy for 2017. ClearBlue has supported Union through 2017 by providing ongoing regulatory and market updates, assessment of Ontario public auction results, assessment of Union's 2017 Compliance Plan (including recommendations to adapt to changing market conditions) and assistance with the development of the 2018 compliance instrument procurement strategies.

Union has also engaged consultants for various other Cap-and-Trade related services including BlueSource, ICF and Ortech Environmental. See Exhibit 3, Tab 5 Schedule 2 for Union's forecasted consulting costs in 2018. These consultants are well-regarded industry experts with specialized knowledge of the carbon markets and Cap-and-Trade. Their expertise supplements Union's internal expertise as it relates to Cap-and-Trade and is critical to the successful implementation of Union's Cap-and-Trade program.

2.2. Networks and Consultations

In order to effectively manage Union's compliance obligation and to proactively plan for the future, Union continuously takes steps to expand its knowledge of Cap-and-Trade regulations and their implications. In addition, Union actively monitors developments in climate change initiatives, carbon markets, and policy developments throughout Ontario, Canada, the WCI, and other relevant jurisdictions. To facilitate this, Union continues to build a diverse network of industry experts, participants, stakeholders, and policy makers. For example:

- Union is an active member of associations, such as: the Ontario Energy Association ("OEA"), the Canadian Gas Association ("CGA"), the Canadian Energy Pipeline Association ("CEPA"), and the Canadian Energy Partnership for Environmental Innovation ("CEPEI"). These associations have been instrumental in interpreting

GHG reporting requirements as well as in identifying the potential impacts of new provincial and federal climate change policies.

- Union continues to work with various levels of the Ontario government to discuss Cap-and-Trade policy issues and abatement opportunities. In addition, Union has been an active participant in MOECC/Natural Gas Utility consultation meetings throughout 2016 and 2017.
- Union maintains regular contact with new and existing carbon market counterparties. Counterparties include large emitters, market participants, and brokers in the Ontario, California and Québec markets. [redacted]
- Union continues to collaborate on new technology developments and applications with industry associations, such as the CGA and its Natural Gas Innovation Fund (“NGIF”). In addition, Union has established new networks with parties such as the Advanced Energy Centre (“AEC”) at the Medical and Related Sciences (“MaRS”) Discovery District and innovation centers connected with various educational institutions. These networks allow Union to learn about and investigate innovations that could support future abatement.
- Union continues to attend various conferences and carbon market training events to aid in the development of its knowledge and understanding of Cap-and-Trade and the regulatory events impacting North American carbon markets. In addition, Union

routinely reviews and evaluates new opportunities to gain knowledge through subscription services, environmental associations, and consulting services.

- Union maintains regular contact with existing carbon market participants, advisors, and utilities in Ontario, Québec, California and other jurisdictions to leverage lessons-learned from peers who have successfully implemented compliance plans in their respective jurisdictions and to keep abreast of changes in North American carbon markets.

2.3. Application for Holding Limit Exemption

Union intends to apply to the MOECC for a holding limit exemption in the fall of 2017 under Section 41 of the Cap-and-Trade regulation to further ensure compliance with holding limit rules. Such exemption is important to establish a holding limit that more appropriately reflects Union's compliance obligation. It will also ensure Union is able to participate in the carbon market and satisfy its obligation while complying with the holding limits set by the regulations. Until 2019, Union's holding limit would be calculated on GHG reporting which does not yet reflect the addition of the customer emissions effective January 1, 2017. The exemption corrects for this timing lag, and is required in both 2017 and 2018.

2.4. Carbon Market Transaction Mechanisms and Data Sources

To support participation in both the primary and secondary markets for compliance instruments, Union has developed an understanding of and directed its resources to manage the following:

- Compliance Instrument Tracking System Service: CITSS is the system that enables Cap-and-Trade program participants to engage in government auctions and also to collect, transact, and report accumulated compliance instruments to demonstrate compliance at the end of a compliance period. Union's CITSS accounts are managed within its compliance instrument procurement function in the Gas Supply department. Union also has CITSS Account Viewing Agents in the Cap-and-Trade and Finance departments.[5]
- Carbon Market Data and News Subscriptions: Union has a subscription to California Carbon ("CC") and Carbon Pulse, which provide its procurement staff with carbon market data and news. Union also receives market, regulatory, and jurisdictional news from a number of free subscription services.
- Trading Platforms: Union has access to all North American carbon market exchange data on ICE. Union uses ICE to monitor the carbon market on a real-time basis and to evaluate potential opportunities to procure allowances in the secondary market.

In addition, one of the prerequisites to transacting with counterparties in the secondary market is to establish a contract. The North American carbon market differs from the North American natural gas market in that the latter employs a standard contract for all market participants.[6] There is no industry standard contract for carbon market transactions in North America.

[5] CITSS Account Viewing Agents are users who have view-only access to Union's CITSS accounts.
[6] In natural gas markets, counterparties use an industry standard master agreement called the North American Energy Standards Board ("NAESB") Base Contract for Sale and Purchase of Natural Gas. Market participants may also include customer Special Provisions to the Base Contract, which are negotiated during contract initiation.

However, there are several contracts which are frequently used. These contracting options include:

1. *California Emissions Trading Master Agreement* – This contract was developed by the International Emissions Trading Association ("IETA") in 2013 specifically for the California carbon market. Like natural gas markets, this contract acts as a master agreement that is put in place between counterparties and all transactions refer back to the master agreement to establish base contract terms. The benefit of a master agreement is that counterparties can transact on an ongoing basis without having to generate a new contract each time.
2. *North American Emissions Allowance Transaction Annex to the ISDA Master Agreement* – This contract was developed by the International Swaps and Derivatives Association ("ISDA"), and is used to modify the terms of the industry standard ISDA Master Agreements to facilitate carbon market transactions. While this form of contracting includes the use of a master agreement, Union notes that ISDA Master Agreements are typically used by parties to facilitate financial risk management activities such as the trading of derivatives and other financial instruments.
3. *Single Transaction Agreements* – These are single-use contracts created for unique transactions. Single transaction agreements are often shorter agreements tailored to a specific transaction. This form of agreement is not ideal in situations where counterparties intend to transact multiple times.

During 2017, Union and EGD collaborated to develop a standard Emissions Trading Master Agreement ("ETMA") which will be used as a template when transacting with carbon market counterparties. The template ETMA was drafted with the assistance of a leading Toronto law firm, it is based on the California Emissions Trading Master Agreement ("CETMA") discussed above and modified to be applicable to the Ontario carbon market. This will make contracting with large entities that have compliance obligations in Ontario more standardized and efficient. The template ETMA is designed to be flexible to ensure it will remain applicable post WCI linkage. Similar to natural gas market contract negotiations, Union expects that some of the terms of the ETMA will change during negotiations with new counterparties. All contracts between Union and carbon market counterparties will be subject to Union's CIPP oversight and standards as discussed above.

A Spectra Energy Company

CAP & TRADE COMPLIANCE INSTRUMENT PROCUREMENT PROCEDURES

GOVERNANCE AND OPERATING CONTROLS

January 2017

Compliance Instrument Procurement Procedures

Table of Contents

1 Introduction ... 3
2 Objectives ... 4
3 Controls ... 5
4 Credit Guidelines ... 8
5 Support Departments ... 10
6 Affiliate Transactions ... 10
Glossary ... 11

1 INTRODUCTION

In May of 2016, the Ontario government issued the *Climate Change Mitigation and Low Carbon Economy Act, 2016* and *Ontario Regulation 144/16, The Cap and Trade Program*. This legislation was introduced for the purposes of reducing Greenhouse Gas ("GHG") emissions in the province. Under Ontario's *Climate Change Mitigation and Low Carbon Economy Act, 2016*, Union Gas Limited ("Union") as a natural gas distributor has the obligation to reduce GHG emissions or purchase compliance instruments to permit GHG emissions. Union as a distributor has GHG related obligations[1] for the following types of emissions:

- Facility-related emissions for facilities Union owns or operates; and,
- Customer-related emissions for natural gas-fired generators, and residential, commercial and industrial customers who are not Large Final Emitters or voluntary participants.

The purpose of this document is to provide clear and consistent directives in the identification, measurement and management of the risk exposures related to Union's Cap & Trade Compliance Instrument Procurement Procedures ("Procurement Procedures"). This document establishes the accountabilities and responsibilities related to the Procurement Procedures, specifically the process of securing compliance instruments to meet Union's customer and facility related obligations arising from Ontario's Cap & Trade legislation.

This document applies to the procurement or sale of all Cap & Trade compliance instruments. This document does not apply to the development of GHG abatement projects or the development of projects which qualify for offset creation per Ontario's applicable offset protocols. The governance related to development of offset and abatement projects will be documented separately.

[1] As defined by Ontario Regulation 452/09 Green House Gas Emissions Reporting issued December, 2015 and Ontario's Guideline for Greenhouse Gas Emissions Reporting, issued May 19, 2016, or any subsequent updates to these regulations & guidelines.

2 OBJECTIVES

The following objectives provide the foundation for the activities that take place related to the procurement of compliance instruments. The objectives are as follows:

2.1 *Implementation and maintenance of corporate governance and controls*

Corporate Governance is an integral part of the procurement process. The procurement plans have oversight by senior management. All transactions are approved by senior management and have appropriate internal controls in place. Subject to the Internal Audit department's annual risk assessment, a periodic audit of transactions is performed to ensure compliance with the governance processes explained in this document.

2.2 *Minimize exposure to risk*

This objective is in place to recognize the need for prudent practices in compliance instrument procurement such that market, credit, legal, contractual and tax related risks are minimized.

3 Controls

There are six independent controls built into the Procurement Procedures governance process. 1) Corporate Governance through Executive review of the procurement plans; 2) Transactions in the procurement plan approved by the Vice President or Director, and Manager presiding over the compliance instrument procurement function; 3) Segregation of the responsibilities between the Front Office (transactors) and the Back Office (transaction administration) functions; 4) Internal audits of the transactions; 5) Exception reporting; and 6) Standard contracts reviewed every second year, or as required by legislative changes, by Finance, Credit, Tax and Legal.

3.1 Corporate Governance

Union Gas Executive, at least annually, review and approve the Cap & Trade Compliance Plan, which includes the Procurement Procedures. The procurement plan executive review and approval is used to establish and guide the compliance instrument transactions executed by Union. In accordance with Delegation of Authority, the presiding Vice President, has full authority to implement the plan.

3.2 Procurement Plan Approval

Union's compliance instrument procurement function is managed within Gas Supply, which is part of the Business Development Storage & Transportation group ("BDS&T"). Execution of the program is managed by the Director presiding over the compliance instrument procurement function with oversight by the Vice President, BDS&T.

The management duties relating to the Procurement Procedures include:

- Using historical information, market trends and future expectations, review the compliance instrument procurement plans annually and make any necessary changes to the plans;
- Oversee and monitor Union's risk exposure related to the acquisition of compliance instruments ;
- Ensure the risk exposure related to the acquisition of compliance instruments is managed in compliance with the governance procedures;
- Ensure proper procedures and controls are in place in order to comply with all policies applicable to the acquisition of compliance instruments;
- Seek approval from the Union Gas Executive of the annual compliance instrument procurement plan;
- Seek approval from the Spectra Energy RMC ('RMC') as needed for compliance with the Corporate Risk Management policy; and
- Report to the RMC on risk levels to ensure tolerances are regarded.

As part of Union's Procurement Procedures, the Front Office develops a procurement plan for the applicable compliance plan term. This term will generally cover the entire Cap & Trade compliance period, but exceptions for the first few years of the Ontario Cap & Trade program have been made according to the Ontario Energy Board ("OEB")

Framework which allows for initial Compliance Plan terms that do not cover an entire compliance period.

In addition to the longer term procurement plan included in Union's Cap & Trade Compliance Plan, the Front Office will also develop monthly procurement plan updates which update assumptions and information related to the total obligation forecast, market conditions which may have changed since the time of the Cap & Trade Compliance Plan, impacts of offset programs and abatement programs, and any other information relevant to the procurement of compliance instruments by Union.

The presiding Vice President or Director, and the Manager presiding over the compliance instrument procurement function or his /her delegate approve both the long term procurement plan included in the Compliance Plan and the monthly procurement plan updates including exceptions to both the plans and the governance procedures, if any. The approval of transactions could occur as they arise or be conditional upon a number of different metrics such as cover ratio, compliance position thresholds and relative market price levels. These approvals provide all necessary authorizations for the transactors to execute the transactions according to the procurement plans.

3.3 Segregation of Duties

3.3.1 Front Office

The Front Office is responsible for developing and executing (i.e. procurement activities such as participation in auctions, transacting on the secondary market, etc) both the annual procurement plan included as part of Union's Cap & Trade Compliance Plan and the monthly procurement plan updates. The Front Office is responsible for revising the plan, presenting the plan for appropriate approval, and presenting supporting information for any changes recommended. Once the procurement plan is approved, the Front Office is responsible for:

- Establishing and overseeing the business relationships associated with conducting the plans;
- Ensuring compliance with all credit guidelines provided by Credit;
- Recording all transactions and related terms and informing appropriate persons of all transactions;
- Management of the Compliance Instrument Tracking System Service (CITSS) to ensure Union's compliance with relevant account limits and user/entity information requirements established under the regulations;
- Maintaining price data;
- Providing first line checking of all transaction invoices received;
- Reporting of purchases and exceptions to the Procurement Procedures to Regulatory and other impacted internal groups as needed;
- Providing reports as requested by senior management or the OEB;
- Providing open communication to the Cap & Trade department and Regulatory on Procurement Procedures updates; and
- Initiating a review of the Procurement Procedures if market conditions warrant or at least every 3 years.

3.3.2 *Back Office (Finance/Credit)*

The Back Office consists of revenue and gas accounting, Credit and Accounts Payable (reporting through to the Vice President, Finance). The Back Office is responsible for the following primary functions:

- Physical deal settlements, posting of security and accounting;
- Financial accounting, month-end closing, and reporting;
- Account reconciliation with counterparties;
- Reconciliation and verification of account activity in CITSS;
- Providing counterparty credit support as detailed in the Credit Guidelines; and
- Reviewing standard contracts every second year, or as required by legislative changes.

3.4 *Internal Audit of Transactions*

Periodically, the Internal Audit department initiates and conducts an audit of transactions. The intent of the audit is to ensure the Procurement Procedures are being followed.

In the event that Audit discovers any discrepancies relating to transactions, settlements, etc. that could expose the company to legal liability, the Director presiding over the compliance instrument procurement function is notified immediately.

At a minimum, audit procedures will be designed to verify that:

- Transactions comply with the Procurement Procedures in addition to internal guidelines and regulatory requirements; and
- Transactions are accurately recorded and appropriately approved

3.5 *Exception Reporting*

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

3.6 *Review of Standard Contracts*

All standard contracts relating to procurement activity are reviewed every second year, or as required by legislative changes, by Finance, Credit, Tax, Legal and Insurance.

4 Credit Guidelines

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

Credit requirements apply to all transactions related to compliance instruments. This includes, but is not limited to:

- The purchase or sale of allowances, including the posting of security (through auction or secondary market)
- The purchase or sale of offsets, but not the development of offset projects
- The purchase or sale of forward or futures contracts related to allowances or offsets
- The purchase or sale of other derivative instruments such as options or swaps related to allowances or offsets

4.1 Credit Requirements

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

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

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

If Credit has reason to be concerned about the financial stability of any counterparty, Credit notifies the Director presiding over the compliance instrument procurement function, and Legal. Credit, Legal and the Director presiding over the compliance instrument procurement function will develop a course of action to limit Union's financial liability consistent with the provisions of the purchase agreement in place with the counterparty.

4.2 Responsibilities of the Front Office

- The Front Office requests that Credit review the creditworthiness of a new counterparty prior to commencement of transacting with the counterparty.

- The Front Office may request that Credit re-evaluate the credit limit of an existing counterparty if the counterparty is at the maximum credit limit and the Front Office wishes to conduct further business with that counterparty.

4.3 Responsibilities of the Credit Department

- Credit confirms in writing to the Front Office the credit rating and credit limit of any new counterparty.
- Credit conducts a formal annual credit review of all counterparties and reports to the Front Office any material change in the credit rating of a counterparty.
- If Credit has reason to be concerned about the financial stability of any counterparty, Credit notifies the Director presiding over the compliance instrument procurement function and Legal.
- The Credit department monitors and reports the current credit exposure and the maximum exposure for counterparties at least monthly with capability for weekly reporting if required. If the current credit exposure is greater than the authorized credit limit, Credit informs the Director presiding over the compliance instrument procurement function.

5 SUPPORT DEPARTMENTS

5.3 Cap and Trade Department

The Cap & Trade department facilitates the connection between the components of the Compliance Plan and the compliance instrument procurement requirements. This department will also be monitoring changes in legislation, regulations, and policies related to Cap & Trade and potentially compliance instrument procurement. In addition, this department will monitor CITSS account activity to ensure compliance with account limits.

5.4 Tax Department

Tax provides the Front Office and Finance with any updates or implications of any proposed or pending tax legislation that affects the Procurement Procedures or transactions. The Front Office and Finance seek the advice of Tax as required. Tax reviews the standard contracts every second year.

5.5 Legal

Legal is responsible for reviewing contractual terms and establishing Union's standard contracts with counterparties. Once a standard format of each of the documents has been approved by Legal, any future sign off by Legal is not required. If there are any subsequent changes to the formatting or the wording, or potential law changes then a proper review and sign off are required by Legal for any new documentation. Legal reviews the standard contracts every second year.

6 AFFILIATE TRANSACTIONS

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

Effective January 1, 2017

Cheryl Newbury, Director, Gas Supply & Customer Support

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

GLOSSARY

Alternate Account Representative - A designated representative authorized to act on behalf of a participant. This representative must have undergone the Recognition as an Account Agent process in Ontario and have a valid CITSS User ID.

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

Cap & Trade Compliance Plan – The detailed plan a utility has for compliance with Cap & Trade legislation. The Cap & Trade Compliance Plan is required to be filed with the OEB by all gas utilities in Ontario, in accordance with the Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities.

Compliance Instrument – means an Ontario emission allowance or offset issued by the Ontario government for use in the Ontario Cap & Trade program. If the Ontario Cap & Trade program links with WCI Cap & Trade program or any other emission reduction program, this will also include any emission allowances, offsets, or other units issued by other jurisdictions included in the WCI or other linked emission reduction programs that are approved to satisfy emission compliance obligations for Ontario entities. Each compliance instrument currently can be used to fulfill a compliance obligation equivalent to up to one metric tonne of CO_2.

Compliance Instrument Tracking Service System (CITSS) - The web-based system used to register participants and track allowances and credits from issuance to retirement.

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

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

Executive - Union Gas Leadership group, this consists of the President of Union Gas, direct reports to the President of Union Gas and the VP, Finance, Director of Information Services, Director of Employee Relations & Business Services and the VP, General Counsel Canada.

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

Primary Account Representative (PAR) - A designated representative authorized to act on behalf of a Cap & Trade participant. This representative must have undergone the Recognition as an Account Agent process in Ontario and have a valid CITSS User ID.
The PAR must have Ontario residency.

ClearBlue Markets
265 Rimrock Road
Suite 201, Toronto
Ontario, M3J 3C6
Canada

Tel 416-690-6369
Email rdanon@clearbluemarkets.com
www.clearbluemarkets.com

ClearBlue Markets Cap & Trade Services

About ClearBlue Markets and Team Resumes

July 18, 2017

Table of Contents

1.	About ClearBlue Markets	3
2.	Michiel Ten Hoopen – Head of Carbon	6
3.	Nicolas Girod – Head of Trading and Analysis	9
4.	Michael Berends – Head of Sales	13

1. About ClearBlue Markets

ClearBlue is a leading carbon company that has pioneered the carbon markets since 2000. The team has extensive expertise in carbon allowance trading, offset sales, structured deals, emissions consultancy and offset project development. In additional to providing consultancy services to other firms, more importantly, the team has the unique experience of having been in the same position as compliance buyers in that the three key staff for these services were responsible for the EU-ETS Cap & Trade compliance position of Vattenfall. Key highlights include:

- Our team was responsible for managing the compliance position of Vattenfall, the third largest position in the EU-ETS
    - Managed the compliance position of over 95 million tons of CO_2 annually (note, no free allowances since 2012, which meant that all allowances were procured either via Auctions or the secondary market)
    - Procured millions of allowances via daily Auctions
    - Traded over 400 million allowances and offsets on secondary market
    - Sourced, developed, and managed a portfolio of over 200 offset projects
        - Over 100 million offsets
- Managed external communications with associations, governments and the EU
- Vattenfall is a Swedish State-owned Gas & Electricity utility with installations in Germany, Poland, the Netherlands, Sweden, Denmark and the UK (Coal, Gas, Nuclear, Hydro, Wind, storage).

Further to this, the team has performed similar Cap & Trade compliance entity management duties at both Eneco and ICL. The team was also involved in setting up the emission trading sales and offset teams at Barclays Capital, which was the leading global trader of emissions for many years.

1.1. Mission Statement:

ClearBlue's mission is to ensure our clients make better risk management decisions by assisting them to build their Cap & Trade capacity and by providing them with the confidence to know when and how to act. With this singular market focus, ClearBlue is devoted to providing integrated and cutting edge solutions to manage carbon value.

1.2. ClearBlue Team history

ClearBlue Markets ("ClearBlue") is a carbon market company whose team has pioneered the carbon markets since 2000. The ClearBlue team has unmatched practical experience in all aspects of Cap & Trade, ranging from policy, to strategy development, to compliance management and trading. The team developed their wide-ranging and unique experience working for leading carbon market entities, including:

Company/Organization highlights:

EcoSecurities (*Sold to JP Morgan in 2009*)

- First and largest global developer of carbon offsets, having developed 10% of the global markets' 1.6 billion offsets.
- Pioneering GHG Strategy, offset project development and carbon capacity building advisory firm.

Barclays Capital

- Historically the largest trader of carbon compliance allowances globally.
- Largest Investment Bank sales team providing products and structured transactions to EU-ETS compliance entities.
- Leading Investment Bank offset sourcing team.

Vattenfall

- Second largest EU-ETS entity compliance position (over 95,000,000 tCO_2 annually).
- Large multi-national with numerous compliance installations.
- Sourced, developed, and managed a portfolio of over 200 offset projects.

Eneco Energy Trading

- Large Dutch EU-ETS compliance entity and offset purchaser.
- Pioneer in the development and purchase of forestry offset projects.

Fortis Bank

- Among the first banks to be involved in the carbon market, providing early support for the development of offset projects and sale of offsets and allowances to compliance entities and governments.
- Developed innovative EU allowance contract structures.

UNFCCC

- The United Nations Framework Convention on Climate Change Secretariat ("UNFCCC") is charged with supporting the operation of the initial Convention, the Kyoto Protocol and now also the Paris Agreement. UNFCCC administers the CDM market, which is the world's largest offset market issuing over 1.6 billion offset credits and developed hundreds of offset protocols.

Relevant ClearBlue expertise

ClearBlue provides a strong team of technical experts with extensive practical experience in Cap & Trade policy and market trading, making ClearBlue well-suited for the development and execution of a Cap & Trade Strategy. Furthermore, our team offers model-building services in quantitative and risk analysis. We have advised major governmental players, private sector players and international organizations on climate policies; Cap & Trade strategies; market developments; provided workshops and training of staff; and delivered technical assistance for risk management, compliance trading and carbon purchase programs.

Selected Organizations that the team has provided services for and transacted with:

Intergovernmental/NGO

- World Bank, Asian Development Bank, Greenpeace, EBRD, UN-FAO, WWF, UNFCCC,

Governmental

- EU, United Kingdom, Netherlands, Qatar, Bulgaria, Denmark, Malaysia, Jamaica, Saudi Arabia, Syria, Jordan, Egypt, Morocco, Tunisia, France, Romania

Corporate

- Gas Natural, Statoil, Eskom, Gasunie, Shell, Qatar Petroleum, Sappi, Statkraft, Haifa Chemicals, Sasol, Israel Corp, Aramco, Mitsubishi Corp, Mitsui & Co, Enel, Titan Cement, Q8, Itochu, Pan Ocean Petroleum, Rosneft, Lafarge, EDF, OCP, Rosneft, Anglo American, Rio Tinto, Corus, Port of Rotterdam, ONE, Deutsche Bank, EON, Enel, Sonatrach, Sumitomo, Repsol YPF, Coca Cola, Marubeni, Arcelor Mittal

Selected Ontario Clients

- Union Gas Limited
- Enbridge Gas Distribution Inc.
- ArcelorMittal Dofasco
- London Health Sciences Center
- AV Terrace Bay Inc.
- Kitchener Utilities
- Utilities Kingston
- INEOS Styrolution
- OAPPA
- GreenField Ethanol
- Sonoco Packaging
- Essar Steel Algoma Inc.
- Hydro Quebec

1.3. Key ClearBlue Personnel

ClearBlue is an exceptionally strong team of technical and commercial experts with extensive practical experience in Cap & Trade policy and market trading. The team has set-up carbon strategies and trading functions for a number of companies, including Barclays Capital, Nuon, Vattenfall, and ICL, procuring and trading hundreds of millions of dollars worth of carbon products globally. Furthermore, the team has been involved in hundreds of EU-ETS auctions, which occur on a "daily' basis for Vattenfall, procuring tens of millions of allowances via this route.

In Ontario, the team is involved in developing tailored auction strategies based on latest market developments, including ClearBlue's own market intelligence. Also of importance is that key members of the team are fluent in both French and Spanish, which is highly useful once linkage to Quebec likely occurs in 2018, and possible linkage to Mexico in a few years.

Key highlights of the team experience that the key staff brings to this proposal are:

1. Access to Cap & Trade policy knowledge and an understanding from the perspective of a compliance entity

2. Team of unparalleled carbon market and energy experts:
   i. Consultancy (contracted over $6 million in services)
   ii. Sales (executed over $500 million in deals)
   iii. Trading (traded over $3 billion in carbon products)
   iv. Offset Development (developed over 200 projects)
   v. Carbon Regulatory & Policy (since 2000)
   vi. Managed and Procured an energy portfolio (over $80,000,000 annual value)

3. Dynamic Carbon Market Risk management via strategies and market transactions

Below are the qualification summaries of the each of the key personal from ClearBlue that will be part of the services:

2. Michiel Ten Hoopen – Head of Carbon

PROFESSIONAL HIGHLIGHTS:
Michiel is the Head of Advisory at ClearBlue, with 17 years of in-depth experience on all aspects of the carbon markets. His extensive policy and practical trading experience provides clients with a unique perspective that is unparalleled in the market. Michiel led the ClearBlue team that developed Union Gas's 2017 Compliance Instrument Purchasing strategy. He also recently developed the Offset Strategy for a large Ontario steel compliance entity, and is working with some of the province's top emitters in Cap & Trade on their Offset Strategies. Michiel is working with the rest of the ClearBlue team on the overall Cap & Trade strategies for a large number of smaller Ontario clients, and involved in the active management of their compliance positions. Michiel brings the following areas of expertise to this project:

- **Direct Management of a Cap & Trade Compliance Position.** Michiel was Head of Global Emissions at Vattenfall, where he was responsible for managing the compliance and offset position. Vattenfall was the second largest emitter in the EU-ETS with annual emissions over 95,000,000 tCO_2.

- **Extensive Experience in Consultancy and Capacity Building.** Michiel had worked in consultancy, advising governments, industrials and other organizations on Cap & Trade and offsets. Michiel led EcoSecurities' consultancy division, where he developed various corporate greenhouse gas strategies and championed climate change policy studies. He also has extensive experience with corporate and government capacity building, including developing and presenting at many GHG Cap & Trade workshops. Working for governments on various emission trading related regulatory documents has provided him with a thorough, integrated understanding of the institutional, regulatory and policy environments that affect carbon markets. He represented Vattenfall in IETA, the International Emissions Trading Association. With IETA, he presented in capacity building workshops in China and Taiwan, informing companies on how to operate in Cap & Trade systems that were newly implemented.

- **Expert Knowledge of Offset Development.** Michiel has worked globally on emission reduction projects with a wide variety of technologies such as industrial energy efficiency, renewable energy, landfill gas and biogas. His expertise in this area was recognized in his appointment as a member of the UNFCCC CDM Small-Scale Working Group for seven consecutive years.

EDUCATION

- Masters Degree, Economics, 2000. University of Groningen. Areas of interest: Macroeconomic Policy, Environmental Economics, International Trade Market Liberalization

- Masters Degree, International and European Law, 2002. University of Groningen. Areas of interest: International relations, Environmental law, Trade law, European law.

- SII Level 3 Certificate in Investments, 2007. Securities & Investment Institute, London, United Kingdom. Areas of interest: Financial Regulations and Derivatives.

PREVIOUS PROFESSIONAL EXPERIENCE

Vattenfall Energy Trading (Amsterdam, the Netherlands)
Head of Global Emissions, 2008 - 2015

Michiel was hired by Nuon Energy Trade and Wholesale ("Nuon"), which after being taken over by Vattenfall AB, became a part of Vattenfall Energy Trading ("VET"), a division within Vattenfall AB. Michiel led the Global Emissions desk, where he was responsible for building and managing the emissions team. Among his many tasks, he developed internal purchasing strategies, hedging strategies and risk programs as part of the internal compliance plan and updated them on a yearly basis. Michiel reported on implementation of the plan and significant changes to the plan to both management and the board of directors. He developed the overall business plan and strategy for the division, coordinating with other corporate functions. He was responsible for the Origination of CDM projects and the purchasing of offsets directly from CDM projects, in the negotiations for all related contracts, as well as technical reviews and the overall due diligence processes.

Selected accomplishments:

- Successfully integrated the Nuon and Vattenfall emission teams after the takeover;
- Sourced and managed a portfolio of over 200 offset projects that generated over 100 million offsets;
- Renegotiated long term offset contracts leading to profits over 30 million euros; and
- Led the Vattenfall team to be the first foreign entity to successfully transact in the Chinese domestic carbon market.

UNFCCC (Bonn, Germany)
Member of the CDM Small Scale Working Group, 2006 – 2014

While working for EcoSecurities, Barclays Capital, and Vattenfall, Michiel was elected into the UNFCCC CDM Small Scale Working Group for seven consecutive years. This Working Group is responsible for the baseline and monitoring methodologies for simplified procedures for Small Scale projects such as efficient cook stove projects, biogas projects, small renewable power projects, and energy efficiency projects. As part of this group, Michiel was responsible for developing new methodologies and responding to questions from project developers. While working with this panel, Michiel assisted in approving approximately 40 projects and provided guidance to over 100 individual projects.

Barclays Capital (London, United Kingdom)
Associate Director, Emissions, 2007- 2008

Michiel joined Barclays Capital in 2007 as Associate Director Emissions at the Environmental Products desk in the Commodities Division. Michiel was part of a team joining Barclays to build emission reduction origination capabilities where he was responsible for managing the structuring of complex agreements, setting up the infrastructure for emission reduction origination, working with the global sales force to get the primary offset transactions, advising the traders on the benefits and risks associated with the purchase of primary CERs, developing risk management tools, and the business development in selling CERs as an offset product.

Selected accomplishments:

- Set up the Barclays offset sourcing team
- Developed the infrastructure and procedures for originating offsets
- Developed the risk management and valuation model for primary offsets

EcoSecurities B.V. (The Hague, The Netherlands)
Principal Consultant 2002 - 2007

Michiel joined EcoSecurities in 2003, as a principal consultant in EcoSecurities' The Hague office. He led all emission reduction consultancy activities and was responsible for the CDM baseline and monitoring methodology development within EcoSecurities. Michiel was responsible for developing CDM baseline methodologies and CDM projects in the industrial, energy, and waste management sectors, as well as providing capacity building to governments and providing strategic advice to industry.

Foundation Joint Implementation Network (Paterswolde, the Netherlands)
Consultant, researcher 2000 - 2002

Michiel worked for the Joint Implementation Network (JIN) as a researcher and consultant. JIN is a research foundation specializing in climate change policy and the Kyoto Mechanisms. Michiel was assistant editor of the Joint Implementation Quarterly (JIQ), an international magazine on the Kyoto Mechanisms and worked on several research and consultancy projects, including the pioneering Dutch government purchasing program for carbon credits.

3. Nicolas Girod – Head of Trading and Analysis

PROFESSIONAL HIGHLIGHTS:
Nicolas is the Head of Trading and Analysis at ClearBlue Markets and has over 10 years of experience in the carbon markets. He has an intricate and broad understanding of the integration of the energy and carbon markets, having worked for banks and utilities as a risk manager, market analyst and trader. Nicolas works with the rest of the ClearBlue team on the overall Cap & Trade strategies for a number of top Ontario emitters and smaller clients, and is involved in the active management of their compliance positions. He has extensive experience developing supply and demand models and has created an Ontario and California/Quebec supply and demand model used to guide strategies. Nicolas provides Ontario and WCI weekly market updates and auction result analysis to Ontario and WCI compliance entities, which have become the market standard in Ontario.

Nicolas brings the following areas of expertise to this project:

- **Risk Management.** Nicolas worked in the Commodities Risk Department of Barclays Capital, one of the largest commodity markets investment banks in the world. While at Barclays Capital, Nicolas was in charge of pricing the market risk associated with structured commodities transactions. In order to effectively perform this function, he liaised with different stakeholders within the bank, including front office, legal, credit risk, trading, and sales. He developed excel models with excel VBA using statistical analysis and mathematical price simulation models to ensure that the bank did not exceed its credit limits while trading OTC.

- **Market and Data Analysis.** Nicolas has also worked for two European utilities (Eneco, Vattenfall) as a market analyst, supporting and recommending trading decisions. While in this function, Nicolas created several models, not only to forecast prices but also to trade energy products on a proprietary basis. He has built fundamental and algorithmic models on European Emissions, Power and Gas. He was also responsible for enhancing the internal communication of these companies by creating reports on market developments including daily scorecards and monthly fundamental reports. Nicolas has also recently completed a course in Big Data and Machine learning, further enhancing his modelling abilities.

- **Trading and Auction Experience.** Nicolas was a senior trader for Vattenfall, one of the biggest compliance entities in the EU carbon market, in charge of procuring ~ 95,000,000 tonnes of emissions compliance allowances annually, as well as millions of offsets. He was in charge of the overall carbon hedging strategy of the company, as well as the execution. Nicolas has traded futures, OTC forwards, options and participated in auctions. He is certified as an EEX exchange trader in Europe for the purposes of participating in allowance auctions and transacting in commodity futures, and has also completed his Series 3 National Futures Association exam in the US. He also has extensive experience trading foreign, power, oil and gas, and coal on a proprietary basis.

EDUCATION

- Master of Science in Electrical Engineering and Environment, 2007. Grande Ecole ESME Sudria, PARIS. Areas of interest: Environmental Management, Electrical machines, Analog/Digital Electronics, Probability Models for Engineering, Computer Programming.

- Bootcamp in Data science, 2015. NYC Data Science Academy. Areas of interest: Statistics, Algorithms, Big data analysis and visualization, Machine learning, Artificial Intelligence.

CERTIFICATIONS

- Series 3 – National Futures Association, 2016. Financial Industry Regulatory Authority.

- EEX Exchange Trader, 2012. European Energy Exchange.

PREVIOUS PROFESSIONAL EXPERIENCE

Evolution Markets (New York)
Environment and Energy Broker, January 2016 - May 2016

Nicolas worked as a European and North American Energy broker by using his extensive network he developed in the European market. He brokered trades on emissions, renewable certificates, oil and gas, coal and offered risk management solutions to its various portfolio of customers spanning from utilities to trading houses and banks. He also contributed to business development by assisting Evolution Markets broker its first gas option trade in the UK.

Vattenfall Energy Trading (Amsterdam, the Netherlands)
Senior Emissions Trader / Cross Commodity Analyst, 2012 - 2015

Recruited first as an analyst to support the senior trader, Nicolas evolved quickly as the main market facing emissions trader within the company. Nicolas was part of a team of two, responsible for sourcing (via Exchange, Auctions, OTC) the hedging needs of Europe's second largest emitter in the EU-ETS. In this capacity, Nicolas was a key contributor in the overall strategy and compliance position management and participated in the design and ongoing monitoring of the annual compliance plan. He managed the submission of the different compliance instruments to the EU-ETS registry. Nicolas established and maintained relationships with different counterparties (banks, utilities, industrials, brokers and analysts) in the EU-ETS market in order to structure and execute transactions. He was also mandated to execute proprietary trades, not only in emissions but also in gas, power and coal, which yielded substantial profits for 3 years (in excess of 5M Euros per year) by using a mix of technical and fundamental strategies. He was responsible for development of the trading strategy, and the process of the evaluation of the risk embedded in the carbon positions.

Selected accomplishments:

- Developed a CO_2 fundamental model which was used for both compliance instrument purchasing decisions;
- Enhanced internal knowledge of carbon market developments by sending weekly updates of the CO_2 fundamental model;
- Improved existing models to monitor and hedge the large carbon position.
- Initiated the use of options as a way to mitigate risks; and
- Developed the model to monitor and better understand the risk associated with Vattenfall's carbon positions.

Eneco Energy Trade (Amsterdam, the Netherlands)
Cross Commodity Analyst / Proprietary Trader 2008 - 2012

Nicolas was hired as an analyst/trader to help open a European gas trading desk focusing on the most liquid hubs of the UK and Netherlands. Nicolas was tasked to strengthen the analytical power of the team in order to profit from trends in the market. The position then evolved to a more cross commodity role in charge of maintaining a joint desks trading book.
In addition to his trading tasks, he was responsible for monitoring the overall position of the energy trading desk, which included oil and gas, power, emissions and coal. He was tasked to ensure that the overnight positions remained within the risk management parameters. In order to accomplish this, Nicolas used various different risk management tools and techniques, such as stress testing, value at risk (VAR), liquidly risk analysis and concentration risk analysis on all daily positions. Nicolas reported his risk analysis to the Head of Trading in order to modify risk positions to conform within approved parameters. Nicolas championed the change in the process of assessing credit across the organization by introducing Potential Future Exposure parameters (PFE) instead of Mark to Market.

Selected accomplishments:

- Created fundamental supply and demand models in gas and power in order to assist the decision making process for the proprietary positions;
- Set up and managed a cross commodity proprietary book which contributed positively to the division's segmented income;
- Designed and developed the reports and the risk reporting standards for the organization; and
- Led an organization wide study in credit risk monitoring, prepared a report and presented an internal document that instigated a fundamental change in the policy for credit risk monitoring.

Barclays Capital (London, United Kingdom)
Quantitative Risk Analyst 2007- 2008

As part of the Commodities Credit Risk team, Nicolas maintained and created new quantitative models in order to monitor the PFE of the bank against counterparties in the commodities markets. He worked closely with the sales and structuring teams to price the credit risk in commodity transactions, and was responsible for identifying alternatives to reduce credit risk for specific transactions. His main focus area while at Barclays Capital was to support emissions trading and its associated risks, however he also provided support for in different commodity markets – both soft commodity markets and energy. He was also responsible for the monitoring, reporting and communication as to how market risk in different commodity markets was evolving over time.

Selected accomplishments:

- Developed the organization reporting tools and prepare weekly reports that were used by front office to understand how risk in different commodities was evolving and how it would impact new transactions as it relates to credit risk with their customers;
- Developed Excel VBA spreadsheets to monitor calculate, and compare risk in different commodities for use in structured products; and
- Worked in collaboration with sales to create new credit risk mitigating structures.

Fortis Bank (Belgium)
Desk Trader Assistant 2005 - 2006

Nicolas spent his gap year as an intern at the commodities desk, where he assisted the emission and energy traders for the development of various different transaction structures by preparing financial models to support decision making. As this was in the infancy of the carbon market in Europe, Nicolas also assisted the emissions sales desk in understanding new developments in the market and developed strategies to help compliance customers mitigate their carbon risk exposure.

Selected accomplishments:

- Developed the model that would consolidate all the different methods for gas pricing formulas;

- Developed Excel VBA spreadsheets to help pricing and hedging oil options;
- Modelled products pricing for emissions, oil, coal, gas formulas and foreign exchange; and
- Modelled carbon positions of customers and proposed transactions to mitigate and reduce by the use of futures, forwards or offsets.

4. Michael Berends – Head of Sales

PROFESSIONAL HIGHLIGHTS:
Michael is the Head of Sales at ClearBlue and has over 12 years of experience in Carbon Markets, in particular with Cap & Trade strategy, offset development and trading. Michael has been supporting Ontario compliance entities with the development of their Cap & Trade Strategies since mid-2016. Michael has executed thousands of carbon product deals, structuring transactions for offsets, allowances, and allowance related products in the primary and secondary carbon markets in over fifty countries. Michael works with the rest of the ClearBlue team on the overall Cap & Trade strategies for a number of top Ontario emitters and smaller clients, and is involved in the active management of their compliance positions. He further provides his expertise on Ontario's Cap & Trade program by facilitating educational workshops, speaking at conferences and acting as the chair of the Ontario Sustainable Energy Association's (OSEA) Cap & Trade working Group.

Michael brings the following areas of expertise to this project:

- **Carbon Market Capacity Building.** As senior consultant at EcoSecurities, Michael provided carbon market capacity building for numerous governments and corporates. After EcoSecurities, Michael was part of a team specifically hired by Barclays Capital to set-up its offset origination capabilities, expand the bank's secondary EUA/CER sales, and build its overall carbon market capacity. At Barclays, Michael contributed in setting up the emissions sales capabilities of the bank, including day-to-day interactions with the Global Sales, Emissions Traders, Legal, Compliance and Project Finance divisions. At Vattenfall, the second largest EU-ETS compliance buyer, Michael and his team developed the company's emission origination and sales strategy, as well as its procurement capabilities.

- **Cap & Trade Compliance Sales and Transactions**. As manager at both Vattenfall and Barclays Capital, Michael was responsible for overseeing ongoing relationships and sales with compliance entities in Europe. He was also responsible for the risk management of the EU-ETS exposures. This included a portfolio of more than 1,000 emission compliance clients across the EU, including in the United Kingdom, Ireland, Romania, Italy, Greece, Hungary, Czech Republic, Austria, France, Spain, and Bulgaria.

- **Carbon Offset Project Origination, Development and Commercialization.** At EcoSecurities and Vattenfall, Michael led the global origination and development of carbon offset projects, including high-level negotiations with clients on suitable structures for procuring carbon offsets, as well as price and terms and conditions of the complex sales agreements. He has structured offset transactions in excess of €160,000,000 in value.

EDUCATION

- Masters Degree, Environmental Management, 2005. University of Amsterdam. Areas of interest: Emissions Trading, Sustainable Development, Corporate Social Responsibility, Environmental law, Environmental Policy.

- Master of Science Degree in Conservation Biology, 2003. University of Toronto. Areas of interest: Conservation Biology, Evolution, Ecology.

- Bachelor of Science, Honours Degree in Biology, 2000. University of Toronto. Areas of interest: Biology, Chemistry, Genetics, Evolution.

PREVIOUS PROFESSIONAL EXPERIENCE

Israel Chemicals Limited Group (Amsterdam, the Netherlands)
Energy, Global Manager, 2015 - 2016

As a Global Manager of Energy at the ICL Group, Michael was responsible for the procurement of energy for ICL sites globally, with a main focus on European sites. This responsibility consisted of over 50 sites across 6 continents and included the procurement and hedging of emissions, electricity, natural gas, fuel oil, water, waste management and all other related commodities and services. Furthermore, Michael was responsible for the Global Emissions Trading for the ICL Group, which included the EU-ETS strategy and the related compliance position management of two sites in Europe, as well as sites within emerging emissions trading schemes (e.g. China, Israel, Mexico, Brazil and USA).

Selected accomplishments:

- Developed emissions trading strategy at ICL;
- Structured a significant EUA/CER swap transaction for UK and Spain EU-ETS sites;
- Developed the framework for European natural gas transactions;
- Led to the development of ICL's Global and USA natural gas hedging strategy;
- Successfully negotiated an E-Storage agreement and project at ICL Cleveland Potash Mine in the UK.

Vattenfall Energy Trading (Amsterdam, the Netherlands)
Head of Structured Sales and Origination, 2008 - 2015

Michael was hired by Nuon Energy Trade and Wholesale (“Nuon”), which after being taken over by Vattenfall AB, became a part of Vattenfall Energy Trading (“VET”), a division within Vattenfall AB. As Head of Origination at VET, Michael managed Vattenfall’s Emissions Origination team. Michael was responsible for growing the company’s infrastructure for originating and managing a compliance portfolio of emission reduction projects, with the goal of increasing the carbon market profile of the company as an experienced and strong carbon credit (CER, ERUs and VERs) purchasing counterparty. This task included the development of and execution of a compliance strategy, a business plan, and creating internal and external workflows. Michael coordinated all emission reduction project and carbon credit origination (CDM Projects and CERS) activities globally and included working with company sustainability teams to ensure environmental integrity of projects. Michael was responsible for the complete assessment of projects, including due diligence, environmental sustainability and client reputation. Furthermore, he was also responsible for the EU compliance Emissions Sales and Voluntary Offsets. He played a key role in business development, including developing new client relationships and managing ongoing relationships with compliance entities in Europe, specifically for the risk management of their EU-ETS exposures. This task included identifying new structured carbon products and carbon product derivatives and structuring the sales processes.

Selected accomplishments:

- Executed various carbon compliance instrument related contracts in excess of €120 million in value;
- Successfully developed the Compliance Emissions Sales strategy for Vattenfall, building strong and fruitful relationships with the main market players;
- Signing of the Pan Ocean Gas Utilization Project, which is the largest operating registered project in Africa, valued at over €80 million;
- Developed an extensive business network in Japan, comprising the major Japanese trading houses and utilities (i.e. Mitsubishi Corp, Mitsui & Co, Sumitomo, Marubeni), executing transactions in excess of €50 million; and
- Initiated the expansion of Vattenfall’s third party structured emission sales and origination business in Europe, leveraging Vattenfall’s customer base, cross commodity offerings and structured products.

Barclays Capital (London, United Kingdom)
Manager, Emissions Sales; Environmental Markets, 2007 - 2008

Michael was part of the Environmental Markets desk sales team in the Commodities division of the investment bank. He joined Barclays Capital as part of the team that was acquired to set-up its Emissions origination capabilities, expand the bank’s secondary EUA/CER coverage and build its overall carbon market capacity. Michael helped develop Emissions sales capabilities at the bank, including day-to-day working with the Global Sales, Emissions Traders, Legal, Compliance and Project Finance divisions. He was responsible for technical and economic pre-feasibility studies for emission reduction projects, CER pricing, delivery risk assessment, pre-payment evaluation, Term sheet and ERPA development and negotiations.

In addition, Michael managed the EUA/CER compliance sales in Southern Europe, building and maintaining client relationships, focusing on the development of tailored Emission Risk Management Strategies (Swaps, Repos, Options etc.), and day-to-day flow sales.

Selected accomplishments:

- Led structured Sales Missions to Italy to meet EU compliance clients for EUA/CER sales, including negotiation and closing of CER deal valued at over €50million;
- Led emission reduction project origination mission to Tunisia, Algeria, Senegal and the Ivory Coast for CDM origination activities, resulting in transactions valued at over €30million;
- Performed project assessment, negotiated term sheet and ERPA, and pricing for biomass waste to energy project in Ivory Coast;
- Led structured sales missions to Greece to meet EU compliance clients for EUA/CER sales; and
- Performed project assessment, client management, pricing and term sheet and ERPA negotiation for an Israeli N_2O CDM Project (Haifa Chemicals).

EcoSecurities (The Hague, the Netherlands)
Senior Consultant, 2005 – 2007

Michael was Senior Consultant at EcoSecurities Consultancy Services, providing analytic, environmental and economic advisory services for private and public sector clients, as well as internally, supporting the development of GHG reduction projects and GHG management strategies. Michael's tasks included the identification of consultancy opportunities, the development of consultancy proposals, the implementation of consultancy services, including project assessment development, the identification of new business opportunities, strategic corporate advice, and marketing and business development activities.

UNION GAS LIMITED 2018 CAP-AND-TRADE COMPLIANCE PLAN

COMPLIANCE OPTION ANALYSIS AND OPTIMIZATION OF DECISION MAKING - COMPLIANCE INSTRUMENTS

This evidence provides an overview and analysis of all compliance instruments that may be available for use in Union's compliance instrument procurement plan. Also included is an overview of Union's compliance instrument procurement strategy.

This evidence is organized as follows:

1. Compliance Option Analysis and Optimization of Decision Making: Compliance Instruments
   1.1. Allowances
   1.2. Offsets
2. Compliance Instrument Purchase Strategy
   [redacted]

1. COMPLIANCE OPTION ANALYSIS AND OPTIMIZATION OF DECISION MAKING: COMPLIANCE INSTRUMENTS

[redacted]

Union uses the following general criteria to assess compliance instruments for use in its Compliance Plan:

[redacted]

Union engaged ClearBlue to provide recommendations on its targeted compliance instrument mix and to provide information to support the development of Union's 2018 compliance instrument procurement strategy. ClearBlue's report is included as Exhibit 3, Tab 3, Appendix A. The following section of evidence provides a description of the various compliance instruments which may be available for consideration as part of the 2018 Compliance Plan.

Union's 2018 compliance instrument procurement plan builds upon the 2017 approach, found reasonable by the OEB, [redacted]

[redacted]

1.1. Allowances

Emission allowances ("allowances") refer to a limited tradable authorization to emit up to one metric tonne of carbon dioxide equivalent ("tonne CO_2e"). Each allowance is assigned a vintage year that corresponds to the emissions cap for that particular year. In the 2017-2020 compliance period the emissions cap is reduced by 4-5% per year. Allowances are often described as being either a current vintage or a future vintage allowance. Current vintage is defined as having a vintage year within the current compliance period or an earlier year. Future vintage is generally defined as having a vintage year within the next compliance period. Due to Ontario's unique four-year compliance period from 2017-2020, future vintage allowances that became available in 2017 had a vintage year within the current compliance period. In 2018, this anomaly will no longer exist as the future vintage allowances will have a 2021 vintage year and therefore can only be used for compliance in the next compliance period (expected to be 2021-2023).

Allowances (both current and future vintages) can be obtained through government auctions held four times per year, or in the secondary market. Unique considerations for each route to market for allowances, as well as an indication of how Union expects to use each route in 2018, are discussed below.

Current Vintage Auctions

Each year there are four auctions held where market participants and capped emitters are allowed to submit bids to purchase allowances directly from the government. Each bidder in the auction may submit multiple bids, designating both the quantity of allowances desired and the price per allowance they are willing to pay. Each bid must be submitted at a price that is equal to or higher than the Minimum Auction Reserve Price.[2] The bids are confidential and are not revealed, even after the auction.

Once auction bidding is complete, the auction administrator awards the highest price bid first, awarding the number of allowances requested in that bid, then the second highest price bid and so forth until the supply of allowances being auctioned is exhausted. All allowances that are awarded in the auction are then priced equal to the lowest winning bid.

[redacted]

[2] Effective January 1, 2018, the Minimum Auction Reserve Price is determined by taking the higher of the California, Ontario or Québec Minimum Auction Reserve Price and applying the Auction Exchange Rate, if applicable. Each year, the Minimum Auction Reserve Price is increased by 5% plus the rate of inflation. In 2018, the Minimum Auction Reserve Price is expected to be based on the California Minimum Auction Reserve Price based on current foreign currency exchange rates. [redacted]

Future Vintage Auctions

At the time of each current vintage auction, there is also a future vintage auction which operates identically to current vintage auctions as described above. The future vintage auction offers up to 10% of the total allowances of the vintage that is three years later than the current auction year (i.e. in 2018 the future vintage auctions will offer up to 10% of the allowances with a 2021 vintage year). As noted above, future vintage allowances auctioned in 2018 cannot be used for compliance in the current compliance period since their vintage year falls within the next compliance period.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Allowances Acquired in the Secondary Market

A secondary market for allowances exists where entities can buy or sell allowances from other capped emitters or market participants. Secondary market transactions can include:

- Spot transactions – bilateral or over-the-counter ("OTC") purchases for immediate delivery;
- Forward transactions – bilateral or OTC transactions for delivery at some point in the future; and
- Exchange-traded contracts – generally futures contracts for delivery of allowances at some point in the future. These contracts are obtained from an exchange such as ICE.

[redacted]

Another important consideration when purchasing allowances in the secondary market is credit and counterparty risk. Since secondary market purchases are from a non-government entity, they carry an increased level of credit and counterparty risk. See Exhibit 3, Tab 6 for a description of credit and counterparty risk and Union's policies and procedures for managing this risk.

[redacted]

1.2. OFFSETS

Offsets describe another type of compliance instrument that can be used to compensate for GHG emissions. Offsets are generated from environmental projects that reduce or remove greenhouse gases from the atmosphere over and above current policies and regulatory requirements. Similar to allowances, offsets are expressed in tonnes of $C0_2e$. Under the draft proposed Ontario Cap-and-Trade regulation proposal and the Ontario Cap-and-Trade regulations, capped entities may use offset credits to meet up to 8% of their compliance obligation for the entire compliance period.[4] This 8% limit is often referred to as a capped emitter's offset quota. Since the offset quota pertains to the whole compliance period, it does not matter which year within a compliance period offsets are acquired to fill the quota.

The primary advantage of purchasing offsets is that they are typically sold at a discount to allowances. However, there are a number of risks surrounding the purchase of offsets in 2018:

- Low Transparency: Since offsets are not currently traded on an exchange, it is difficult to assess liquidity to determine if there are adequate volumes of offsets available in the market. This low transparency also creates challenges with regard to assessing whether a potential offset purchase price is reasonable.
- Invalidation Risk: This risk is described as the risk that regulators deem an offset to be invalid. Grounds for invalidation of an offset include overstatement of GHG reductions, non-compliance with laws and regulations, double issuance of offset credits, and revisions to offset protocols.[5] The majority of offsets available for sale in 2018 will be California Carbon Offsets ("CCOs") which can carry invalidation risk. In the event that an offset becomes invalidated, the invalidated offset would have to be replaced with a different offset or another compliance instrument in order for the owner of the offset to maintain their compliance position. Depending on specific

[4] As published by the MOECC on the Environmental Registry (EBR 013-1460) on October 4, 2017, no change is being proposed to the 8% limit on the use of offset credits at this time. https://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTMzNTQz&statusId=MjAzMDc1&language=en
[5] In November 2014, the California Air Resources Board invalidated 88,955 offset credits generated from an ozone depleting substances project developed by EOS Climate. The invalidation happened after the regulator determined the offsets were generated at a facility that was out of compliance with a federal permit.

offset contracting arrangements, there is a risk that buyers of invalidated offsets will bear the full cost of both the invalidated offset and its replacement.

- Credit and Counterparty risk: Credit and counterparty risk associated with offset purchases is increased if the offset is a Golden CCO (described on p. 13), as subsequent invalidation of the offset would result in the counterparty having to remediate any damages. See Exhibit 3, Tab 6 for a description of credit and counterparty risk.

In a linked market, Ontario capped entities could have access to different types of offsets, as outlined below.

Ontario Offsets

The MOECC released a draft Offsets Credits Regulatory Proposal ("Draft Proposal") on November 15, 2016 for public comment.[6] The Draft Proposal outlined a number of program elements, including crediting period, reporting and verification requirements, offset credit issuance, and a buffer account. The MOECC then released the Draft Offset Regulation on October 4, 2017.[7] The Draft Offset Regulation includes information on key program elements such as start date, eligibility criteria, registration requirements, credit creation requirements and

[6] EBR 012-9078.
[7] EBR 013-1460

reporting, and verification requirements. Union is reviewing the draft regulation and will continue to engage in the MOECC's consultation process.

Ontario is in the process of adapting up to thirteen existing offset protocols from existing regulated and voluntary offset markets. The MOECC posted the first draft compliance offset protocol (Landfill Gas ("LFG") Protocol) for public comment on May 19, 2017.[8] Coincident with the release of the Draft Offset Regulation on October 4, 2017, the MOECC also posted a revised draft of the LFG Protocol for public comment. Ontario will be developing two additional protocols in 2017, with the remaining protocols to be completed throughout 2018.

Based on the Draft Offset Regulation, it is expected that invalidation risk will be covered by a buffer account, as it is in Québec: in order to mitigate offset invalidation risk, the regulator creates a buffer account where a certain percentage of offset credits, generated from offset projects, will be held to provide a pool of offsets that serve as an insurance mechanism against future invalidation.

Québec and California Offsets

In Québec, there are currently five offset protocols governing the offset program that may be used to generate offset credits. As of November 8, 2017, Québec had issued approximately 0.6 Mt CO_2e offset credits from two protocols (landfill sites and

[8] EBR 013-0480

destruction of ozone depleting substances). As mentioned above, Québec's offset program includes a buffer account insuring participants against invalidation risk.

In California, there are currently six offset protocols governing the offset program that may be used to generate offset credits. California's offset program issues credits for projects under two categories: compliance and early action. Compliance credits must be developed according to the protocols adopted by California Air Resources Board ("ARB") as part of the Cap-and-Trade program. Early action credits are offsets that were developed under a voluntary program that existed in California prior to the establishment of the compliance offset credits. Early action credits are allowed to be transitioned into offsets credits for use to comply with the Cap-and-Trade program. As of November 8, 2017, the ARB had issued over 85 Mt CO_2e offset credits from four protocols (early action and compliance), with the majority of these credits generated from the U.S. Forest protocol.

As discussed above, California's offset program carries an invalidation risk.[9] The risk of offset invalidation falls on the buyer who holds the offsets at the time of invalidation, creating an obligation on compliance entities to replace invalidated offsets. However, the California market offers different contracts to reduce or eliminate the invalidation risk. As outlined in Exhibit 3, Tab 3, Appendix A, Annex II, examples of these contracts include:

---

[9] The California US Forest protocol offers a buffer account managed by ARB to provide insurance against unintentional reversals of offset credits generated under that protocol.

- ARB Offset Credits (CCO3 or CCO8): where credits have been issued by the regulator but the buyer invalidation liability continues for 3 or 8 years;
- Seasoned CCOs: where offsets have gone through either the 8 or 3-year crediting period and therefore can no longer be deemed to be invalid;[10] and,
- Golden CCOs: where the seller agrees to replace the invalidated offset with either another offset or an allowance.

WCI linkage allows for Ontario entities to procure Québec and California offset credits and similarly, for Québec and California entities to procure Ontario offset credits to meet their compliance obligations.

[redacted]

[10] In California, offsets that have been verified once have a liability period of 8 years during which they could be invalidated. This period is reduced to 3 years if verification is done a second time by a different verifier.

[redacted]

[redacted]

[redacted]

[redacted]

2. Compliance Instrument Purchasing Strategy

This section describes Union's strategy for purchasing compliance instruments in 2018. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

ClearBlue Markets
265 Rimrock Road
Suite 201, Toronto
Ontario, M3J 3C6
Canada
Tel 416-864-8040
www.clearbluemarkets.com

ClearBlue Markets Cap & Trade Services

2018 Compliance Instrument Purchasing Strategy

Internal paper for Union Gas

October 31, 2017

Table of Contents

Executive Summary & Recommendations 3

1. Key Considerations for 2018 5

1.1. Linkage 5
1.2. Market Liquidity Impact of Linked Market 6
1.3. Preparing for operating in a linked market 11
1.4. Key California regulatory events 11
1.5. Ontario regulatory changes 13
Changes to enable linkage 13
Ontario Offset Regulation and Protocols 14
Other regulatory changes being considered 14
Post-2020 Program Design 15
Cap-Decline Ratio 15
New jurisdictions and further linkage 17
De-linkage risk 17

2. Compliance Instrument Mix 18

[redacted]
2.2. Secondary market allowance purchases 19
2.3. Offsets 20
Primary offsets 21
Secondary offsets 21
Hybrid structures 22
Carbon Fund participation 22
Diversification in Offset Purchases 23

3. Union's 2018 Compliance Instrument Procurement Strategy 24

[redacted]

Definitions and Acronyms 28

Annex I – Treatment of unsold allowances in auctions 33

Annex II – California offset risks and traded contracts 34

Offset invalidation risk 34
Types of ARB offsets and contracts that are traded 35

Executive Summary & Recommendations

In 2016, ClearBlue Markets was engaged by Union Gas Limited ("Union") to develop the 2017 Compliance Instrument Purchasing Strategy (delivered in November 2016) [redacted] This document recommends updates to both strategies and should be read in conjunction with the 2017 documents. Further, this paper explores various important considerations that Union should make when designing its 2018 Compliance Plan.

[redacted]

Some factors that were uncertain at the time of writing the 2017 strategies are still unknown, but more information is now available and the experience Union has gained so far can be used to update the strategies. There was an announcement that Ontario will link to the broader WCI market (California and Quebec) as of January 1, 2018. The MOECC then also published its proposal for the necessary regulatory amendments for linkage – for which there is now a 45-day consultation period – but the proposal does not specify all the details of the proposed amendments. Also, on October 4, 2017, MOECC published the consultation draft for the offset regulation, together with the first offset protocol, for landfill gas projects. Because this was published just upon finalization of this document, the content of this report is still based on the 2016 offset regulatory proposal.

Our key recommendations for the 2018 Compliance Instrument Purchasing Strategy are summarized below. Note that based on the official linkage announcement, these recommendations assume that linkage to the WCI market will occur.

Compliance Instrument Mix

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

2018 Procurement Strategy

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

1. Key Considerations for 2018

1.1. Linkage

On September 22, 2017, Ontario, Quebec and California signed the "*Agreement on the Harmonization and Integration of Cap-and-Trade Programs for Reducing Greenhouse Gas Emissions*" that would link Ontario's market to the WCI market as of January 1, 2018.

Linkage of the Ontario market to California and Quebec will impact the market in a number different ways. The market will be much larger, meaning more liquidity. California has a surplus of allowances for the compliance period(s) up to 2020, meaning there is downward pressure on prices for Ontario entities (though we see this priced in already, as the market had fully expected linkage to happen). [redacted]

On September 22, the MOECC also published its proposal[2] for the necessary regulatory amendments for linkage to the California/Québec market, for which there is now a 45-day consultation period. See Section 1.5 for a summary of the issues.

It is important to note that parties can withdraw from the linkage agreement. It states that: "*A Party that intends to withdraw from this Agreement shall <u>endeavour to give 12 months notice</u> of intent to withdraw to the other Parties. A Party that intends to withdraw from this Agreement shall <u>endeavour to match the effective date of withdrawal with the end of a compliance period</u>.*" In practice, "de-linkage" will not be easy for governments to implement because compliance entities will already be holding compliance instruments from other jurisdictions in their accounts. In the unlikely event that de-linkage does occur, compliance entities in Ontario would not receive the benefits of a linked market discussed above (i.e. increased liquidity, larger auction purchase and holding limits, etc.).

1.2. Market Liquidity Impact of Linked Market

When Ontario joins the WCI Cap & Trade market, it will join and create a much larger market than the Ontario-only market. Figure 1 below shows the cap of each jurisdiction under the Cap & Trade Program Regulations.

	CA Cap	QC Cap	ON Cap	Total Cap
2017			142,332,000	142,332,000
2018	358,300,000	58,960,000	136,440,000	553,700,000
2019	346,300,000	56,850,000	130,556,000	533,706,000
2020	334,200,000	54,740,000	124,668,000	513,608,000

Figure 1 - Emissions cap of jurisdictions

The Ontario cap will represent approximately 25% of the overall linked WCI cap in 2018. Since the WCI Cap & Trade market has been in existence since 2013, it is also a more mature market with more liquidity in the secondary market.

[2] Proposed Amendments to the Cap and Trade Program and Reporting Regulations & Proposed Service Regulation, September 22, 2017.

Primary Market (Auction) liquidity

At the time of writing this report, three auctions have taken place in Ontario. Each of these auctions offered the same volume for sale: 25.3 million vintage 2017 allowances and 3.1 million future vintage allowances. The auction notice was published for the 4th Ontario auction to be held November 29, which will auction the same volume. This will be that last “unlinked” auction for the Ontario market. This means that 101.2 million vintage 2017 allowances will have been offered or 71.1% of the 2017 allowances available under the Ontario cap. The remaining 28.9% of allowances are either distributed for free by the MOECC or held in the Ontario Price Containment Reserve. [redacted]

[redacted]

Since joint auctions started in November of 2014, the volume sold in the joint auction has been relatively stable and this allows us to use the same reasoning for the California / Quebec market as we do for Ontario. Including the volume from the 4th WCI auction in 2017 to be held November 14, 2017, 257 million vintage 2017 allowances[3] will have been offered, or 60% of the 2017 allowances available under the California and Quebec cap, see Figure 3 (the remaining 40% of allowances are either distributed for free by ARB, held in the Price Containment Reserve, or held in the California Voluntary Renewable Electricity Reserve.

	a - CA cap	b - QC cap	c - CA Price Containment Reserve	d - CA Voluntary Renewable Electricity Reserve	e - QC Price Containment Reserve	f - CA / QC Allowances distributed for free	g - CA / QC Allowances sold in quarterly auctions (g=a+b-c-d-e-f)
2017	370,400,000	61,080,000	14,816,000	926,000	2,443,200	156,325,084	256,969,716
2018	358,300,000	58,960,000	25,081,000	895,750	4,127,200	146,438,334	240,717,716
2019	346,300,000	56,850,000	24,241,000	865,750	3,979,500	141,486,288	232,577,462
2020	334,200,000	54,740,000	23,394,000	835,500	3,831,800	136,499,160	224,379,540

Figure 3 - California/Quebec cap and estimation of allowances available for sale in auction

These calculations allow us to estimate how many allowances will be available for sale in a joint auction (California/Quebec/Ontario). We expect to see the volume in the auction jump from 101.2 million allowances in 2017 (in Ontario) to 339.5 million allowances in 2018 (in the

[3] Note that this number excludes the unsold consigned allowances from the previous year, as well as the unsold jurisdiction owned allowances.

fully linked market). This means that linkage will increase the auction purchase limit for Ontario compliance entities by over 3 times, from 6.3 million allowances per auction in 2017 (Figure 4, column e) to 21.2 million allowances per auction in 2018 (Figure 4, column c). Note this calculation ignores the impact of the unsold allowances that have accumulated in the California/Quebec market (discussed below). [redacted]

	a - Total Allowances sold in quarterly auctions available to Ontario entities in linked market	b - Allowances sold in quarterly auction assuming an ON-only market	c - Purchase Limit per Auction in linked market (c=a*25%)	[redacted]
2017	101,185,468	101,185,468	6,324,092	
2018	339,510,058	96,996,777	21,219,379	
2019	327,126,080	92,813,773	20,445,380	
2020	314,681,160	88,627,926	19,667,573	

[redacted]

Unsold Allowances in Auctions

Since February 2016, due to regulatory uncertainty and oversupply in the market, WCI auctions have seen some of their volume unsold. The California and Quebec regulations have provisions in case this occurs (see Annex I for details on these provisions). Currently, unsold jurisdiction-owned allowances represent over 142.9 million allowances. These would be added to the current vintage auction volume if two auctions in a row are fully-subscribed, which increases the auction volume, and therefore auction purchase limits, as will be the case for the November 14, 2017 auction. [redacted] Figure 5 shows the auction volumes sold since the California and Quebec markets have been joined.

[redacted]

	Current Vintage Allowances for sale	Current Vintage Allowances sold	Unsold CA Consigned Allowances	Unsold Jurisdictionally owned Allowances
Nov-14	23,070,987	23,070,987	-	-
Feb-15	73,610,528	73,610,528	-	-
May-15	76,931,627	76,931,627	-	-
Aug-15	73,429,360	73,429,360	-	-
Nov-15	75,113,008	75,113,008	-	-
Feb-16	71,555,827	68,026,000	-	3,529,827
May-16	67,675,951	7,260,000	15,773,481	44,642,470
Aug-16	86,278,410	30,021,000	14,049,879	42,207,531
Nov-16	87,069,495	76,960,000	-	10,109,495
Feb-17	65,104,273	11,673,000	10,972,979	42,458,294
May-17	75,311,960	75,311,960	-	-
Aug-17	63,887,833	63,887,833	-	-
Nov-17	79,548,286	TBD	TBD	TBD

Figure 5 - Allowances sold in the California/Quebec auctions

Secondary Market

[redacted] The OCA (Ontario Carbon Allowance) contract was introduced on the ICE exchange on January 30, 2017. The Open Interest (OI), a measure of the number of contracts or commitments outstanding on the exchange, is currently 0.8 million allowances and the total volume that has exchanged hands to date is 2.2 million allowances (see Figure 6). Note that no trades were executed on the exchange since June 21, 2017.

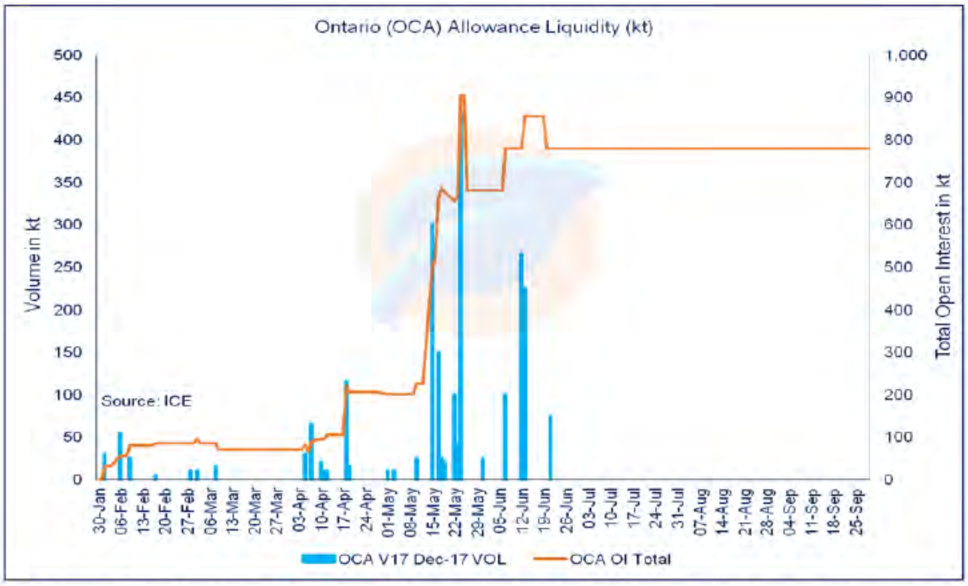


Figure 6 - Ontario Carbon Allowance traded volume and open interest

For comparison purposes, when the California market started in 2013, the volume traded for current vintage allowances after nine months was 30.4 million allowances and the open interest was 20.8 million allowances (roughly 14 times larger, despite the market only being 1.14 times larger based on the cap. During the first year in California, the fuel and gas distributors, which make up a large portion of the market today, were not required to participate in Cap and Trade). This difference between the Ontario and California market can be explained by the expectation of linkage. [redacted]

[redacted]

Liquidity going forward

Once linkage becomes effective, it is expected that the OCA and the CCA ICE futures contracts will merge.[6] The Open Interest for CCAs is currently over 93.1 million and the average monthly volume traded in 2017 is 24.5 million (see Figure 7). Note that this volume includes current and future vintage allowances as well as spread trades[7] and may not represent outright tradable volume.

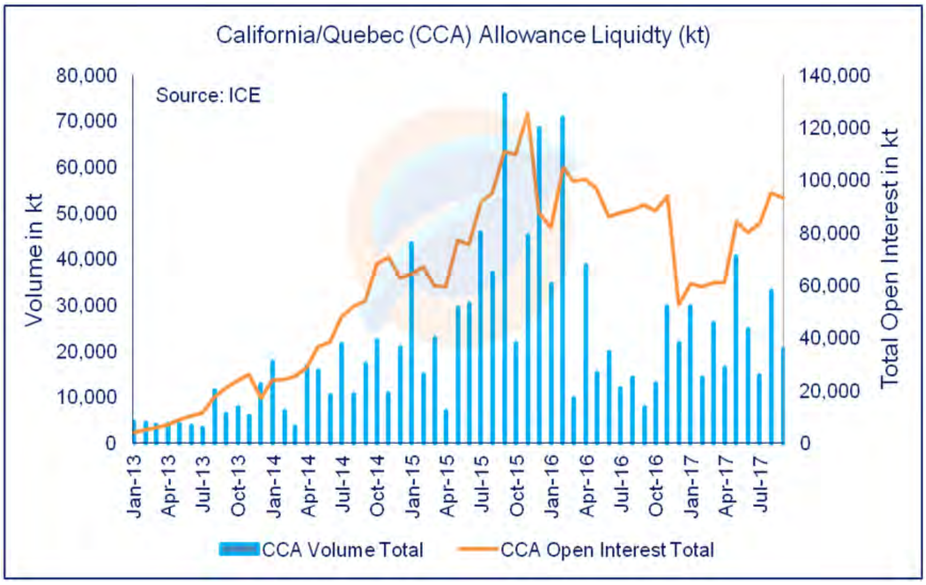


Figure 7 - California/Quebec liquidity

Holding Limits

Once Ontario links to the California/Quebec market, Union's holding limit will also change. The holding limit is a function of the cap and because the cap will increase so will the holding limit. [redacted]

[redacted]

[6] Based on our discussion with ICE.

[7] A spread trade is the simultaneous purchase of one security and sale of a related security, called legs, as a unit. Spread trades are usually executed with options or futures contracts as the legs, but other securities are sometimes used. In the carbon markets, a common spread trade is between different delivery dates (for example, buying a December futures contract while at the same time selling a March futures contract). Spread trades do not generally result in a change to an entity's overall compliance position.

[redacted]

	a - CA cap	b - QC cap	c - ON cap	d - Holding Limit for ON entities (d=2,500,000+0.025 *(a+b+c- 25,000,000))	[redacted]
2017	370,400,000	61,080,000	142,332,000	5,433,300	
2018	358,300,000	58,960,000	136,440,000	15,717,500	
2019	346,300,000	56,850,000	130,556,000	15,217,650	
2020	334,200,000	54,740,000	124,668,000	14,715,200	

Figure 8 - Holding limit after linkage[9]

1.3. Preparing for operating in a linked market

[redacted]

- [redacted]
- Union's relative size in the market is smaller, though still one of the largest entities in the market - See also Section 2.2

Figure 9 shows Union's relative position before and after linkage (ranked by size in the WCI market):

	Facility Owner	Province/State	Sector	Total CO2e from all sources in CO2e (t) 2014	% of 2017 Cap of State/Province	% of 2017 Cap of WCI
1	ONTARIO GASOLINE /DIESEL - End User Emissions *	ON	Fuel Distributor	57,900,000	41%	10%
2	Tesoro Refining & Marketing Company, LLC	CA	Fuel Distributor	55,274,661	15%	10%
3	Chevron U.S.A., Inc.	CA	Fuel Distributor	42,616,636	12%	7%
4	QUEBEC GASOLINE /DIESEL - End User Emissions *	QC	Fuel Distributor	31,614,801	52%	6%
5	Phillips 66 Company	CA	Fuel Distributor	22,803,520	6%	4%
6	Enbridge Gas Distribution **	ON	Gas Distributor	21,136,767	15%	4%
7	Southern California Gas Co	CA	Gas Distributor	20,224,610	5%	4%
8	PG&E	CA	Gas Distributor	19,086,143	5%	3%
9	Shell Energy North America (US), LP	CA	Fuel Distributor	16,128,871	4%	3%
10	Union Gas **	ON	Gas Distributor	15,597,229	11%	3%
11	Los Angeles Department of Water & Power (LADWP)	CA	Power	15,378,501	4%	3%
12	Valero Marketing and Supply Company - Fuel Supplier	CA	Fuel Distributor	14,522,492	4%	3%
13	PBF Energy Western Region, LLC	CA	Fuel Distributor	10,343,655	3%	2%
14	Calpine Corporation	CA	Power	10,316,963	3%	2%
15	QUEBEC NATURAL GAS - End User Emissions *	QC	Gas Distributor	7,368,085	12%	1%
16	BP West Coast Products LLC (BPWCP) - Terminals	CA	Fuel Distributor	6,324,346	2%	1%
17	ArcelorMittal Dofasco Inc.	ON	Industrial	5,118,326	4%	1%
18	SDG&E	CA	Power	4,626,304	1%	1%
19	Southern California Edison (SCE)	CA	Power	4,396,027	1%	1%
20	Essar Canada Ltd.	ON	Industrial	4,113,564	3%	1%

*No data is available for indivudual Fuel/Gas emitters in QC and ON
** 2017 emission forecast filed with OEB

Figure 9 - Union's emissions position versus other emitters

1.4. Key California regulatory events

Since Ontario has announced linkage to the WCI market, and California is by far the largest

[9] The holding limit numbers were confirmed in the September 22 proposed amendments.

participant in that market, any regulatory events in California will impact the Ontario market.

Post 2020 Program Design

On July 17th, 2017 both houses of the California State Legislator passed Assembly Bill (AB) 398 by a two-thirds bipartisan majority. The bill was introduced by California Governor Jerry Brown who has been an advocate for extending the Cap & Trade program past 2020. AB 398 will give the California Air Resource Board (ARB) important authority over the market design as it will be responsible to set specified price ceilings, price containment points, and industry assistance factors for allowance allocation (i.e. factors which guide how free allowances are distributed to capped emitters in certain trade-exposed industries). The following changes to the carbon market will also be implemented:

- From 2021 to 2025, the offset limit would be set at 4% of the compliance obligation, with no more than half being sourced from offset projects outside of California. From 2026, the limit would increase to 6%, with no more than half being sourced outside of California;
- The number of free allowances issued to certain capped emitters would be based on 2015-2017 emissions and this number would decline at the same rate as the total California emissions cap. This could mean that free allowance levels would fall by 40% by 2030.
- Establishment of a price ceiling at which, if reached, an unlimited amount of allowances could be sold by the state;
- Two price containment points (expected to be similar to the current allowance price containment reserve) would be introduced using two-thirds of the allowances in the price containment reserve as of December 31, 2017;
- Unsold allowances in an auction would be transferred after 24 months to the existing allowance price containment reserve;
- After December 31, 2020, any allowances in the price containment reserve would be used solely for the purpose of sale at the price ceiling mentioned above; and
- New rules for carrying unused allowances forward to future compliance periods would be introduced to limit speculation.

Though the bills fall short of providing exact details on how the market would look after 2020, this vote has increased certainty in the market and is expected to increase demand by compliance entities in the market prior to 2020. This has improved market sentiment and has led to increased prices. As discussed below, the two-third majority vote that AB 398 received now protects the Cap & Trade program from litigation claiming that Cap & Trade is an illegal tax, which will also help with market certainty.

In terms of next steps, the ARB, who will be responsible for important factors in the market design, held a workshop on October 12, 2017 to discuss the future of California's Cap & Trade Regulation and outline the proposed regulatory changes for post-2020. Stakeholders can submit comments until October 27, 2017. We expect that the exact rules governing the market will not be known before 2019.

CCC vs ARB Appeal
Also in California, there was an appeal in the court case *California Chamber of Commerce, et al., vs. California Air Resources Board, et al.* The claim in this case was that ARB created a tax on businesses in violation of the state's landmark Proposition 13 when it devised Cap & Trade auctions that steer revenue to state services. If Cap & Trade would have been considered a tax, Proposition 13 requires that the auctions win the blessing of two-thirds of the Legislature, which was not the case when Cap & Trade was introduced. After the Court of Appeal ruled in favour of the ARB on April 6, 2017, the plaintiffs appealed to the California Supreme Court.

On June 28, 2017, the appeal was denied by the California Supreme Court. This decision ends the lawsuit and the appeals process and has lifted some of the uncertainty in the WCI market.

1.5. Ontario regulatory changes

Changes to enable linkage
On September 22nd, the Ontario, Quebec and California governments announced the linkage of their Cap & Trade systems. On the same day, the MOECC also proposed several amendments to Ontario's Cap & Trade program to modify the regulation to account for a new linked market starting January 1, 2018.

The amendments in many cases lack detail, but in general they are very much in-line with expectations. We highlight some of the proposed amendments as they may be relevant for Union:

- The holding limits and auction purchase limits will change as indicated already in this document (Figures 4 & 8). The holding limits and auction purchasing limits would also have to be shared with related entities in Quebec and/or California.

- Linkage will be effective as of January 1, 2018. The proposed amendment document does not specify whether there will be any restrictions on the fungibility of older vintages (e.g. using Ontario 2017 allowances in California, or vice-versa). [redacted]

- After linkage, payment in USD for allowances procured in government auctions will be allowed.

- the Ministry will recognize compliance instruments from California and Quebec for compliance obligations in Ontario. Ontario entities will be able to purchase or sell WCI compliances instruments along with Ontario's instruments, while entities in California and Quebec will be able do the same. The Ministry is proposing to treat emission allowances and credits from other jurisdictions similarly to Ontario instruments when being removed from accounts at the end of the compliance period. Compliance instruments, regardless of the jurisdiction they originate from, will be removed *according to the same algorithm applied in Ontario*.

- The Ministry is proposing to change Ontario's auction reserve price, or 'floor price'. Ontario will have its own auction reserve price and raise it annually by 5% plus changes in its Consumer Price Index, similar to California and Quebec. The linked market auction reserve price will then be set at the highest reserve price from all three jurisdictions, applying the Canadian dollar exchange rate published by the Bank of Canada on the previous day, as it currently does. In the current Ontario regulation, the auction reserve price was based only on the California and Quebec reserve price. After the amendment, Ontario inflation would also become a factor in the calculation. At the current USD/CAD exchange rate, this change would not affect the market, as the California reserve price far exceeds the Ontario and Quebec reserve prices in CAD.

Ontario Offset Regulation and Protocols

The Ontario Cap & Trade Regulation currently does not set out what the rules for the *creation* of Ontario offsets are, it only details how many offsets may be used for compliance (i.e. 8% cap on use). On October 4, 2017, MOECC published the Draft Ontario Offset Credits Regulation[10] together with the first offset protocol for landfill gas projects. Because this was published just upon finalization of this document, the content of this report is still based on the 2016 '*Compliance Offset Credits Regulatory Proposal'*.

There is currently an ongoing joint Ontario and Quebec project led by a team of consultants including the CAR (Climate Action Reserve) to adapt protocols for use by the Ontario and Quebec Cap & Trade programs. ClearBlue are currently stakeholders for most of the protocols and have been highly involved in providing input to the draft protocols. We expect to see the final versions of most of the protocols published throughout the remainder of 2017.

Other regulatory changes being considered

The MOECC is working on several other regulatory changes that are not expected to have a significant market impact. Some changes simply relate to the fact that Cap & Trade is new for Ontario and was introduced in a relatively short timeframe, meaning various minor corrections are still being considered. These changes are not expected to impact the current compliance period (2017-2020).

- The approach to allocating allowances free of charge (using production based methods where possible)
- Reviewing voluntary (opt-in) participant eligibility
- Treatment of unsold allowances
- Reserve sale design
- Review point of regulation (e.g., electricity generators) – Note: this could mean Union would no longer be the point of regulation for natural gas fired power plants and could reduce the size of the compliance position

[10] See https://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTMzNTQz&statusId=MjAzMDc1&language=en for more information, and a link to the Draft Ontario Offset Credits Regulation.

- Review treatment of aviation and marine fuels

Post-2020 Program Design

Compliance entities should always be aware that numerous things may change in a regulatory driven market. Many aspects of the Cap & Trade program may be altered, especially at the end of a compliance period (i.e. after 2020). The most important risk to consider in the discussions around post-2020 program design is an "abandonment of program"[11] (i.e. the risk that the government may decide to end the Cap & Trade program and potentially replace it with other measures to reduce emissions such as a carbon tax, or direct regulation). Ontario might also consider changing the offset cap similar to the changes made in California.

Cap-Decline Ratio

One of the key Post-2020 design decisions that would affect Union are those related to setting the cap after 2020. The Climate Change Action Plan and Cap & Trade program form the backbone of Ontario's strategy to cut greenhouse gas emissions. The targets for the Ontario economy as a whole – which includes the emissions covered by Cap & Trade – are set to cut emissions ***below 1990 levels*** as follows:

- ***15%*** by 2020
- ***37%*** by 2030
- ***80%*** by 2050.

According to the Canada National Inventory Report, emissions in Ontario in 1990 were 182Mt, which translates to emissions reduction targets of ***27Mt*** by 2020, a further ***40Mt*** by 2030 and ***78Mt*** more by 2050 (these numbers are for the entire Ontario economy, so include emissions covered by Cap & Trade).

Figure 10 shows Ontario's emissions between 1990 and 2015, with the Province's emissions reduction targets for 2014, 2020 and 2030. The province's 2014 emissions reductions target was achieved primarily due to the completed phase-out of coal-fired electricity as well as the recession. The 2020 and 2030 targets are indicated by the blue squares in Figure 10.

[11] This applies to both Ontario itself, and any jurisdiction that Ontario would link to.

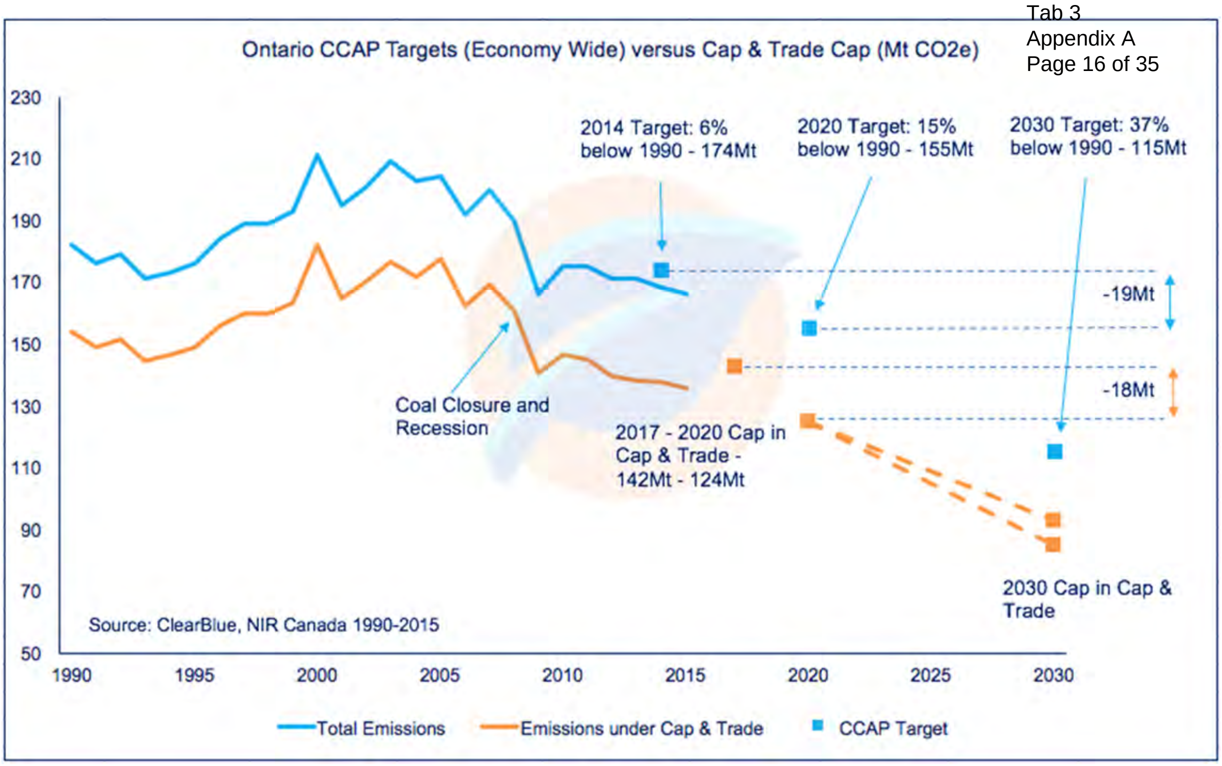


Figure 10 - Ontario versus Ontario Cap & Trade Targets

Based on the current design, the Cap & Trade program covers over 80% of Ontario emissions, with a reduction in the cap of 18 Mt. This 18 Mt is roughly equal to the total reductions (within and outside the Cap & Trade program) that Ontario as a whole still needs to achieve to meet its 2020 target.

Design for the post 2020 market is currently under discussion with Ontario stakeholders. However, the emissions target for 2030 is clear and this allows us to make scenarios, see Figure 11.

If Ontario was to use the Cap & Trade program to achieve 100% of the 2030 target, this would imply a cap reduction from 124.7Mt in 2020 to 84.7Mt in 2030 (or a 2.8%/year when expressed as a percentage of the 2017 Cap[12]), which is less than in the current system where the cap is reduced by 4.1% per year as a percentage of the 2017 Cap[13]. Despite a lower decline ratio, this scenario would put upward pressure on carbon prices, as marginal emission reduction measures will become more expensive.

If Ontario was to use the Cap & Trade program to achieve 80% of the 2030 target[14], this would imply a cap reduction from 124.7Mt in 2020 to 92.7Mt in 2030 (2.3%/year when

[12] This would require an average reduction of 3.8% per year over those 10 years when the reduction is calculated as a percentage of the previous year's emissions.
[13] The Cap declines by an absolute number of allowances each year in the first compliance period. This means when calculating the decline as a percentage of the previous year, it actually increases.
[14] This would mean the other 20% would have to be achieved in sectors outside the Cap & Trade, such as in agriculture, waste, aviation and shipping, and fugitive emissions from the oil and gas sector.

expressed as a percentage of the 2017 Cap). This scenario would put less upward pressure on prices than if Cap & Trade is used to achieve 100% of the 2030 target.

Though the September 22, 2017 proposed amendments document does not specify what the annual Cap decline rate will be beyond 2020, it does confirm that the anticipated annual decline rate will be lower than it is in the current compliance period.

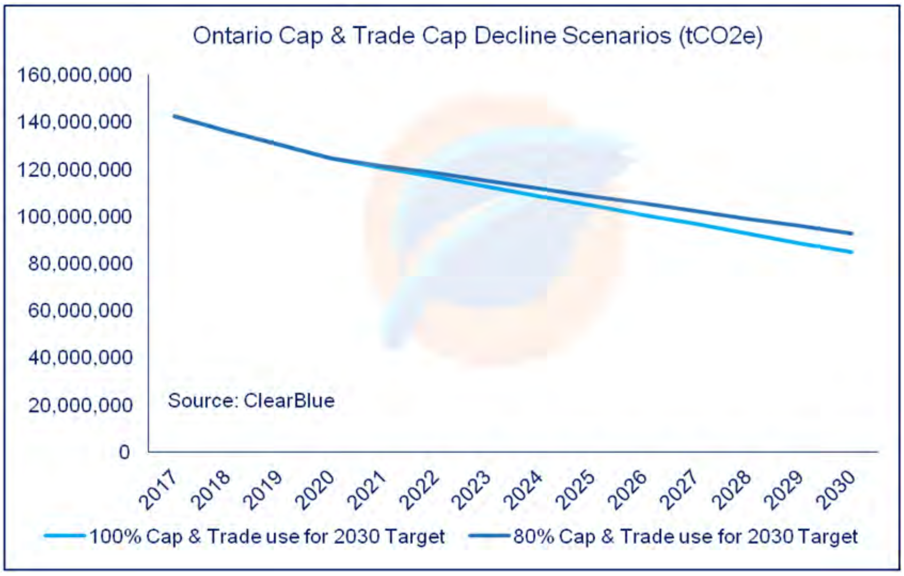


Figure 11 - Ontario cap decline scenarios

New jurisdictions and further linkage

There are a number of Canadian provinces and US states that have indicated their intention to join the WCI Market. In general, a larger market would reduce overall compliance costs and provide more liquidity, but linking to a market that is short could also drive up allowance prices. It is important to realize that each new jurisdiction joining would have its own variation to the rules, and some rules may impact pricing. For example, the state of Washington has considered one-way linkage to WCI, where WCI allowances could be bought for use in Washington, but no additional allowances would be added to the WCI from Washington. This would effectively reduce the supply of allowances available to existing WCI compliance entities. Different rules on creation and eligibility of offsets may also imply different price levels for different types of offsets. In general, further linkages will add some uncertainty to the market as it determines if new markets will be a source of net supply or net demand.

De-linkage risk

It is also possible for markets that have already linked to decide they want to undo that linkage. If this happens for Ontario, we would expect that to be announced and then implemented at the end of a compliance period, in line with the rules for withdrawal in the linkage agreement. It is important to consider the possibility of de-linkage when buying compliance instruments for the next compliance period, especially when buying and holding offsets for use in future compliance periods.[15]

Though de-linkage would be difficult for the jurisdictions to implement and, similar to an abandonment of program, may lead to court cases by covered entities, it is important to realize that it is possible. An example of this exists in the Regional Greenhouse Gas Initiative (RGGI). In 2011 New Jersey became the first – and only – state to pull out of the 10-state cap and trade program. Recently, the New Jersey Assembly voted to require the state to rejoin RGGI.

De-linkage, or a scenario where linkage somehow does not occur in 2018, can have a significant impact on the market as the Ontario market would be much shorter than the bigger WCI market. [redacted]

2. Compliance Instrument Mix

[redacted]

[redacted]

[redacted]

[15] Restrictions on use of offsets would be easier to implement than restrictions on the use of allowances, as the source of the offsets can be identified in CITSS. It is currently not possible to distinguish between California and Quebec allowances, which would make restrictions on use of specific allowances after a potential de-linkage more difficult to implement. [redacted]

2.2. Secondary market allowance purchases

When the Ontario Cap & Trade market joins the WCI market, this larger market will offer more routes to purchase compliance instruments. To date, the Ontario market has offered limited opportunity to purchase allowances on the secondary market but this will change after linkage. For example, this year in the WCI market (as of end of September 2017) the ICE exchange has seen over 220.1 million allowances exchanging hands, while the auctions have sold a total of 163.4 million allowances. The ICE exchange has consistently traded higher volumes than the auction in the past 3 years (see Figure 12 below) and this is a trend that we expect to continue after Ontario links with California and Quebec.

	Volume traded on ICE in kt	Volume sold in Auction CA/QC in kt
2013	72,774	91,735
2014	174,844	119,403
2015	441,735	340,191
2016	287,531	194,311
2017	220,083	163,414

Figure 12 - California/Quebec market liquidity

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

2.3. Offsets

Compliance entities in Ontario are permitted to cover up to 8% of their total compliance obligation over a compliance period with offsets. This 'cap' to use 8% of emissions in the form of offsets instead of allowances expires at the end of each compliance period (any unused portion of the '8% cap' cannot be carried over to the next compliance period). [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Primary offsets

[redacted]

[redacted]

[redacted]

Secondary offsets

[redacted]

Though a secondary market for offsets does not yet exist in Ontario, after linkage, offsets can be bought in the WCI market.

[redacted]

[redacted]

[redacted]

[redacted]

Hybrid structures
Dedicated carbon offset developers sometimes offer 'guaranteed' structures, where they deliver from a portfolio of different offset projects. Such opportunities can resemble primary offset structures, but here the seller would offer a 'pre-diversified' portfolio, thus making delivery from the portfolio somewhat more predictable. In a primary offset transaction, total delivery of offsets would depend on the performance of the individual projects. Hybrid structures provide buyers with an opportunity to own a portfolio of primary offset projects without actually managing it.

[redacted]

Carbon Fund participation
A carbon fund (or offset fund) is a legal structure set up to source and manage a portfolio of offset projects for multiple buyers. In Europe and Japan, there have been many examples of private and public-sector carbon funds that sourced CERs (offsets used among others in the European market) for both governments and companies under the EU Emission Trading Scheme (EU-ETS). [redacted]

[redacted]

Diversification in Offset Purchases

[redacted]

[redacted]

[redacted]

3. Union's 2018 Compliance Instrument Procurement Strategy

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Definitions and Acronyms

Definitions

“Allowance” means a limited tradable authorization to emit up to one metric tonne of carbon dioxide equivalent.

“Auction” or “Uniform Price Auction” means a multi-unit auction in which a fixed number of identical units of a specific commodity (Allowances) are sold for the same price. Each bidder in the auction may submit multiple bids, designating both the quantity of units desired and the price to pay per unit. The highest bidder is served first, giving them the number of units requested, then the second highest bidder and so forth until the supply of Allowances is exhausted. All bidders then pay a per unit price equal to the lowest winning bid (the lowest bid out of the buyers who actually received one or more units) - regardless of their actual bid. This is the process used by the Ontario and the current WCI market regulatory bodies to sell Allowances.

“Auction Floor Price” or “Auction Reserve Price” or “Minimum Price” means at an auction, the price for an Allowance below which bids will not be accepted.

“Auction Holding Account” is an account into which allowances are transferred from holding accounts of entities for which allowances are being auctioned. For California entities only.

“Cap” means the limit on total emissions from the covered sectors.

“Cap & Trade Regulation” means O. Reg. 144/16: The Ontario Cap and Trade Program, which is a regulation under the Act. Also referred to as the program.

“Cap-decline ratio” means the linear rate at which the cap declines annually.

“Carbon fund” is a fund dedicated to purchasing offsets directly from offset projects on behalf of compliance buyers that participate in the fund. An alternative structure that is also sometimes referred to as a carbon fund would be more directly involved in financing offset projects in exchange for offset credits.

“Climate Action Reserve” (CAR) is a carbon offset registry for the North American carbon market. They also work as consultants for the MOECC and the MDDELCC (Quebec) on the offset protocols.

“Compliance entities” means a mandatory participant or a voluntary participant, also referred to as a capped participant in the Regulations.

"Compliance Instrument” means an Ontario emission allowance or offset issued by the Ontario government for use in the Ontario Cap & Trade program. Assuming the Ontario Cap & Trade program links with the WCI Cap & Trade program or any other emission reduction program, this will also include any emission allowances, offsets, or other units issued by other jurisdictions included in the WCI or other linked emission reduction programs that are approved to satisfy emission compliance obligations for Ontario entities. Each compliance instrument currently can be used to fulfill a compliance obligation equivalent to up to one metric tonne of CO_2.

"Compliance Period" means the three-year period for which the compliance obligation is calculated for covered entities, except for the first compliance period in Ontario, which is a four-year period.

"Customer-related emissions" means the emissions from the natural gas use of Union's customers, over which Union has no direct control.

"Facility-related emissions" means the emissions from Union's own facilities under the direct management of Union.

"Floor Price" or "Auction Reserve Price" or "Minimum Price" means at an auction, the price for an Allowance below which bids will not be accepted.

"Forward(s)" or "Forward contract" means an informal agreement traded through a broker on the OTC market to buy or sell specified assets, at a specified price at a certain future date.

"Free allocations" means Ontario or WCI emission allowances that are distributed by the government to certain registered participants free of charge.

"Fungible" means a compliance instrument in one jurisdiction has the same compliance values.

"Future(s)" or "Futures contract" means an agreement to buy or sell a particular commodity (an allowance or offset) at a predetermined price, at a specified time in the future. Futures are usually traded on an exchange.

"General Market Participant" means any entity which is not a mandatory or voluntary participant in Ontario's Cap & Trade regulation that intends to purchase, hold, sell, or voluntarily retire compliance instruments or an entity operating an offset project or early action.

"Golden CCO or GCCO" means Golden California carbon offset. These are carbon offsets which must be replaced by the seller if invalidated pursuant to the terms of an agreement. Under the terms of the agreement, these offsets have protection against invalidation risk, usually insured by a large financial institution. Due to the protection against invalidation risk, the price of this type of offset is higher than CCO3 and CCO8.

"Holding limit" is the maximum number of emission allowances and credits permitted to be held in a participant's Cap & Trade account, and in the Cap & Trade accounts of a participant who is a related person in respect of the registered participant.

"Hybrid Structures" means specific primary portfolio project opportunities or 'hybrid' purchasing options, where the seller can actively manage the project and/or can provide some sort of volume guarantee.

"Invalidated offsets" means offset credits, which were previously issued, are cancelled and removed from any holding or compliance account and are no longer available for use as a compliance instrument.

"Joint auction" means an auction between Québec and California. Beginning in 2018, Ontario will be part of the joint auction as well.

"Linkage" means the unification of one or more emissions trading systems. Specifically, for the purposes of this document, means the unification of the Ontario emission trading systems to the WCI emissions trading system (which now consists of the linked California and Quebec markets). A key aspect of market linkage in general is the 'fungibility' or interchangeability of the units (allowances and offsets), so that they can be traded between the different markets. There may also be 'partial linkages', where there are still some restrictions on the trading or the use of allowance or offsets from different jurisdictions

"Liquidity" means the availability of liquid assets to a market or company.

"Long position" means an entity has compliance units in excess of what is required to satisfy compliance requirements.

"Market linkage" means the full harmonization and integration of Cap & Trade systems for greenhouse gas emission allowances over different states or provinces.

"Mark to Market" (MtM) means a system of valuing assets by the most recent market price.

"Offset" or "Offset credit" means a tradable compliance instrument (issued by MOECC for Ontario offsets and ARB for WCI offsets) to projects outside of the Cap & Trade system that conform to specific protocols, which represents a GHG reduction or GHG removal enhancement of one metric tonne of CO_2e.

"Open interest" is the total number of *open* or outstanding (not closed or delivered) options and/or futures contracts that exist on a given day, delivered on a particular day.

"Ontario Carbon Allowance" (OCA) means physically delivered greenhouse gas emissions allowances where each is an allowance issued by the Province of Ontario or a linked program.

"Point of regulation" means the entity or entities that have the responsibility for Cap & Trade compliance obligations.

“Primary market offsets” means the sourcing of offsets prior to issuance, directly from project owners or developers, only for use after they have been issued.

“Purchase limit” is the maximum number of emission allowances that can be purchased at an auction by a participant or a group of participants who are related persons. For capped participants, the number that can be purchased is not more than 25 per cent emission allowances available at an auction.

“Regional Greenhouse Gas Initiative (RGGI) is a cooperative effort among nine states – Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island and Vermont – to reduce greenhouse gas emissions.

“Reserve sales” means the sales of allowances by the MOECC (for Ontario) 4 times a year, currently at prices far in excess of Market Prices.

“Seasoned CCO”- a California carbon offset that is passed the period of invalidation and cannot be invalidated.

“Secondary market” market means the purchase or sales of previously auctioned or allocated compliance instruments.

“Short position” means an entity will be required to procure additional compliance units to satisfy compliance requirements.

“Spread” means the difference between the price of allowances and the price of offsets (so far, allowance prices have always been higher, but we have seen offset spreads reverse in other markets).

“Subscribed” – fully- or oversubscribed means the auction is sold out; there were qualifying bids for at least as many allowances as were available for that auction. Undersubscribed means there were bids for less volume than was available for that auction.

“Uniform Price Auction” means a multi-unit auction in which a fixed number of identical units of a specific commodity (allowances) are sold for the same price. Each bidder in the auction may submit (possibly multiple) bids, designating both the quantity of units desired and the price to pay per unit. The highest bidder is served first, giving them the number of units requested, then the second highest bidder and so forth until the supply of allowances is exhausted. All bidders then pay a per unit price equal to the lowest winning bid (the lowest bid out of the buyers who actually received one or more units) - regardless of their actual bid.

“Vintage Year” means the calendar year to which an individual allowance is assigned.

“Voluntary Renewable Electricity (VRE)” is a program that allows purchasers of eligible voluntary renewable electricity to request retirement of allowances on their behalf under the Cap-and-Trade Program. . The VRE Program supports purchases of renewable electricity and renewable energy credits (REC) that are not mandated by the Renewables Portfolio Standard, and provides a mechanism for the recognition of voluntary purchases of renewable electricity or RECs in the Cap-and-Trade Program.

"Western Climate Initiative" or "WCI" or "WCI Market means a collaboration of independent jurisdictions working together to identify, evaluate, and implement emissions trading policies to tackle climate change at a regional level. The current jurisdictions that are linked by the WCI are the State of California in the United Stated and the Province of Quebec in Canada.

Acronyms

"ARB" or "CARB" means the California Air Resources Board
"CAD" means Canadian Dollars
"CCA" means California Carbon Allowance (term as used by ICE)
"CER" means Certified Emission Reduction
[redacted]
"EU ETS" means European Union Emissions Trading Scheme
"HFC" means hydrofluorocarbons (a type of Greenhouse Gas)
"ICE" means Intercontinental Exchange
"IETA" means International Emissions Trading Association.
"MOECC" means Ministry of the Environment and Climate Change
"OEB" means Ontario Energy Board
"OTC" means Over the counter
"USD" means United States Dollars
"WCI" means Western Climate Initiative.

Annex I – Treatment of unsold allowances in auctions

Allowances issued by California and Quebec are offered for sale in Joint Auctions conducted by California and Québec. These allowances include California state-owned and Quebec provincial-owned allowances (Jurisdiction-owned), and California allowances consigned by electrical utilities and natural gas suppliers (Consigned Allowances). In the event that an auction is undersubscribed, the California and Quebec Regulations specify how those unsold allowances are managed and offered at subsequent auctions.

Consigned allowances: Pursuant to Section 95911(f)(4), allowances consigned to auction from electrical utilities and natural gas suppliers and those consigned pursuant to Section 95921(g)(3) that remain unsold at auction will be held in the Auction Holding Account and offered in the next auction. If those allowances remain unsold at the next auction, they will continue to remain in the Auction Holding Account and will be offered for sale in each subsequent auction until sold.

Jurisdiction-owned Allowances: Jurisdiction-owned allowances that remain unsold from an undersubscribed Current Auction are returned to auction after two consecutive Current Auctions have resulted in a settlement price above the Auction Reserve Price. Once two consecutive auctions have settled above the Auction Reserve Price, previously unsold Jurisdiction-owned allowances can be returned to auction. Section 95911(f)(3)(C) of the California Regulation specifies that the maximum number of unsold allowances that can be returned is equal to 25% of the California allowances offered at that auction.

Currently, unsold Jurisdiction-owned allowances represent over 142.9 million allowances, and as explained above, part of this (25% of the volume for an auction; 15.9 million for the November 14 auction) will be added to the current vintage auction volume if two auctions in a row are fully-subscribed.

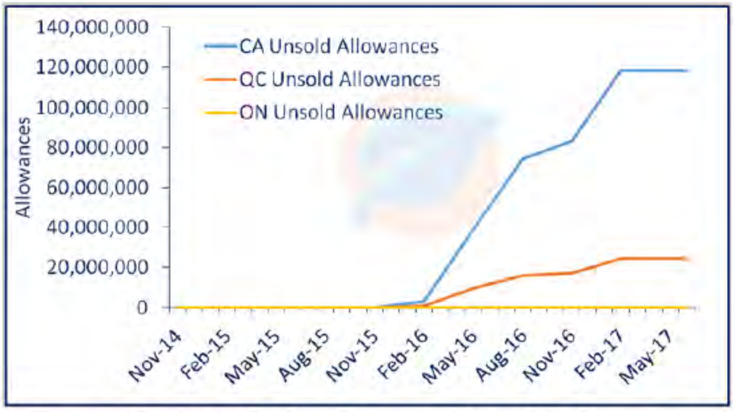


Figure 15 - Jurisdictionally owned unsold allowances

Note: In 2015, an amendment was proposed which would transfer unsold allowances into the price containment reserve after 24 months. These unsold allowances would then be removed from the auction supply and sold in the Reserve Sales at a much higher price. ClearBlue does not assume that this amendment will come into effect since it has been proposed two years ago, and is still 'a proposal'.

Annex II – California offset risks and traded contracts

Offset invalidation risk

In California, the risk of offset invalidation would be on the buyer who holds the offsets. The ARB has determined that it is the responsibility of the offset purchaser to replace invalidated offsets within six months of an invalidation determination. The market has termed this provision as 'buyer liability' and has openly expressed concern over the cost of developing and issuing offsets. This regulation characteristic has also hampered the development of a secondary offset market in the WCI Cap & Trade Program. Pursuant to § 95985 of the California Cap & Trade regulations, if the California regulator (ARB) makes a final determination that an ARB offset credit is invalid, credits are removed from any holding or compliance accounts (after granting parties the relevant cure-periods).

The grounds for invalidation are:

- Overestimation: if an offset project's data report contains errors that overstate the amount of GHG reductions or GHG removal enhancements by more than 5%.
- Illegality: if the project activity and implementation was not in accordance with all local, state or national environmental, health, and safety regulations during the Reporting Period for which the ARB offset credit was issued.
- Double-Counting: if the ARB finds that offset credits have been issued in other markets for the same project area during the same time period for which the project has received ARB credits.

The amount of time during which an offset could be invalidated after issuance is eight years. This term can be shortened if an offset project is 'double verified' by two different verifying bodies within three years of issuance. In this case, the invalidation period is shortened to three years or three reporting periods.

Forestry reversals (e.g. due to logging or forest fire) do not result in invalidation. If reversal is unintentional but lowers a project's actual carbon stocks below its baseline, the project will be subject to termination. If, in turn, reversal is unintentional and does not drop the project below its baseline, ARB will retire credits from the forest buffer account in an equal amount. If reversal is intentional, the forest owner is under the obligation to replace the credits.

Invalidation Process:

- Initial Determination
  - With the reason for determination
- Notification to Applicable Parties
  - Current holders and entities that have retired ARB offsets
  - Offset project operator and, for forestry projects, the forest owner
- Opportunity to submit 'additional information'
  - 25 calendar days
  - ARB may request information
- Final Determination
  - 30 days from receipt of all necessary information

Consequences of Invalidation:

- *Suspension of Transfers*. ARB will suspend all transfers of ARB offsets subject to an initial invalidation determination
- *Removal*. ARB removes ARB offsets invalidated prior to retirement from the holding or compliance account where they reside at the time of invalidation
- *Replacement*. ARB offsets that have been retired prior to invalidation are subject to a replacement obligation.
  - Carbon sequestration (forestry): forest/land owner must replace invalidated ARB offsets within six months of final invalidation determination
  - Non-sequestration: retiring entity must replace invalidated ARB offsets within six months of final invalidation determination

Types of ARB offsets and contracts that are traded

For California offsets, different contracts have been introduced in an attempt to eliminate the invalidation risk to the buyer, where the seller would take on the invalidation risk. Offsets that are purchased under these types of contracts are called Golden CCOs. These would, however, still involve a credit risk on the seller.

These are the types of offsets and offset contracts we see in California:

- Early Action Offset Credits (EAOCs): Early action offsets are issued to a voluntary offset project (approved by existing voluntary quantification methodologies) that represents a GHG reduction or GHG removal enhancement which occurred between 1 January, 2005 and 31 December, 2014. Early action offset projects must have been developed prior to 1 January 2014, and located in the United States
- ARB Offset Credits (ARBOCs): - CCO3
  - ARBOCs are offsets issued by CARB
  - Falls under the 8% of allowable offset usage limit
  - Buyer invalidation liability risk continues for 3 years
- ARB Offset Credits (ARBOCs): - CCO8s
  - Same terms as above except 8 years of invalidation risk versus 3 years
- Seasoned CCOs
  - These are offsets that have gone through either the 8 or 3-year invalidation period
- Golden CCOs
  - Seller will replace the invalidated offset with either an offset or an allowance, depending on the contract specifics
  - Here the buyer has a credit risk on the seller of the offset
- “Platinum” CCOs
  - This is a newly introduced way of contracting CCOs, where an insurance company would cover the invalidation risk

UNION GAS LIMITED 2018 CAP-AND-TRADE COMPLIANCE PLAN

COMPLIANCE OPTION ANALYSIS AND OPTIMIZATION OF DECISION MAKING - ABATEMENT

The purpose of this evidence is to review Union's approach to customer and facility abatement in its 2018 Compliance Plan. Union's 2018 Compliance Plan includes an evaluation of potential future abatement opportunities in 3 areas:

1. Customer abatement opportunities (including both incremental customer abatement measures employing new technologies, and energy efficiency programs);
2. Facilities abatement opportunities; and,
3. Provincial abatement opportunities.

Union recognizes the important role of abatement across the province in order to meet GHG emission reduction targets. To support the evaluation of potential abatement initiatives over the long-term, Union and EGD have developed an Abatement Construct ("AC"), as described below. The AC is critical to driving incremental abatement forward in the province, particularly when this abatement does not easily align with existing regulatory mechanisms and their measure of cost-effectiveness. The AC provides an approach where the province, regulators, industry, and utilities consider alternative means of funding in order to drive innovative abatement initiatives.

Union's plan for customer abatement includes procurement of RNG, subject to government funding.[1] The exact timing and ultimate emissions reduction impact related to procuring RNG relies on this support. Union's plan for customer abatement also includes the pursuit of several new technologies such as: the integrated ASHP/natural gas solution, GSHP, net zero energy and net zero energy ready homes, hydrogen and power to gas, micro generation, residential-scale carbon capture and utilization, building skins, biomass conversion (thermochemical) to renewable natural gas, and automatic meter reading. These technologies are in various stages of development and could reduce GHG emissions in future years.

The impact of existing DSM and GIF programs for 2018 has been reflected in Union's plan. In addition, Union applied the OEB issued LTCPF and MACC to determine if there are any incremental cost-effective measures that could be pursued within the DSM Framework. Union has determined that the vast majority of cost-effective measures identified in the MACC are already offered within DSM programs. The few programs that are not offered currently would not be appropriate to offer at this time, but could be pursued if the existing DSM budget and framework were revised as part of the mid-term review process to be completed at the end of 2018. This would not impact the 2018 Cap-and-Trade Compliance Plan.

Union's facility abatement plan reflects the findings of its recent facility abatement study. While there are currently no cost-effective facility abatement measures that will be implemented for

[1] For simplicity, Union's plan identifies RNG as a customer abatement measure. However, since RNG comprises a component of the natural gas supply which is used by Union in the operation of its own facilities, it is also a facilities abatement measure.

2018, Union has initiated process and procedural changes which could result in emissions reductions over time. Union is also committed to further investigating certain measures (such as portable blowdown recovery units and fugitive emissions management) and potential government funding mechanisms. Union has also established a sustainment structure to identify and evaluate facilities abatement opportunities on an ongoing basis.

This exhibit of evidence is organized as follows:

1. The Abatement Construct
    1.1. Abatement Guiding Principles
    1.2. The Initiative Funnel
    1.3. Conclusion
    1.4. Applicability to Union's 2018 Compliance Plan
2. Customer Abatement Programs
    2.1. Customer Abatement Measures Employing New Technologies
    2.2. Energy Efficiency Programs
3. Facilities Abatement Programs
    3.1. Facilities Abatement Study
    3.2. Facilities Abatement Initiatives
    3.3. Facilities Abatement Sustainment Plan
4. Provincial Abatement Opportunities

1. THE ABATEMENT CONSTRUCT

Ontario is transitioning to a low-carbon economy. This is a significant step for the province, with far reaching impacts for families, businesses, utilities, and industry. This transition is underpinned by the establishment of GHG emission reduction targets, as defined in the Climate Change Act. One key element of Ontario's plan to meet its GHG reduction targets is the establishment of a price on carbon through the Cap-and-Trade program. The proceeds of the Cap-and-Trade program are intended to fund the initiatives identified in the CCAP. Implementation of the initiatives identified in the CCAP will require focus and commitment; it takes significant time and dedicated resources to understand, explore, test, and advance these initiatives to the point of commercialization and wide-scale market adoption. In some cases these initiatives are leading edge and require additional resources and education in order to advance. To meet the province's GHG reduction targets, joint efforts between energy distributors, industry, regulators, and governments will be required.

Under the Cap-and-Trade program the natural gas Utilities have a legal obligation to cover emissions. Thus, Union is mandated to procure compliance instruments as part of its regular business operations. This mandate is articulated by the OEB's Cap-and-Trade Framework which approaches compliance holistically; the Framework also establishes the expectation that "utilities' Compliance Plans are expected to support the government's effort to reduce GHG emissions in Ontario".[2] Accordingly, the Framework addresses not only procurement of

[2] Framework, Section 1.

compliance instruments, but also abatement measures. Moreover, the OEB also states the evaluation of the cost consequences of Union's Compliance Plans will consider: [3]

- Whether the Utility has engaged in strategic decision-making and risk mitigation;
- Whether the Utility has considered a diversity (portfolio) of compliance options; and,
- Whether a Utility has selected GHG abatement activities and investments that, to the extent possible, align with other broad investment requirements and priorities of the Utility in order to extract the maximum value from the activity or investment.

Given that the applicable costs to meet the Utilities' carbon obligations are included in the distribution costs of their customers' bills, the Utilities have a responsibility to manage ratepayer costs where possible, and to provide their customers a cost-effective service. This will become increasingly important as the cost of carbon is expected to increase over time, as signaled by the LTCPF. Cost-effectiveness is also one of the guiding principles in the Framework, which also identifies several benchmarks for evaluating Compliance Plan reasonableness and prudence.

The Utilities are the optimal channels to help customers manage carbon costs because of their pre-existing infrastructure, regulated business models, DSM results, track record of safety and reliability, as well as their mandate to meet their own respective carbon obligations. The Utilities' size, proximity to large-scale markets, physical assets and established delivery systems

[3] Framework, Section 5.3.

can also be leveraged to successfully expedite the adoption of new technologies and energy applications. However, despite the fact that Union has an obligation to consider abatement in its compliance plans and are well positioned to pursue abatement activities, existing regulatory structures do not necessarily encourage its investment in new technologies.

Inherently, regulatory mechanisms focus on prudency and cost-effectiveness. However, some of the progressive measures required to achieve the low-carbon economy are not necessarily cost-effective, at least not at their outset. To drive these significant abatement steps forward in support of Ontario's transition to a low-carbon economy, the Utilities must look beyond the traditional regulatory mechanisms rooted in cost prudence. Therefore, Union and EGD have developed the AC to complement existing regulatory frameworks and to leverage government initiatives focused on reducing GHG emissions.

1.1 Abatement Guiding Principles

The Framework identifies guiding principles for the Compliance Plan. It also recognizes, as noted above that longer-term investments should be aligned with broader priorities. Therefore, abatement investments require guiding principles that are complementary to the guiding principles in the Cap-and-Trade Framework. Union and EGD have worked together to develop the following abatement guiding principles:

1. *Funding:* Abatement programs should be able to draw on a variety of funding sources, including CCAP or GreenON funding, incremental amounts tracked through the

GGEIDA and other Government funding (provincial or federal) to support projects that do not meet regulated measures for cost prudency. Where appropriate, an abatement program proposal will be supported by an assessment which may use a range of funding models and appropriate valuations and assumptions. The assessment would use the best available information at the time but it is important that such information would not be reconsidered on a retrospective basis at the time cost recovery is determined.

2. *Timely advancement of technology:* There should be recognition of the role the natural gas utilities play in advancing new technology through commercialization and adoption, which can occur over extended periods of time.
3. *Support government targets:* Abatement programs should contribute toward the achievement of GHG emission reductions and/or be aligned with related regulations (federal and provincial).
4. *Efficient and rational development:* Abatement programs should balance customer cost impacts by leveraging existing infrastructure (particularly utility infrastructure, including physical, brand, billing, channel networks, and partnerships). It also includes consideration of efficiencies when evaluating potential new initiatives against existing programs. For example, the implementation of new energy efficiency programs that duplicate existing DSM programs and thereby compromise the ability to deliver results in the established DSM framework would be counterproductive.
5. *Respect applicable regulatory constructs:* Abatement programs should manage customer cost impacts, adhere to cost causality (no undue cross-subsidization); use

applicable valuations and appropriate costing (including marginal cost allocation where appropriate); and align with procurement and compliance guiding principles.

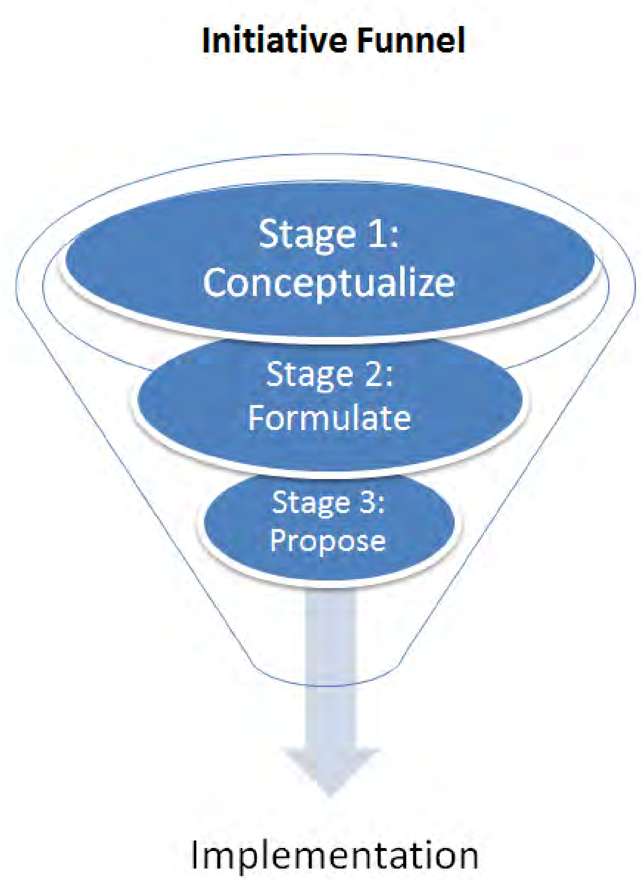
Union suggests that these abatement guiding principles be used by the Utilities, the OEB and Ministries when abatement projects are being formulated and when supporting programs and/or funding is being developed. This approach, which leverages both utility cost-recovery mechanisms as well as other funding alternatives (such as CCAP and GreenON Fund), is necessary in order to drive forward new technologies and programs which otherwise might not proceed within the existing OEB regulatory mechanisms due to cost and/or their nascence.

1.2 The Initiative Funnel

Abatement initiatives can develop over a period of several years, particularly given their reliance on new and emerging technologies and the iterative nature of their development. There may be many concepts or ideas that Union will investigate in parallel as possible abatement opportunities, with only some coming to fruition. Union and Enbridge have developed the Initiative Funnel to depict the process of identifying, developing and implementing abatement opportunities. The Compliance Plan provides transparency on this initiative funnel, from concept through to specific proposals that at some future date will require support (either OEB or other government branch such as MOECC) in order to proceed. Providing insight to Union's abatement prospects at the various stages of the funnel is intended to share with the OEB and stakeholders the possibility of new and emerging technologies and the possible impacts on future compliance plans. What initiatives fill the funnel, and move through its various stages, will ultimately be informed by market signals, policy, MACC, LTCPF, customer acceptance, and technology development status, among other inputs.

Initiative funnel activities are depicted in Figure 1 below.

Figure 1



As ideas flow through the funnel, more details become known about a particular opportunity which then informs the utility to possible next steps to proceed.

- *Stage 1: Conceptualize* – In this stage, technology and/or abatement ideas are first identified and then explored for better understanding and applicability.
- *Stage 2: Formulate* – In this stage, ideas are taking shape and it is becoming clearer what the options may be for technology applications and/or programs. Pilot programs or targeted development tests may be completed to prove the technology or its possible applications. At this stage, the size of the opportunity, a range of costs, any funding requirements, and potential barriers to its development are initially investigated and quantified.
- *Stage 3: Propose* – In this stage, there is a clear understanding of the technology, how it can be applied, what the estimated costs and benefits are, and what GHG reductions may result. The utility has advanced the opportunity to a specific project for advancement.
- *Implementation* – Finally, the project is able to proceed to market. Results are monitored and reported, and the program may adjust based on learnings or changing conditions.

Each stage of funnel activity will have associated resourcing requirements. In general, Union expects that the following considerations would be applied for determining recovery of prudently incurred costs related to the initiative funnel:

- Resourcing costs are expected to include administrative costs such as salaries and wages, travel expenses, and training.
- In addition to administrative costs, a Low Carbon Initiative Fund will provide a predictable and consistent level of funding to identify abatement ideas and move them through the various stages of the funnel. It also enables the development of ideas that may require multiple years to reach commercialization. This Fund will support spending on activities such as GSHP, the integrated air-source heat pumps ("ASHP")/natural gas solution, micro generation, building skins, hydrogen, and power to gas.
- At the Propose stage, costs will be identified and incorporated into specific project proposals and related abatement project costs. Union will seek cost recovery through the OEB Compliance Plan, which may be supplemented by government support accordingly. As described above, in cases where initiatives are not cost-effective or financially self-supporting, government support and funding will be required to advance projects to encourage adoption and commercialization.
- All costs would be incremental, and required to advance technologies and innovations which could be reasonably expected to reduce GHG emissions for Union's respective customers or facilities.
- Costs may be prudently incurred in order to investigate new technologies, but it is possible that not all of these technologies will proceed to development. This could be due to a variety of reasons, including technical feasibility, cost, commercial viability, etc.

When abatement costs and benefits are being quantified, incremental value beyond compliance via the purchase of compliance instruments should be considered. As noted in the Framework, longer-term investment analysis should consider strategic and qualitative benefits. Union expects this should include environmental and economic benefits to customers, communities and the province.

1.3 CONCLUSION

Union believes the AC is not only conducive to, but necessary, to drive forward abatement in the province in order to benefit their customers and advance the low-carbon economy. In order to achieve the GHG reduction targets set out by the province and for Union to satisfy its obligations under the Climate Change Act and the Framework, alternative funding models should be considered for step-change initiatives that may not be cost-effective within existing regulatory mechanisms. Since the AC is consistent with the guiding principles in the Framework, it is Union's intent that this AC be applicable to future abatement proposals and Compliance Plans.

1.4 APPLICABILITY TO UNION'S 2018 COMPLIANCE PLAN

Union currently has facility and customer abatement projects at each stage of the initiative funnel. However, given the dependency of many of these projects on government funding, pilot programs/results, and/or further analysis, there are no specific emission reductions reflected in Union's 2018 Compliance Plan. Union is committed to advancing these projects and will reflect any realized reductions in 2018 actual results as the year progresses. The projects are summarized in Table 1 below. Each of these measures is then described in more detail in the sections that follow.

Table 1
Projects and 2018 Requests

Stage	Measure	Applicability
Stage 1: Conceptual	Residential-scale Carbon Capture and Utilization	Customer Abatement
	Building skins	Customer Abatement
	Biomass Conversion (Thermochemical) to renewable natural gas	Customer Abatement
	Automatic meter reading	Customer Abatement
	Portable Blowdown Recovery	Facilities Abatement
	Federal Methane Regulations (possible projects)	Facilities Abatement
Stage 2: Formulate	Integrated Air-Source Heat Pump/Natural Gas Solution	Customer Abatement
	Ground Source Heat Pump	Customer Abatement
	Net Zero Energy and Net Zero Energy Ready Homes	Customer Abatement
	Hydrogen and Power to Gas	Customer Abatement
	Micro Generation	Customer Abatement
	Fugitive Emissions Management	Facilities Abatement
	Station Heating Equipment (London North Gate Station)	Facilities Abatement
Stage 3: Propose	Renewable natural gas	Customer Abatement
	Process integration	Facilities Abatement
Implementation	Existing DSM Programs	Customer Abatement
	Existing GIF Program	Customer Abatement
	CNG for Fleet	Facilities Abatement*
	Other Existing Facility Abatement Initiatives	Facilities Abatement

***Note:** *Conversions of fleet reduces provincial emissions, but increases Union's facility obligation.*

Low Carbon Initiative Fund

Union proposes to establish a Low Carbon Initiative Fund to support the development of new technologies aimed at facilitating future abatement opportunities. Union believes that a consistent and predictable level of available funding is necessary to support the steady flow of ideas into and through the initiative funnel described above. This allows innovative opportunities to be identified and explored, with the highest potential abatement applications being developed through to commercialization.

As described further in Exhibit 3, Tab 5, the Low Carbon Initiative Fund will consist of available funds of up to $2 million per year (starting in 2018) with the actual costs being recorded in the GGEIDA. The Low Carbon Initiative Fund will be used for activities such as consulting, pilot programs, testing, data analysis, and measurement and verification.

Other jurisdictions including Europe, Japan, Australia and some US states have invested, from both government and utilities, in technology and innovation as a means to accelerate advancements necessary to meet renewable energy and emission reduction targets. Canada and Ontario have similarly developed comprehensive plans to address climate change, of which innovation and technology are key components. Ontario's CCAP identifies that "Ontario can deliver the next generation of clean tech solutions that will help the world mitigate, and adapt, to climate change. By acting now, Ontario can foster innovation".[4] This direction was reinforced for the energy sector with the recently-released LTEP, which acknowledges that "innovative technologies have the potential to transform Ontario's energy system".[5]

[4] CCAP, p. 6.
[5] LTEP, p. 12.

The approach to pursue new technologies and innovations is also reflected in the Framework which states that "the OEB expects that a Utility's Compliance Plans will reflect long-term planning for GHG abatement", and that "this type of investment might include, for example, new technologies".[6] The Low Carbon Initiative Fund (and such funding in general) is essential to the pursuit of these opportunities which will be long-term endeavours for the utilities. In some cases, government funding may also be required to supplement the Low Carbon Initiative Fund to allow concepts to be developed to the point of commercialization. This is particularly important for projects that are not cost-effective initially, which is typical of new technologies or innovations. Without such a fund in place to continually support technology and innovation idea development in this manner, some abatement opportunities may not be fully developed because they lack the definition necessary to support a successful government funding request.

Union proposes that the cost of the Low Carbon Initiative Fund be recovered from customers. This is consistent with the approach taken by the jurisdictions noted above. In those cases, costs are recovered from utilities' ratepayers because customers reap the benefits of the innovations pursued. Customer benefits include abatement which can reduce their carbon and energy costs, as well as increasing customer choice for affordable energy options. This abatement is also a critical component of climate change plans, and the transition to a low-carbon economy. Consistent with this, Union's Low Carbon Initiative Fund is intended to provide these benefits to the customer base in the form of future potential abatement opportunities that may only be

[6] Framework, p. 27.

realized if concepts are financially supported through the development stages of the initiative funnel.

Union engaged customers in 2017 to understand their needs and preferences and incorporate them into Union's business planning. One of the topics Union asked customers was about the creation of an innovation and technology fund. Union explained that it was considering a fund in order to support research and development of new natural gas technologies. Over 70% of residential and commercial customers surveyed supported ratepayer-funded investments in new technologies.

The emerging technologies that Union is currently developing and that would rely on funds from the Low Carbon Initiative Fund, are described below.

2. CUSTOMER ABATEMENT PROGRAMS

Union's customer abatement plan for 2018 is comprised of two elements: (I) incremental customer abatement measures employing new technologies, and (II) energy efficiency programs in the context of DSM and GIF.

2.1 Customer Abatement Measures Employing New Technologies

The following details new technologies aimed at delivering incremental customer abatement. They are described by their stages of the initiative funnel, starting with the projects that are the most developed (Stage 3), and ending with the ideas which are most conceptual (Stage 1).

Stage 3 (Propose) – Customer Abatement Measures

Renewable Natural Gas

Background

The government of Ontario and the OEB have clearly and consistently articulated support for the pursuit of renewable natural gas as a component of utility gas supply portfolios. Ontario's CCAP commits funding to RNG, and the 2017 Long-Term Energy Plan, released October 26, 2017, acknowledges RNG as an "innovative Ontario-made source of energy" that can leverage the existing natural gas distribution system.[7] In addition, in a December 10, 2016 letter, the MOE requested the OEB proceed in a timely manner to explore RNG as part of utility gas supply portfolios. Subsequently the OEB incorporated RNG into the Framework for the Assessment of Distributor Gas Supply Plans, which was initiated on March 16, 2017.

Union is very supportive of the government's and the OEB's direction with respect to RNG.[8] As described in the 2017 Compliance Plan, Union has been examining how RNG can become part of the gas supply portfolio in order to deliver GHG reductions, as soon as practically

[7] Ontario 2017 Long-Term Energy Plan, p. 74
[8] Union Gas Limited Long-Term Energy Plan Review Submission, December 16, 2016, pp. 7-8.

possible.[9] RNG is biogas that has been upgraded to a quality similar to fossil natural gas by removing impurities. By upgrading the quality, it becomes possible to inject the biogas into the natural gas distribution system in Ontario and to distribute a renewable alternative gas to customers via the existing natural gas pipeline grid.

When the specific sources of biogas (particularly those that are in close proximity to existing pipeline infrastructure) and the cost of upgrading the biogas are considered, the anticipated cost for RNG is typically higher than the combined cost of carbon and the cost of conventional natural gas today and for the foreseeable future. The OEB-issued MACC also identified that RNG is not a cost-effective measure relative to the cost of carbon. In order to advance the adoption of RNG in support of provincial GHG emission targets and incent the development of the RNG market, additional provincial funding and MOECC program support is required. This will also provide RNG in a cost-effective manner for Union’s customers and cost recovery for the utility. By investing in and supporting RNG, Ontario stands to benefit from the diversification of Union’s gas supply portfolio and subsequently the development of a provincial RNG industry. This action satisfies both the interest expressed by the MOE in the development of RNG in Ontario and its inclusion in the Utilities’ gas supply portfolios and will support the transition to the low-carbon economy.

RNG Proposal

[9] EB-2016-0296, Exhibit 3, pp. 46-47.

Since 2016, Union and EGD have worked collaboratively to seek such support from the MOECC for an RNG program. Earlier in 2017, Union and EGD developed an RNG proposal for the province that will achieve the market objectives of the province by providing a mechanism to facilitate RNG procurement funding and cost recovery. This RNG proposal provides:

- Long-term, fixed price contracts with producers that supports the development of RNG in Ontario, consistent with CCAP objectives of long-term emissions reductions;
- Utilization of government funding to purchase RNG while minimizing the impact to ratepayers relative to the cost of conventional natural gas supply; and,
- Regulatory efficiency through the use of existing regulatory frameworks and mechanisms to procure RNG for ratepayers and to diminish the need for further regulatory process.

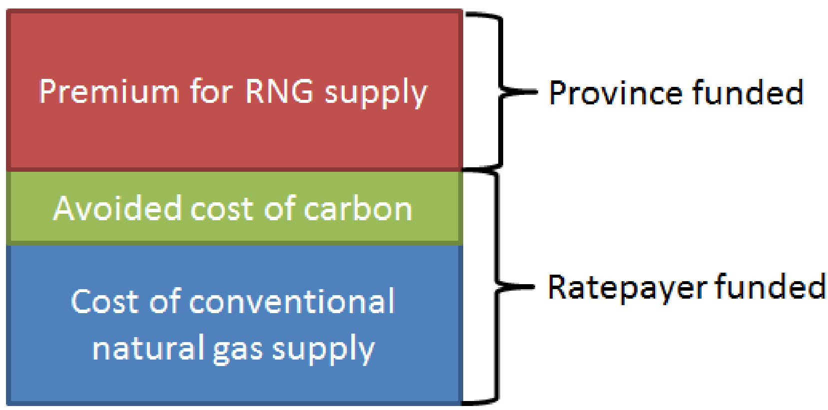
Union intends to procure RNG on the basis outlined in this proposal, subject to provincial funding. This is consistent with the intent of the CCAP and the recent LTEP which identifies that the government plans to invest proceeds from the carbon market to "help consumers with the cost of shifting to RNG, as it currently costs more than conventional natural gas."[10]

Union's RNG plan reflects the requirement of biomass producers to contract for longer-term contracts in order to support capital investment in RNG production facilities. As a result, Union expects to enter into fixed price RNG procurement contracts with terms up to 10 years in duration, subject to provincial funding. Based on these RNG contracts, Union will then enter into a contractual arrangement with the province to provide provincial funding equal to the

[10] LTEP, p. 114.

difference between the fixed price of RNG contracted with the producer, and the cost of conventional natural gas plus the avoided cost of carbon. The inclusion of the avoided cost of carbon is to recognize that customers would have incurred a carbon cost in the absence of RNG. This represents the premium for RNG, as illustrated in the Figure 2 below and the numerical example in Figure 3.

Figure 2



Illustrative Example

The following is an example to show how the mechanism will work in principle. In this example, Union has assumed the following:

- 2018 forecast carbon price of $17.00 (based on the OEB LTCPF mid-range scenario) for rate setting purposes. This equates to a rate impact of approximately $0.85/GJ.
- Long-term contracted RNG price of $16.00/GJ
- 2018 forecasted cost of conventional natural gas of $3.91/GJ

Given these assumptions for 2018, ratepayers would pay $4.76/GJ for the RNG ($3.91/GJ representing the cost of conventional natural gas plus $0.85/GJ for the avoided cost of carbon), and the remaining cost of $11.24/GJ ($16/GJ less $4.76/GJ) would be funded by the province, through the contractual arrangement with Union. This is illustrated in the Year 1 column of Figure 3. The remainder of Figure 3 illustrates a hypothetical example of pricing and CCAP funding for a full 10 year contract term.

Figure 3

Renewable Natural Gas Procurement Funding Model

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 9	Year 9	Year 10
	2018	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
a) Forecast gas cost ($ / GJ)	$ 3.91	$ 3.95	$ 3.91	$ 4.22	$ 4.22	$ 4.29	$ 4.28	$ 4.68	$ 5.03	$ 5.43
b) Forecast Cost of Carbon ($ / GJ)	$ 0.85	$ 0.90	$ 0.90	$ 0.95	$ 1.00	$ 1.05	$ 1.56	$ 1.81	$ 2.16	$ 2.51
(c) = (d)-(a)-(b) Required Provincial Funding ($ / GJ)	$ 11.24	$ 11.15	$ 11.19	$ 10.83	$ 10.78	$ 10.66	$ 10.16	$ 9.51	$ 8.81	$ 8.06
d) Assumed Cost of RNG ($ / GJ)	$ 16.00	$ 16.00	$ 16.00	$ 16.00	$ 16.00	$ 16.00	$ 16.00	$ 16.00	$ 16.00	$ 16.00

It is important to note that in this example, the price of natural gas and the price of carbon are illustrative only. In actual practise, the forecasted cost of carbon and forecasted cost of conventional natural gas will be fixed based on the most recent gas and carbon forecasts at the time RNG is procured for the contract term. The forecast cost of traditional gas supplies will be determined by the use of a forward price forecast covering each year of the RNG procurement contract using discoverable forecast market prices available at the time negotiations with the province are conducted. The forecasted cost of carbon will be determined by the OEB LTCPF applicable at the time of contracting. This methodology facilitates contracting of a known quantity of RNG with the producer, and also provides a basis for securing provincial funding.

RNG Procurement

Union expects that procurement for RNG supply will begin with an RFP process, for delivery of supplies beginning early in 2018. In order to support this timing and secure development of important local resources of RNG, Union requests approval of this proposal as early as possible, but no later than the end of January 2018. The RFP process will provide critical information such as cost, contract terms, and quantities, which will then be used to negotiate the contractual arrangement with the province to secure funding. Once funding is secure, Union would proceed to contract directly with RNG producers for long-term fixed price contracts, (e.g. $16.00/GJ in the example above). The province pays Union the provincially funded portion of the RNG contracted price (e.g. $11.24/GJ). It is expected that the province will set aside in escrow the required funding to be provided to Union over the 10-year timeframe for the RNG supply contracts.

The cost consequences of the RNG contracts including the forecast cost of conventional natural gas and the associated avoided carbon cost reflected in the RNG price net of provincial funding, will be provided through existing regulatory mechanisms, following procurement (i.e. QRAM).

Impact on 2018 Compliance Obligation

Since Union's ability to procure RNG is dependent on funding, Union has not included any RNG in its gas supply portfolio for 2018 and has not reflected any related GHG emissions reductions in the 2018 Compliance Plan. However, as highlighted above, customers would incur costs equal to the forecast cost of conventional natural gas plus the forecast avoided cost of carbon. If Union is successful in acquiring RNG supply in 2018, the quantity is expected to be small in relation to Union's 2018 compliance obligation. Any GHG emission reductions realized in 2018 will be reflected in actual activity, and Union's gas supply purchases and compliance instrument procurement will be adjusted accordingly.

Benefits and Market Development

This combined funding mechanism and procurement model achieves multiple objectives in a fair and balanced manner: it introduces RNG into the gas supply portfolio in an expedited, market based approach that will reduce customer and facility emissions, and is expected to impose no material cost increase beyond what customers would bear for conventional natural gas in Ontario's Cap-and-Trade environment. In addition, RNG project proponents will be paid the contracted fixed price amount for their product, encouraging sustainable growth in a market that is currently in its infancy in Ontario. Expeditious investment in RNG is vital to ensure Ontario's competitiveness, particularly since other jurisdictions may compete with Ontario for these same abatement opportunities. Finally, the development of RNG as an energy source helps to ensure that the significant energy infrastructure that exists for natural gas in Ontario remains used and useful for the long-term.

To support the development of RNG supply, Union is pursuing commercial opportunities within the province and will continue to work with RNG project proponents and producers. In addition, Union has been in discussions with landfills, waste water treatment plants, industrial sites, and biogas associations seeking to understand the cost of production, the size, the proximity to pipelines required for project viability, and the commercial barriers to market development. Through these discussions, Union recognized that the economic potential of RNG can be different than the achievable potential outlined in the 2011 Alberta Innovates study which was used in the development of the MACC.[11] Some potential sites may be too small or too far from appropriate natural gas infrastructure, to be developed economically.

Union will leverage gas supply contracting processes to facilitate RNG production into Union's system similar to existing contracting processes utilized today for Ontario Local Production (i.e. Rate M13) and other gas purchases.

Summary of Proposal and Approvals Sought

In summary, Union seeks OEB approval of the mechanism described above including fixing the forecasted cost of carbon, the forecasted cost of natural gas and the resulting provincial funding for the term of the RNG contract, up to 10 years in duration. Union requests this approval to allow it to secure provincial funding and for procurement to proceed early in 2018. The forecasted cost of conventional natural gas and associated avoided carbon costs reflected in the contracted RNG price, net of provincial funding, will be recovered from ratepayers. The use of provincial funding helps to defray the premium cost of RNG, while at the same time allowing the RNG market to being to develop in the province. The magnitude of RNG procured is expected to be small in 2018, and is subject to provincial funding and RFP response.

[11] MACC, p. 46

Stage 2 (Formulate) – Customer Abatement Measures

Integrated Air-Source Heat Pump/Natural Gas Solution

An integrated ASHP/natural gas solution uses the ASHP during the summer, winter shoulder months (spring and fall) and mild winter days for heating and cooling requirements, and uses a natural gas furnace to meet cold day heating requirements when the ASHP performance becomes less efficient. The integrated ASHP/natural gas solution works by switching between electric ASHP, and natural gas furnace according to load demand, outdoor temperature, room set point temperature, time of use, price, and network load. The integrated solution also uses fuel switching controls and advanced predictive energy consumption planning models to optimize energy use. The configuration allows the peak winter energy commitments to be maintained on the existing gas system rather than building out the electric system to meet peak winter heating loads.

During shoulder season months, an ASHP still incorporates the furnace, but without using any burners, just its air distribution features. In the fall, the heat pump sends hot refrigerant through the air conditioning coil within the furnace. The furnace fan draws air from the home’s cold-air, returns and blows that air over the warm coil and then sends the warmed air throughout the house. In the spring and summer, the heat pump reverses the refrigerant flow so cold liquid flows over the coil and cools the home similar to a conventional air conditioner.

The integrated solution was analyzed by ICF in the OEB MACC report[12] and the 2016 Long Term Energy Plan submissions of both Union and EGD.[13] As identified in that report, the integrated ASHP/natural gas solution "could minimize the need for incremental winter peaking capacity and electric system transmission and distribution upgrades where the measure taken to economy wide scale."[14] In other words, winter peak load will be served by existing natural gas infrastructure, and the summer and shoulder peak loads will continue to be served by electricity. To convert all gas loads in Ontario to electric load requires up to 80,000 Mw of additional generation capacity, transmission capacity, and distribution capacity – all at significant incremental cost to Ontario ratepayers.[15] The proposal above effectively balances achieving significant GHG emission reductions with minimizing incremental energy infrastructure costs (ranging from production to distribution). It is estimated that an integrated solution could reduce emissions by approximately 60% compared to a home using natural gas alone for heating.[16]

Pilot Project

The effectiveness and efficiency of the integrated ASHP/natural gas solution could be highly dependent on occupant behavior, climate, and construction. Therefore, Union is initiating a Net Zero Energy home monitoring study by conducting a field test for a newly occupied Net Zero Energy home which contains the integrated ASHP/natural gas solution. In performing this study, Union will have the opportunity to optimize and utilize existing applications of the integrated

---

12 OEB MACC, Appendix A
13 Union Gas LTEP Review Submission for MOE (December 16, 2016), p.9
14 OEB MACC, Appendix A, p. A-5.
15 Union Gas Submission to the Minister of Energy, December 16, 2016, p. 4.
16 OEB MACC Report, Appendix A, p. 5.

solution through better performance data. The study will collect and analyze system performance data to validate the integrated solution's effectiveness and efficiency levels and well as GHG reduction potential.

The new home monitored as part of the study includes an ASHP for cooling and shoulder months heating load and a natural gas furnace for winter heating load. The results of the study will provide performance data for the Net Zero house (with the integrated solution) to be compared with the original design assumptions. It is expected that GHG reductions will be realized as a result of using electric energy for heating instead of natural gas during shoulder seasons and mild winter days.

The study commenced in August 2017 and will be conducted over a 12 month period in addition to initial design and preparation time

Ground Source Heat Pump

The GSHP is a central heating and/or cooling system that transfers heat to, or from the ground. During the winter the ground is used as a heat source and during the summer the ground is used as a heat sink. The design takes advantage of the moderate and generally constant temperatures in the ground at a certain depth. As such, GSHP can provide space heating, space cooling as well as water heating.

The system includes two main components: a closed loop of pipe carrying a heat transfer fluid that runs either vertically or horizontally below the frost line, and an electric heat pump. The heating and cooling energy is exchanged between the loop and the building. GSHPs offer a lower carbon solution compared to the natural gas furnace and domestic hot water heater, therefore reducing the GHG emissions from space and water heating.

Initial analysis shows potential applications of GSHP technology in the market, which can drive significant reductions in GHG emissions for buildings. Union intends to work with industry experts to establish an application roadmap for this technology (e.g. for single dwelling homes and/or multi-unit residential buildings and/or small commercial buildings). Union has and will continue to work with EGD as part of its investigation and evaluation of GSHP technology. Union plans to monitor and build on EGD's experience with GSHP, and will consider a suite of options to serve Union's customers. Union expects to launch a pilot project in 2018 which, together with additional consumer research, will establish an implementation plan for its residential and commercial markets. Union will evaluate next steps for GSHP following the pilot project in 2018.

Net Zero Energy and Net Zero Energy Ready Homes

As part of their respective commitments to ensure a long-term, clean and sustainable growth for the province and the country, both Ontario's Climate Change Action Plan and the Canada's Build Smart Strategy refer to building code changes to increase energy efficiency through Net Zero Energy ("NZE") and Net Zero Energy Ready ("NZER"), respectively, by 2030. A new home constructed to today's building code is estimated to produce 3.2 tonnes of GHG emissions annually based on its total energy consumption of natural gas and electricity. A NZE home is a home that is designed, modelled and built to produce as much energy as it consumes on an annual basis. A NZER home is constructed with improved energy efficiency measures, but does not yet have the infrastructure in place to produce energy on-site.

Achieving NZE in a home requires the following 3 components:

1) Increasing energy efficiency to reduce energy consumption of the home;
2) Providing a source of energy at the home (such as solar); and,
3) Natural gas to provide supplemental energy on the coldest days

To address the first component, NZE home construction significantly improves the home's construction standards for energy efficiency. This includes measures such as improved insulation, window performance, building envelope construction and energy-efficient heating and cooling equipment, and would render the home Net Zero Energy Ready. Some of these measures may be available within existing DSM programs, while others may be incremental. Building code changes which incorporate these measures could result in approximately 60-75% of emission reductions from 3.2 tonnes to approximately 1.2 tonnes of GHG emissions.

To achieve the second component, the home must also integrate additional technologies and renewable energy supplies. The most common example of this is installed solar panels to produce enough energy annual to offset the home's energy needs. If excess energy is produced at any given hour, it is exported to the electricity grid which will offset the hours where electricity is required from the grid to supplement solar production. On the coldest days or when solar production is not sufficient, natural gas can provide cost-effective supplemental energy, which addresses the third component of a NZE.

Union currently administers the Optimum Home Program aimed at encouraging residential builders to construct new homes 20% more efficient than the Ontario Building Code 2017 standards. EGD has a similar program. Union is aware that EGD has proposed to the MOECC additional measures, such as expanding participating builders and geographic regions as well as builder incentives for NZER construction. Union is investigating similar measures for its franchise area. The specific measures are yet to be determined, but it is expected that they will not be cost-effective and would require MOECC support and CCAP funding to proceed. While more analysis is required to design the program and identify its costs, Union expects that CCAP funding in the range of $100 - $150 million would be required.

Hydrogen and Power to Gas

Power to Gas is a term used to describe an electricity storage system that utilizes surplus electricity and water together with an electrolyzer to produce hydrogen. This hydrogen may then be stored and/or used in a variety of systems. There has been significant interest in using the natural gas pipeline grid for hydrogen storage due to its vast storage capacity and extensive transmission and distribution network.

Ontario’s LTEP, released in October 2017, also highlights Power to Gas as an innovative use of the province’s natural gas system and one way which natural gas supply can be decarbonized. Union is participating in the American Gas Association/Canadian Gas Association North American Hydrogen/Power to Gas Task Group to develop a guidance document for the introduction of hydrogen into natural gas delivery systems. The blending of hydrogen with natural gas allows for the displacement of some of the supply of conventional natural gas required, thereby reducing the carbon content of the gas in the natural gas delivery system.

Alternatively, hydrogen may be reacted with carbon dioxide to produce synthetic natural gas – methane. Similar to hydrogen injection into the natural gas system, the injection of this methane will displace conventional natural gas and therefore has the ability to reduce the carbon content and associated GHG emissions.

Union is currently building an understanding of how these technologies can be integrated. Upon completion of EGD’s pilots and the evaluation of electrical grid service needs, Union will develop its Power to Gas Deployment strategy. Union’s strategy will be to build on EGD’s experience in hydrogen and power to gas and focus its effort on creating opportunities within its franchise area. Union intends to work with other LDCs to focus on capturing, processing, and monetizing hydrogen produced from excess renewable power generation.

Micro Generation

A micro generation system is a cogeneration system that is connected to a fuel source (e.g. natural gas, biogas, diesel, or propane), and that uses this fuel to produce electricity and heat simultaneously. This technology is similar to the combined heat and power (cogeneration) systems that are commonly used by industrial and large commercial sites today. However, micro generation are much smaller in size (typically less than 10 kW) and fit residential and small commercial applications. Micro generation systems are similar in size to domestic appliances and are designed to be used in individual residential homes or small commercial buildings. Some micro generation models are also capable of producing cooling as well.

There are several types of new technology classified under the micro generation category, such as: internal combustion engines, micro turbines, fuel cells and smart hybrid furnaces.

There are several benefits to micro generation systems, which include:

- They are a GHG emission neutral solution, providing increased reliability and resilience due to the system's ability to act as a generator during electricity grid disruptions. For example, in situations when winter ice storms, flooding or other events are causing power outages, the micro generation systems can continue to provide critical electrical and thermal loads until the main power is restored.

- They provide a reduced cost for electricity to ratepayers due to the price differential between electricity and natural gas;

- They provide increased efficiency of electricity production at the home (site production) compared to the grid (source production), which mitigates line and heat losses; and,

- Depending on the electricity mix, they may provide reduction in GHG emissions by replacing electricity that would have been generated by natural gas powered generators (particularly at peak times).

Micro generation systems are a means of on-site power generation, similar to other forms of distributed generation or micro-grids. The 2017 LTEP recognizes the benefits of these types of systems by providing customer choice, supporting a modern grid that effectively manages energy costs, and improves resiliency to the effects of climate change.

Micro generation systems are widely used and have proven to be effective in many jurisdictions around the world (such as Europe and Japan). In Ontario however, there are currently barriers to taking full advantage of this efficient low-carbon technology. Most notably, the Net Metering legislation only provides incentives to electricity production from a renewable energy source such as wind and solar. This legislation does not provide incentives to other forms of site electricity generation for emissions reduction purposes. Amending the Net Metering legislation to allow for the inclusion of micro generation would make micro generation more economical for consumers to pursue. In addition, the lack of commercially available micro generation units in the market makes purchase and installation costs high.

Pilot Project

Union is planning to pilot various micro generation technologies in 2017 and 2018 in target markets and geographic locations across Ontario. One of these projects will include integration with renewable solar photo-voltaic energy and battery storage technologies. Furthermore, at least one of these projects will be run in collaboration with Natural Resources Canada ("NRCan"). The results of the pilot projects will be monitored to confirm the effectiveness of micro generation systems in Ontario homes. As described above, Union has included costs related to these pilot projects in Exhibit 3, Tab 5.

Supplementing these efforts, Union intends to pursue further steps to address and overcome the barriers to commercialization of micro generation in the province. In particular, Union will focus on proposing changes to legislation pertaining to Net Metering to provide the opportunity for consumers to benefit from lower energy costs and lower GHG emissions. Cost estimates are preliminary at this point; however, Union expects that government funding (such as CCAP) in the range of $70 million to $110 million range is required over the next 5 years in order to commercialize micro generation technology.

Stage 1 (Conceptual) – Customer Abatement Measures

Residential-Scale Carbon Capture and Utilization

Industrial capture and utilization of carbon dioxide has been occurring for approximately three decades in Canada. Recent research and development efforts have identified methods of applying this concept to the residential market. As an example, CleanO2 Carbon Technologies has developed prototype systems (both residential and commercial scale) that utilize carbon dioxide generated from the combustion of natural gas to produce sodium carbonate in solid form. Sodium carbonate, commonly known as washing soda is a widely used and highly marketable product. This system is designed as a bolt-on technology that can be integrated with existing heating systems and its carbon capture and conversion process can reduce up to 20% of GHG emissions.

Building Skins

One means to increase the energy performance of existing buildings is to increase the efficiency of the external building envelope in order to further reduce energy consumption which would result also in GHG emissions. Consistent with the Federal Government's Build Smart Strategy objective to work with the provinces and develop modern energy codes for existing buildings, the building skin concept involves installing external fire-retardant insulation material that is then covered with a facade that is often designed by an architect to maintain appealing aesthetics. An example of a building skin application is shown in Figure 3.

Figure 3

The target markets for this type of application include social housing, government buildings, commercial buildings, and residential homes. This concept is currently being used in Europe and part of the United States. This application can result in energy reductions that generate financial savings which help offset the associated capital costs of the retrofit. Union is investigating the applicability of building skins to improve the energy performance of existing homes, including the related costs and energy savings, as well as the funding required to advance this technology.

Biomass Conversion (Thermochemical) to RNG

Ontario has abundant supplies of forestry and agricultural waste biomass. These sources of waste biomass do not readily undergo anaerobic digestion (biological conversion) to generate biogas and RNG. However, various heat treatment technologies (e.g., gasification or pyrolysis) are under development to produce energy-rich gases from biomass that can be converted and purified into RNG.

There are many examples of small-scale demonstration projects in Canada and around the world where wood residue is used as feedstock, while others are looking to convert agricultural waste into renewable natural gas. And while a limited number of large-scale biomass conversion to RNG projects have been established (predominantly in Europe), this technology has yet to become commercially mature or widely available in Canada. The potential volume of RNG available from the thermochemical conversion of biomass supplies within Ontario has been estimated to be approximately double that of RNG produced from biological conversion of organic wastes (biogas).

The blending of this form of renewable natural gas with conventional sources of natural gas allows a reduction of the carbon content of the gas in the natural gas delivery system.

<u>Automatic Meter Reading</u>

Union is currently evaluating Automatic Meter Reading ("AMR") or smart meters. AMR systems provide benefits to the billing department for monthly billing, and can also provide hourly consumption data for customers. Hourly data will allow customers to see exactly what their consumptions patterns are and identify means to reduce their consumption and ultimately greenhouse gas emissions.

In conjunction with smart meters, there are third party technology providers bringing innovative solutions to the market. This technology resides in the customer's home and acts as an interface or hub to various home automation devices like thermostats and smart light bulbs. The hub also interfaces to smart meters to provide real-time energy consumption in the home. The customer uses a robust app on their smart phone or tablet to interact with their home. The interaction gives the customer immediate feedback allowing them to make informed decisions to manage their usage.

Hourly use data offers a tremendous opportunity for implementation of behavioural energy management programs. By facilitating access for the utility and the customer to hourly data combined with tools to track and manage daily gas usage, AMR offers the opportunity to achieve behaviour based energy and GHG savings. The cost to implement this type of system, the operational and conservation benefits need to be fully understood as Union evaluates AMR.

2.2 Energy Efficiency Programs

Energy efficiency programs form an important part of Union's 2018 Compliance Plan, and are comprised of the following:

- Existing DSM Programs
- The Existing Green Investment Fund Program
- Incremental Energy Efficiency

Existing DSM Programs

Union is committed to identifying and evaluating energy efficiency customer abatement options that support its customers in reducing their natural gas consumption, as evident in existing DSM programs. From 1997 to 2014, Union's energy conservation programs helped reduce Ontario's emissions by 16 Mt CO_2e, and Union's 2015-2020 DSM Plan is expected to achieve more than 15 billion cubic metres of lifetime natural gas savings, equivalent to approximately 29 Mt CO_2e in reductions. In its 2018 consumption volume forecast, Union has included GHG emission reductions of 605,756 tonnes CO_2e related to its DSM programs.

Consistent with historic practice, Union assesses (within the prevailing DSM Framework and established DSM budgets) the appropriateness of existing measures and new measures on a continuous basis using research and market insights to optimize achievement. Appropriateness will continue to be determined based on a measure's cost-effectiveness and also on how closely the opportunity aligns with the DSM Framework objectives, for example: minimizing lost opportunities and pursuit of deep energy savings.

When the current DSM Framework and shareholder incentive mechanism were established in 2014, Ontario's Cap-and-Trade program did not exist. The introduction of the Cap-and-Trade program resulted in an increasingly competitive and complex energy conservation landscape. In order to ensure aggressive pursuance of DSM results and to continue maximizing benefits for ratepayers, Union proposed the following in the Mid-Term Review DSM – Part One Submission17:

- Modify the net-to-gross adjustment methodology for the current DSM Framework to a standard net-to-gross adjustment for all programs
- Adjust the DSM budgets and targets to recognize the importance of DSM in the energy efficiency market as a result of Cap-and-Trade; and
- Enhance utilities' shareholder incentive mechanism to account for the changing landscape in energy conservation programs in Ontario.

The Existing Green Investment Fund Program

In addition to existing DSM programs, Union continues to drive incremental customer abatement through the delivery. Union's GIF agreement with the MOE provides Union with funding to enhance its existing DSM Home Reno Rebate offering and to achieve additional GHG emissions reductions through 2018. In its volume forecast, Union has included GHG emission reductions of 13,188 tonnes CO_2e in 2018 attributable to the GIF, as shown in Exhibit 2, Schedule 1.

Incremental Energy Efficiency

In addition to existing DSM programs and GIF, Union has evaluated what additional incremental energy efficiency abatement exists. Union leveraged market insights and industry studies and reports to complete this analysis, including:

- Conservation Potential Study (CPS) - 2016; and,

[17] EB-2017-0127 - Union Gas Limited – DSM Mid-Term Review – Part One Submission

- Marginal Abatement Cost Curve (MACC) Report-2017.

In this analysis, Union first determined where incremental cost-effective opportunity versus non cost-effective opportunity should be pursued. Union then completed an analysis to understand what incremental abatement opportunity exists, what of this incremental opportunity is cost-effective and what is not cost-effective.

As outlined in Exhibit 3, Tab 1, although Ontario has announced linkage with WCI effective January 1, 2018, Union has included the maximum LTCPF in the assessment of the CPS. The analysis of all price scenarios in the LTCPF was completed prior to the WCI linkage announcement; it has been provided in Union's 2018 Compliance Plan for transparency. Inclusion of the maximum LTCPF in the analysis illustrates the impacts of a maximum carbon price in the event that WCI linkage is not implemented as expected.

Union believes that any cost-effective opportunity identified through the CPS and/or MACC analysis should not be pursued via the 2018 Compliance Plan but that it should, instead, be pursued within the DSM Framework. The DSM Framework changes that are noted above and that were proposed in the Mid-Term Review DSM – Part One Submission[18] would support and enable Union to pursue these cost-effective opportunities via DSM. For opportunities that may not be cost-effective within the DSM Framework, Union will pursue these through CCAP and GreenON, as this ensures that there is no duplication of program offerings. Any duplication in

18 EB-2017-0127 Union Gas DSM Mid-Term Review - Pt. 1 Submission (September 1, 2017)

program offerings will not provide ratepayers or the province with the most efficient means of reducing GHG emissions. To prevent duplication, it is necessary that the MOECC/GreenON leverage the utilities' existing programs, expertise, proximity to market, delivery channels and resources and capabilities when launching new energy efficiency programs. This approach is efficient and supports the government's goal of "One Window" energy efficiency customer experience. Union continues to work towards supporting the Ministry of Energy's Directive to ensure program duplication is avoided in the marketplace, the August 4th, 2017 Directive[19] to IESO states:

> *"The IESO shall, in collaboration with the Green Ontario Fund, the MOECC and the Ministry of Energy, and in consultation with electricity and natural gas distributors as appropriate, make reasonable efforts to avoid marketplace confusion in relation to its work in designing, delivering, administering or in assisting with the design, delivery and administration of the Green Ontario Fund Programs, and to ensure the prudent use of funds by avoiding duplication with Province wide Distributor CDM Programs."*

Conservation Potential Study Analysis

When assessing the CPS, Union did not identify any cost-effective abatement opportunity at the LTCPF's minimum or mid-range price scenarios. Union identified potential incremental customer abatement that was cost-effective in the maximum price scenario, it determined that,

[19] August 4th 2017 Directive from Ministry of Energy to Independent Electricity System Operator RE: 2015-2020 Conservation First Framework and Partnering with Green Ontario Fund; Delivery of Conservation and Demand Management Programs Targeted to the Low-Income Customer Segment

since the Ontario government intends to link with the WCI effective January 1st, 2018, it is not prudent to pursue this abatement opportunity at this time.

MACC Analysis

When assessing the MACC for abatement opportunities, Union did not identify any cost-effective Commercial/Industrial (C/I) abatement opportunities incremental to Union's existing DSM programs. Union did, however, identify cost-effective abatement opportunities incremental to Union's existing DSM programs within the Residential sector in all carbon price forecast scenarios. Union will assess the incremental opportunity and pursue it through the DSM Framework where possible.

Through the CPS and MACC analyses, Union has determined that it is not appropriate to include incremental DSM abatement opportunities in the 2018 Compliance Plan. The details of the CPS and MACC analysis are provided in Exhibit 3, Tab 4, Appendix A.

3. FACILITY ABATEMENT PROGRAMS

Union recognizes that reducing emissions from its own facilities plays an important role in helping Ontario reach its GHG emissions reduction targets. Union has a history of reducing GHG emissions from its own operations, including the removal of cast iron pipe, the installation of blowdown recovery systems at four compressor stations, and the construction of several Energy Star and Leadership in Energy and Environmental Design ("LEED") certified buildings.

In order to identify possible means of further reducing emissions going forward, Union undertook a Facility Abatement study. The following evidence reviews the results of the study, and then details initiatives in the respective stages of the initiative funnel, described earlier. Finally Union will review existing measures which are already in implementation.

3.1 Facilities Abatement Study

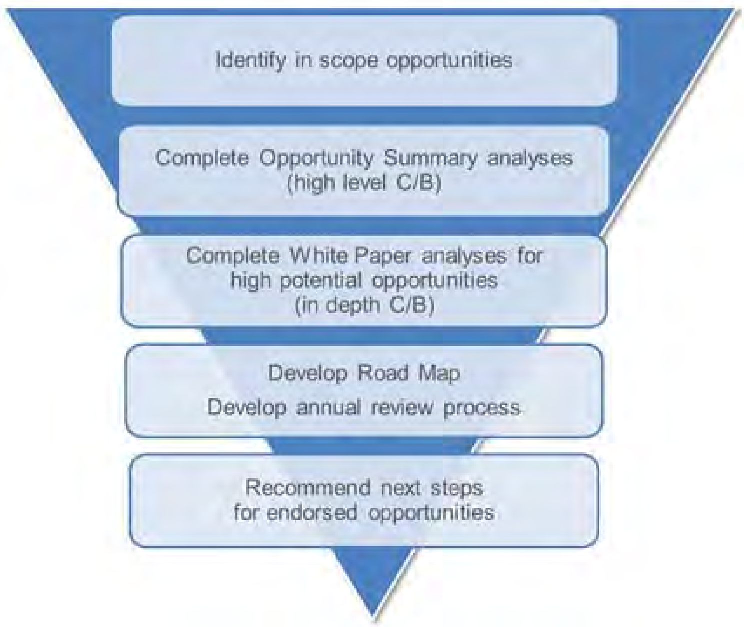
In its 2017 Compliance Plan, Union identified that it was initiating an Abatement Study project to identify opportunities with the potential to reduce GHG emissions from its natural gas transmission, storage, and distribution operations. This section presents the outcomes of that study, including an overview of:

1. The overall economic and qualitative decision making processes that have been employed for identified projects;
2. The details and economic analysis of the potential facility abatement opportunities identified; and,
3. The ongoing facilities abatement project plan being developed to ensure continual annual review of both existing and potential facility abatement opportunities.

The Abatement Study project was initiated in late 2016 by a multidisciplinary group of subject matter experts from various departments, including: Major Projects, Engineering, Corporate Real Estate Services ("CRES"), EHS, and Operations Management Systems ("OMS"). The project team was directed by a Facility Abatement Steering Committee comprised of senior management of the aforementioned departments.

The approach taken to meet the objectives of this project is illustrated in Figure 4 below.

Figure 4
Abatement Study Project Approach



Using this approach, the project team identified approximately seventy opportunities that were evaluated as potential facilities abatement projects. In evaluating these projects, Union considered preliminary project costs, applicability to its compliance obligation, and emission reduction potential. Once this initial filter was applied, a subset of nine potential facility abatement projects remained for further evaluation. These projects have been included in Exhibit 3, Tab 4, Appendix B, and are categorized by their stages of the initiative funnel.

For each of the projects, Exhibit 3, Tab 4, Appendix B, illustrates how they were evaluated against the following criteria:

- Capital costs
- Cost savings
- GHG emissions reduction potential
- Comparisons to cost of carbon (\$/tonne CO_2e)
- Other noteworthy advantages and disadvantages, such as:
  - Safety implications
  - Operational reliability
  - Specialized training requirements

Economic Evaluation Methodology

As noted above, project costs, cost savings, and comparison to the cost of carbon were all evaluation criteria applied to the potential projects listed in Exhibit 3, Tab 4, Appendix B. To complete this analysis, Union completed an economic evaluation process driven by a DCF analysis of the benefits and costs throughout the life of the project.

The economic benefits related to GHG emission reduction projects are composed of the reduction of natural gas and compliance instrument purchases. The costs associated with the projects are the incremental capital or operating and maintenance dollars spent to reduce GHG emissions. Following the filing guidelines for Compliance Plans, Union used the DCF analysis to compare the current costs incurred (noted above) against the price of the alternative (executing the project).

As noted above, Union completed this analysis for all price scenarios provided in the LTCPF, including the maximum scenario which assumes an Ontario-only market.

The results of this evaluation are represented as a comparison between the price per tonne of CO_2e in the current scenario (referred to as Status Quo, which assumes nothing changes in Union's current operations) versus the price per tonne of CO_2e if the project is undertaken (the Alternative scenario). Any project with a price that is lower when the project is undertaken would be considered economic, given the underlying assumptions. The results of Union's economic evaluation of potential 2018 opportunities and potential projects required as a result of anticipated Federal Methane Regulations are included in Table 2 below.

Table 2

Status Quo vs. Alternative $/tCO$_2$

		Minimum LTCPF		Mid-range LTCPF		Maximum LTCPF	
		Status Quo	**Alternative**	**Status Quo**	**Alternative**	**Status Quo**	**Alternative**
Potential 2018 Opportunities	Portable Blowdown recovery	51	626	58	626	83	626
	Fugitive Emissions Management	49	411	56	411	82	411
	Station Heating Equipment	49	192	56	192	82	192
Federal Methane Regulations - possible projects	Rod Packing Replacement	51	11	58	11	83	11
	Wet Gas Seals	50	32	57	32	83	32
	Control Valves	49	259	57	259	82	259

The economic analysis was conducted using a common project life of 20 years. In projects with a life of 10 years Union assumed an additional injection of capital equivalent to the capital required in year 1 (adjusted for inflation). Any differences in the status quo price between projects are the result of varying GHG emission conversion factors, or the result of emission reductions or gas savings occurring at different rates over the project lifecycle.

As a result of the comparison of projects to all evaluation criteria listed above (including the economic evaluation), Exhibit 3, Tab 4, Appendix B, also includes the recommended next steps for each potential project. Details for these initiatives are described below.

3.2 Facilities Abatement Initiatives

The following section reviews the Facility Abatement measures Union is pursuing in the initiative funnel. It begins with ideas that are the most developed (Stage 3), and ends with ideas that are the best most conceptual (Stage 1). This is followed by a summary of Union's existing initiatives which have progressed to the implementation stage.

Stage 3 (Propose) – Facilities Abatement

Process Integration

The Abatement Study Project recognizes that Union makes ongoing planned improvements and capital investments in its facilities. These improvements apply to asset maintenance, growth projects as well as the day-to-day operations of Union's assets. Historically, prior to the Cap-and-Trade program and the introduction of the cost of carbon, the evaluation of these initiatives has not specifically or consistently quantified the GHG emissions impact. However, Union has considered societal and environmental impacts on a qualitative basis in the past. Starting in 2017 and continuing into 2018, Union is implementing process and procedural changes to integrate GHG emission reductions and the cost of carbon into design considerations for planned improvements and capital investments. This includes updating its evaluation models to incorporate the cost of carbon as quantified using the OEB LTCPF. The implementation of these process and procedural changes could result in GHG emissions reductions that otherwise may not have occurred.

The Abatement Study Project has identified three specific applications where incorporating the GHG emissions impact has particular applicability, they are: valve operators, pipeline looping, and blowdown recovery. These applications are described below:

Valve Operators

The conversion of existing storage and transmission natural gas powered operators to air powered operators offers an opportunity to reduce natural gas emissions. Currently, each time a gas over hydraulic operator is actuated to turn a valve, gas is vented to atmosphere. Union plans to initiate a project to track individual valve use (counts) to identify high turn operators and better analyze emission reduction potential and associated costs for conversion. Air powered and electric powered valves will also be considered during the design process for the installation of new operators or the replacement of operators that have reached end of life.

Pipeline Looping

Union has considered pipeline looping relative to compression when evaluating facility expansion alternatives in the past. Although pipeline looping cannot replace all compression requirements, in certain instances, pipeline looping can be chosen as an alternative to installing compression. In making this determination Union chose the lowest cost per capacity alternative based on estimated costs, as well as qualitative factors related to overall environmental impacts.

The 2017 Abatement Study completed an analysis to evaluate the cost and emissions of building a new compressor relative to the cost to install pipeline looping. High level calculations for additional GHG emission costs suggest the higher capital cost of pipeline looping could be offset by cost savings related to the avoidance of GHG emissions. Moving forward, Union will consider the costs of GHG emissions when selecting future facilities.

Blowdown Recovery

Union has taken a proactive approach to abatement by including blowdown recovery units in the design and recent construction of two large compressor stations at the Parkway West and Dawn North Yard facilities. These systems are capable of recovering and returning 75-96% of the planned blowdown gas elsewhere into the system, thereby avoiding venting of large quantities of natural gas to the atmosphere. Natural gas recovered is either regulated into nearby distribution systems with adequate takeaway capacity or moved elsewhere into the pressurized system with a small compressor. As a result of the success of these units, Union will continue to consider the installation of blowdown recovery units for all future new compressor builds as well as for significant station upgrades. Union's 2017 facility abatement team also investigated the concept of retrofitting large and remote compressor facilities with blowdown recovery units, but found the opportunity to be uneconomic at this time.

Stage 2 (Formulate) – Facilities Abatement

Fugitive Emissions Management

This initiative would address Union's backlog of low-risk fugitive emissions on its distribution pipeline system. This project would include enhancements to the current survey and repair strategy. This initiative only addresses fugitive emissions that fall into the low risk category, meaning that according to the current standard operating practice, they do not require immediate repair and do not pose a safety risk. Costs to implement a project that would repair all outstanding fugitive emissions and establish supporting processes and technology for sustainment are estimated at $5,300,000 with an annual operating cost increase of $673,000. It would also be a multi-year program with the duration being dependent upon funding and resources. Fugitive emissions management has the potential to reduce emissions by approximately 3,000 tonnes CO_2e/year.

Union’s fugitive emissions management program results in a cost of $411/tonne, which is not economic related to the LTCPF, as demonstrated in Table 2 above. Therefore, Union is not pursing this program for implementation in 2018. It is important to note that the project economics are still being refined and project costs could differ based on individual locations. Given this, Union is continuing to further refine project costs in order to identify any potential opportunities going forward.

Station Heating Equipment (London North Gate Station)

Union has identified options for the replacement of older, less efficient heating systems with newer technology that would result in GHG emission reductions through improved fuel gas efficiency. Union's inventory of heating equipment has been analyzed to identify the number of existing boilers and line heaters currently in use and their respective potential efficiency improvements. Implementing a proactive replacement program for this equipment could result in efficiency improvements of up to 45% in some scenarios, translating to a reduction of approximately 210 tCO_2e annually per unit. The economics for London North Gate were analyzed individually on the basis that this type of station would offer the greatest efficiency improvement. Replacement of this station would result in a cost of $192/tonne, and was determined to not be economic as a stand-alone project at this time. Union plans to continue investigating new technology advancements and options for funding to implement a proactive replacement program.

Stage 1 (Conceptual) – Facilities Abatement

Portable Blowdown Recovery

Portable blowdown recovery is a new technology that works in situations where a planned isolation of a pipeline is to occur. Instead of venting natural gas to the atmosphere during a planned blowdown, a blowdown recovery system is capable of recovering and returning a significant portion of the planned blowdown natural gas back into the system. The cost to purchase one transmission unit and one smaller distribution unit to pilot has been estimated at approximately $3,000,000. However, actual costs can depend on a variety of factors since these units are customizable. Because the units are custom made, considerable lead time (up to 18 months) and specialized training is required. Since emissions reductions are directly tied to the usage of the unit, and the amount of isolated pipeline that is being blown down, it is difficult to quantify emissions reductions. Based on historical analysis of Union's pipeline blowdowns, Union has estimated possible emissions reductions of approximately 190 tonnes CO_2e/year. Additional units could be purchased if the pilot were deemed successful, increasing the potential for emission reductions.

The estimated cost per tonne for two portable blowdown units is $626/tonne. On a cost per tonne basis, portable blowdown recovery is not cost-effective compared to the cost of an allowance and is therefore not included in the 2018 Compliance Plan. However, in order to advance the use of this technology, and how it could be applied in Ontario to further reduce GHG emissions, Union is investigating the possible application of CCAP funding. Union believes this technology could be applicable to the CCAP Action Area (as defined by CCAP) for industry and business that "encourages the adoption of low-carbon technologies."[20]

Possible Projects - Federal Methane Regulations

Environment Canada and Climate Change Canada ("ECCC") published the Proposed Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector) (the "Proposed Regulations"), to help reduce methane emissions from Canada's oil and gas sector, in the Canada Gazette Part 1 on May 27, 2017.

Based on the Proposed Regulations, it is anticipated that additional compliance requirements impacting specific methane sources at natural gas transmission and storage facilities will be mandated as early as 2020. Potential sources expected to be impacted by the Proposed Regulations include:

1. Compressor Station Venting – Limits on compressor station venting requiring the installation of blowdown recovery or flaring systems;

[20] CCAP, p. 36.

2. Turbine Gas Seals – Limits on gas seal emissions requiring the installation of gas recovery systems;
3. Reciprocating Engine Rod Packing – Replacement of rod packing based on measurement results or installation of gas recovery systems; and,
4. Pneumatic Devices – Replacement of pneumatic devices with low-bleed or no-bleed alternatives.

Details regarding specific requirements impacting Union facilities have not yet been defined as the Proposed Regulations are still under consultation and are not expected to be finalized until 2018. Union is closely monitoring the development of these regulations and has provided feedback to the federal government.

As part of the Facilities Abatement Plan, and included in Table 2 above, Union has identified several potential projects in anticipation of the final methane reduction regulations. The economic evaluation of these projects includes preliminary estimates of costs and emissions reductions data that is based on industry standards. At this time, Union has not performed detailed studies on these initiatives because they are dependent upon the finalization of the federal methane regulations. These projects will be reassessed pending the finalization of the regulations to ensure they are aligned with any new compliance requirements. Timing for these projects will also be impacted by planning, maintenance, and operating considerations to ensure that any impacts to the safe and reliable operation of these facilities is not compromised. As a result, the earliest potential implementation date for these projects is anticipated to be 2020.

Additional information regarding the scope and status of these projects can be found in Exhibit 3, Tab 4, Appendix B.

3.3 Facilities Abatement Sustainment Plan

The Abatement Study Project has been completed, and the project is closed. However, as part of the project's mandate, a sustainment plan has been implemented to maintain ongoing focus on the projects described above, as well as to identify new opportunities. The sustainment plan establishes the Facility GHG Emission Reduction program, which includes the formation of the Facilities Abatement Steering Committee and processes to align and integrate related planning efforts. Specifically, the program will:

- Track progress on existing and in-flight opportunities;
- Quantify actual reductions at Union's facilities; and,
- Provide a forum to annually identify, review, and evaluate new emission reduction opportunities.

The Facilities Abatement program was established in July 2017 at the conclusion of the Abatement Study Project.

Implementation – Facility Abatement

Compressed Natural Gas for Fleet

In 2016, a pilot project targeting the conversion of 16 fleet vehicles to compressed natural gas ("CNG") was considered, with approximately six vehicles per year being converted to CNG over the 2017-2019 period (out of a fleet of 800). In 2017, the number of fleet vehicles in the CNG pilot project increased to 41 trucks for Phase 1 (Windsor and London) and 112 trucks for Phase 2 (Dawn, Burlington, Waterloo, Kingston, and Sudbury), all of which are to be completed by 2020. Additional trucks in Chatham, Owen Sound, Simcoe, Brantford, and Ancaster may be added, pending future financial revaluation. Although the conversion of the fleet from gasoline/diesel to CNG will result in an overall reduction in provincial GHG emissions, this initiative will result in an overall increase in the company's facility related GHG emissions because it represents an increase in natural gas consumption. The total natural gas consumption forecasted for the Union CNG fleet for 2018 is approximately 7,000 10^3m^3.

Other Existing Initiatives

LED Light Replacement

Union is also committed to continuing its light-emitting diode ("LED") light replacement program that was initiated in 2017 at its compressor stations and corporate facilities. It is estimated that lighting at its corporate facilities is 20% of the building electrical load and LED replacement is estimated to provide a 70% reduction of electrical load compared to existing lighting; resulting in a reduction of approximately 15% in building electrical load. The LED light replacement programs will continue to provide opportunities to reduce energy use while having a positive safety/environmental impact and will improve the quality of light. Union is funding its LED light replacement program through maintenance capital.

Unaccounted for Gas Estimation

UFG results from various contributors such as fugitive gas losses, damage events, and unaccounted for venting (e.g. venting from mains and service line installation or repair activity). As part of ongoing GHG reporting efforts, Union continues to work to refine and improve estimates of its fugitive and vented emissions. These estimates are then incorporated into the periodic reviews Union undertakes of its UFG volumes and contributors. Since a portion of UFG emissions arise from fugitive and vented releases, as Union implements measures that reduce fugitive and vented emissions from its system, it can be expected that the percentage contribution of these fugitive and vented sources to total UFG volumes will decline.

Abatement for Union's buildings

Within the last 10 years Union has built three Energy Star and four LEED Gold certified buildings, and is continuing to build and renovate facilities using energy efficient principles. Further abatement strategies include high efficiency equipment replacements, LED light replacement (as noted above), and replacement of R-22 refrigerants.

In addition, Union has recently commenced a multi-year construction project of a new powerhouse facility at its office in Chatham, Ontario. This new facility will provide an opportunity to utilize combined heat and power and other building energy technologies. This project is planned over multiple phases and could be modified depending on business needs. Since this is a multi-year construction project, there will not be any impact on Union's facility emissions in 2018.

Procedural Improvements and Training

Union has identified and is in the process of implementing procedural improvements and training aimed at reducing GHG emissions over time. Union is in the process of reviewing its procedures for compressor unit shutdown. Several factors affect the decision as to whether a compressor unit should be left pressurized versus blown down (gas released to atmosphere or blowdown recovery unit). Union has identified improvement opportunities to current procedures that will incorporate team discussion on the status of compressors and the environmental impacts resulting from shutdown.

The second area where Union has focused on implementing changes that will impact GHG emissions is accurate relief valve setting training. This initiative requires training employees on how the interaction between standard set points of regulators and relief valves can minimize unnecessary gas release to the atmosphere. This initiative became part of new and ongoing training requirements in 2017.

4. PROVINCIAL ABATEMENT OPPORTUNITIES

Union is pursing some abatement initiatives which support provincial climate change policies and reduce overall emissions in Ontario. However, since they result in an increase in natural gas consumption, they could increase Union's reported GHG emissions (and compliance obligation) over time. These initiatives are not expected to have a measurable impact on Union's 2018 GHG emissions. These initiatives include:

1. CNG for transportation – This includes the conversion of Union's own fleet (as outlined above) and also the conversion of trucks, utility vehicles (e.g. refuse trucks), and buses for businesses and municipalities. The move to compressed natural gas for heavy duty trucks would yield an estimated 17% reduction in emissions
2. Fuel switching from higher emitting fuels to lower-carbon alternatives – This can include the conversion to natural gas in remote and northern communities which can result in estimated emissions reductions of 19% to 38%, depending on the current fuel source used.

These initiatives have received government support, either through the CCAP or other government programs and were both recently endorsed in the Long Term Energy Plan.

Achievable Potential by 2020 (excluding Large Volume) Province-Wide and Costs of CO2e Reductions

Line No.		Province Wide Achievable Potential			Large Volume			Province Wide Achievable Potential (Without Large Volume)						
		2020 Achievable Natural Gas Savings (million m³/yr)(1)		Program Spend 2015-2020(1)	2020 Large Volume Natural Gas Savings (million m³/yr)(2)		Large Volume Program Spend 2015-2020(2)	Achievable Natural Gas Savings without Large Volume (million m³/yr)(3)		Program Spend without Large Volume 2015-2020	Average Annual Program Spend without Large Volume	CO_2e Reduction		Total Cost of CO_2e Reduction
		Annual Savings	Cumulative Savings	Million $	Annual Savings	Cumulative Savings	Million $	Annual Savings	Cumulative Savings	Million $	Million $	Annual CO2e (Tonnes)	Cumulative CO2e (Tonnes)	($/Tonne)
	Achievable Potential Scenarios	a	b	c	d	e	f	g = d-a	h = n-b	i = c-f	j = i/6	k = g*1875	l = h*1875	(m)= (i)*1,000,000/(1)
1	Constrained	1,187	14,115	666	183	1,174	26	1,004	12,941	640	107	1,882,500	24,264,375	26
2	Semi-Constrained	1,338	18,909	893	241	3,999	33	1,097	14,910	860	143	2,056,875	27,956,250	31
3	Unconstrained	1,869	28,582	3,298	350	5,726	442	1,519	22,856	2,856	476	2,848,125	42,855,000	67
	Incremental Values													
4	Constrained to Semi-Contrained (line 2 - line 1)	151	4,794	227	58	2,825	7	93	1,969	220	37	174,375	3,691,875	60
5	Constrained to Unconstrained (line 3 - line 1)	682	14,467	2,632	167	4,552	416	515	9,915	2,216	369	965,625	18,590,625	119

Notes:

(1) Natural Gas Conservation Potential Study, Exhibit ES 4, page v

(2) Natural Gas Conservation Potential Study, Exhibit ES 17, page xv

(3) Large final emitters (LFEs) purchase their own emissions; therefore, Union removed large volume customers as a proxy for LFEs

EVALUATION OF CUSTOMER ABATEMENT VIA ENERGY CONSERVATION PROGRAMS INCREMENTAL TO DSM

Existing DSM programs pursue the most cost-effective abatement opportunity from a Total Resource Cost ("TRC")/Societal Benefit perspective. To ensure that the utilities maintain a focus on cost-effectiveness, programs undergo extensive review via the DSM application/approval process. With the 2015-2020 DSM Plan being reviewed and approved prior to the release of the LTCPF, the cost-effectiveness of DSM programs was evaluated using a TRC-Plus screen, which included a 15% adder to account for both non-energy benefits and the unknown future cost of carbon. With the release of the LTCPF, however, there is now a need to understand how incorporating the LTCPF into the screening process impacts what energy conservation abatement potential is considered cost-effective. Specifically, the utilities want to determine whether investing additional budget into growing and/or expanding existing energy efficiency/DSM programs would be more cost-effective than purchasing compliance instruments. Union utilized the LTCPF report, along with two other data sets, (the CPS and the MACC Report) to make this determination. The conclusion of this analysis is that there is no cost-effective, incremental DSM that is prudent to pursue in 2018.

Conservation Potential Report (CPS):

The first report, or data set, analyzed to determine if there was additional cost-effective energy efficiency abatement potential was the CPS. Cost-effectiveness was determined by comparing the cost of purchasing allowances compared to the cost of pursuing incremental abatement opportunity. This study was completed for the OEB in 2016 by ICF, and was also the basis for the analysis ICF completed in the MACC. The CPS provides potential energy savings under three scenarios: constrained (current levels of DSM funding), semi-constrained (approved 2015-2017 OEB budget, then gradually increased until doubled by 2020), and unconstrained (unconstrained budget).

Union analyzed the CPS data from a Provincial perspective, as the budgets provided within the CPS were not broken down at the utility level. For purposes of this analysis, Union used the CPS constrained scenario because it represents the best proxy to Union and EGD's current DSM budgets and free ridership impacts.

Next, Union identified the incremental m^3 and tonnes of GHG abatement potential available when moving from the current CPS Constrained Scenario to the CPS Semi-Constrained Scenario; the same from the current CPS Constrained Scenario to the CPS Unconstrained Scenario; and the associated budget required to achieve the savings.

Utilizing the calculated Marginal Cost ($/Tonne) value identified in Table 1 and the minimum, mid-range and maximum LTCPF, Union analyzed whether or not investing in incremental abatement potential would be cost-effective over a 15 year period, an average measure life. This analysis showed the following:

Table 1
Cost-Effective Incremental Abatement Potential

	Marginal Cost ($/Tonne)	Minimum LTCPF	Mid-Range LTCPF	Maximum LTCPF
Constrained to Semi-Constrained Incremental Abatement	$60/Tonne	**Not Cost-Effective:** Investment in incremental abatement not cost-effective, over a 15-year period	**Not Cost-Effective:** Investment in incremental abatement not cost-effective, over a 15-year period	**Potential to be Cost-Effective** over the average 15-year measure life
Constrained to Unconstrained Incremental Abatement	$119/Tonne	**Not Cost-Effective:** Investment in incremental abatement not cost-effective, over a 15-year period	**Not Cost-Effective:** Investment in incremental abatement not cost-effective, over a 15-year period	**Not Cost-Effective:** Investment in incremental abatement not cost-effective, over a 15-year period

As shown above, there is only one scenario where investing in incremental opportunity could be more cost-effective than purchasing compliance instruments. This is the scenario where the LTCPF reaches the maximum forecast, and the utility pursues the incremental abatement opportunity between the CPS' Constrained and Semi-Constrained scenarios. Although this case could be more cost-effective, it is important to note that this scenario assumes WCI linking does not occur. However, since the release of the LTCPF, the Ontario government signed the linkage agreement with Québec and California to join the WCI carbon market effective January 1st, 2018. Therefore, the maximum price of carbon is unlikely to materialize, and pursuit of these programs would not be prudent or cost-effective for ratepayers. Union also notes that this scenario becomes even less achievable when savings net of Free-Ridership is taken into account.

Marginal Abatement Cost Curve (MACC) Report: In addition to the CPS, Union utilized the MACC report released by the OEB to determine if, from the utility's perspective, there is any incremental cost-effective m^3/GHG abatement above and beyond the targets identified in the 2015-2020 DSM Plan. Since the MACC does not separate the total customer emission abatement potential from existing DSM activities underway as per the OEB's Decision and Order in EB-2015-0029/0049, this analysis focused on comparing the total abatement identified within each MACC to the abatement opportunity being targeted within Union's DSM Plan. This approach allows Union to understand how much incremental abatement opportunity exists at a macro level, for example which market Commercial/Industrial ("CI")or Residential does potential incremental abatement exist. To complete this evaluation, the following steps were taken:

1. The abatement potential identified within each MACC was separated into Union and EGD opportunity. This was completed using the percentage breakdown identified in the CPS based on savings identified in the constrained scenario in Union's franchise for 2018-2020. Union assumed that 38%, 42% and 66% of the MACC opportunity is in Union's franchise for the residential, commercial and industrial sector, respectively.
2. Because the opportunity identified in the MACC is in gross savings, Union discounted the MACC abatement opportunity by an assumed free-rider rate for each market. MACC abatement opportunities are adjusted using an assumed free-rider rate for each sector based on existing offerings as filed in Union's 2015-2020 DSM Plan, EB-2015-0029. Union assumed a 5% free rider rate for the residential sector based on the Home Reno Rebate offering, 10% for the commercial sector based on the Prescriptive offering and 54% for the industrial sector based on the Custom offering.

3. Commercial/Industrial Analysis:

   - After steps one and two above were completed for both the Commercial MACCs and the Industrial MACCs, Union combined the CI MACC abatement at the minimum, mid-range and maximum LTCPF scenarios. This was required to compare this CI abatement potential to Union's DSM 2015-2020 plan, as Union's DSM targets are separated by Custom, Prescriptive and Performance Based Program, and not by CI sectors only.
   - Large volume savings were removed to better align with the MACC abatement opportunity, which removed all large final emitters (LFEs).

The below comparison was based on the approach outlined above.

Table 2

Annual Savings Realized During the 2020 Year (million m³) *(Includes savings from 2018 and 2019 that persist into the 2020 year)*				
	C/I MACC (Minimum LTCPF)	**C/I MACC (Mid-Range LTCPF)**	**C/I MACC (Maximum LTCPF)**	**C/I Prescriptive and Custom DSM Plan**
Total Commercial / Industrial Abatement Opportunity	66	66	69	193

This CI analysis identifies that there is no cost-effective abatement opportunity, from the perspective of the utility, incremental to Union's current DSM programs. In fact the

MACC, consistent with the CPS in 2016, shows that Union's DSM program targets aim to achieve more than what is identified.

In addition, Union compared the CI measures included within the MACC Report to the prescriptive and custom measures included within Union's current DSM plan. This comparison shows that Union incents the majority of the MACC measures. For the few that are not currently incented, it is important to note that Union has evaluated these measures in the past, but has chosen to maintain focus on the offerings included within the DSM Plan, as these drive the most cost-effective savings when also taking into account the available budget and OEB guidelines.

4. Residential Analysis: Based on the same approach outlined above, the following values were calculated for the Residential Market:

Table 3

Annual Savings Realized During the 2020 Year (million m³) *(Includes savings from 2018 and 2019 that persist into the 2020 year)*				
	MACC (Minimum LTCPF)	**MACC (Mid-Range LTCPF)**	**MACC (Maximum LTCPF)**	**Residential DSM Plan**
Residential	34	35	39	20

This Residential analysis identifies that there is incremental cost-effective abatement opportunity; however, Union is unable to determine the measure mix from the incremental opportunity since the MACC Report does not provide the underlying analysis. As a result, Union looked to the CPS and determined that incremental abatement exists and Union will assess the opportunity and pursue it through the DSM Framework where possible.

Opportunity	Description of Potential Opportunity	Status	Timing	Project Capital Cost	Estimated Emissions Reductions* (tonnes CO2e/yr)	Measure Cost ($/tCO2e)	Other Noteworthy Advantages and Disadvantages	Recommendation
Stage 3 (Propose)								
Valve Operators	Conversion of natural gas driven valve operators to air drive or electric drive	Implement a program in 2018 to obtain valve counts in order to identify high use operators. Installation of air drive or electric drive operators to be considered when installing or replacing operators.	TBD	TBD	TBD	TBD	Program will establish replacement order that will allow for cost optimization.	Opportunity will need to be completed on a project by project basis
Pipeline Looping	Review criteria for selecting transmission pipeline reinforcement build order, specifically the option of compressor plant installation versus a section of pipeline looping.	Pipeline looping to be incorporated into design considerations for new compressor builds.	TBD	TBD	TBD	TBD	Reduced/avoided operations and maintenance costs associated with compressor build.	Opportunity will need to be completed on a project by project basis
Blowdown Recovery	Installation of blowdown recovery systems at large compressor stations/remote storage sites that do not currently have blowdown recovery.	Installation of blowdown recovery systems to be considered at time of significant station upgrades or new builds.	TBD	TBD	TBD	TBD	Operations and maintenance experience as a result of existing units at three compressor sites can be leveraged. Better inventory management as a result of existing units.	Opportunity will need to be completed on a project by project basis
Stage 2 (Formulate)								
Fugitive Emissions Management	Focus on low-risk fugitive emission repair, including review of fugitive emission classification, associated repair timelines, survey frequency, and supporting technology.	Fugitive emission management project plan to be developed, with scope of work currently under evaluation.	2018	$ 5,300,000	3,029	$ 411	This opportunity would eliminate or significantly reduce the current fugitive emission backlog. The opportunity would include a significant implementation effort and training requirements.	Project is not economic. Requires further analysis of costs. Re-evaluate for 2019.
Station Heating Equipment - London North Gate Station	Develop a program for proactive replacement of older, less efficient heating systems with newer technology that would result in GHG emission reductions.	Union's portfolio of heating equipment was analyzed through this study and determined not to be economic at this time. London North Gate was analyzed individually on the basis that this type of station would offer the greatest improvement in efficiency.	2018/2019	$ 1,000,000	210	$ 192	Newer heating systems contain much less glycol. Potential to reduce risk and scale of glycol spills at these stations.	Program is not economic. Requires further analysis of costs. Re-evaluate for 2019.
Stage 1 (Conceptual)								

Opportunity	Description of Potential Opportunity	Status	Timing	Project Capital Cost	Estimated Emissions Reductions* (tonnes CO2e/yr)	Measure Cost ($/tCO2e)	Other Noteworthy Advantages and Disadvantages	Recommendation
Portable Blowdown Recovery	Use mobile compressor units to capture gas that would have been vented to atmosphere during planned releases.	Opportunity will be initiated in current compliance period, with design investigation of transmission and distribution options.	2018	$ 3,000,000	189	$ 626	This is a custom package which is currently not commercially available for the distribution system. Is an opportunity for Union Gas to advocate for emission reduction in industry and drive technology adoption. There is also a potential to leverage other opportunities to use these units (i.e. supply shortages or unexpected events requiring pressure management)	Project is not economic. Investigate GreenON/CCAP funding. Reevaluate for 2019.
Rod Packing Replacement - Federal Methane Regulations	Implement latest rod packing technology which offers the ability to reduce emissions.	The implementation of a new rod packing replacement program is being planned for 2020.	2020	$ 50,000	313	$ 11	An initiative is required to develop a method to measure rod leakage. Equipment to be added is similar to existing equipment therefore implementation effort (documentation, training and change management process) should be straight forward. Alignment with anticipated federal regulations that will require control measures for rod packing leakage.	Preliminary feasibility results show this project may be economic. However, work is required to develop and implement a testing program to measure actual rod leakage to validate the economics for this initiative. Dependant on federal methane regulations.
Wet Gas Seals - Federal Methane Regulations	Convert legacy centrifugal compressor wet seals to dry seals on three existing compressor units.	A wet gas seal replacement program is being considered for 2020. Investigating replacement at three compressor stations where there is a potential economic pay back.	2020	$ 3,600,000	4,450	$ 32	An initiative is required to develop a method and measure actual wet gas seal leakage. Equipment to be added is similar to existing equipment therefore implementation effort (documentation, training and change management process) should be straight forward.	Dependant on federal methane regulations.
Control Valves (Pneumatic Devices) - Federal Methane Regulations	Replace high bleed pneumatic devices with low bleed or no bleed alternatives.	Pneumatic device replacement program is being considered as a multi-year program with project initiation in 2020. Currently developing more rigorous inventory of devices and device types.	2020	$ 9,800,000	1,622	$ 259	Standardizing and reducing the number of equipment models in the field will simplify training requirements.	Dependant on federal methane regulations.

UNION GAS LIMITED 2018 CAP-AND-TRADE COMPLIANCE PLAN
PERFORMANCE METRICS AND COST INFORMATION

This evidence outlines the forecasted costs of Union's 2018 Compliance Plan. The cost of Union's compliance activities are detailed below, followed by a discussion of the expected timing for these activities. This evidence also includes the forecast of administrative costs associated with the development and execution of the Compliance Plan and funding required for Union's Low Carbon Initiative Fund, as outlined in Exhibit 3, Tab 4.

This evidence is organized as follows:

1. Forecast Compliance Cost
2. Timing of Compliance Instrument Procurement
3. Timing of Abatement Activities
4. 2018 Greenhouse Gas Emissions Impact Deferral Account (GGEIDA) Cost Forecast
   4.1. Forecast Administration Costs
   4.2. Proposed Low Carbon Initiative Fund

1. FORECAST COMPLIANCE COST

Exhibit 3, Tab 5, Schedule 1 outlines the total expected volume, forecast cost per tonne, total expected cost, and the weighted average cost per tonne of GHG emissions for Union's 2018 Compliance Plan. [redacted]

[redacted] The forecasted volumes for each compliance instrument are based on the compliance instrument mix discussed in Exhibit 3, Tab 3. [redacted] As outlined in Exhibit 7, Union has used the forecast carbon price for rate-setting purposes.

In terms of existing abatement measures (i.e. DSM, GIF), there are no incremental costs to reflect. As noted earlier, due to the dependency of incremental abatement measures on government support and funding, these projects are not reflected in the 2018 emission forecast or cost forecast.

The Framework recognizes that financing costs are "carrying costs related to the acquisition of emissions units for future compliance".[1] [redacted]

[1] Framework, Appendix A, p. ix.

Provisions in the Income Tax Act will have an impact on cash flows and short-term financing costs, but at this time, Union does not expect any material financial impact in 2018 as a result of these provisions.

2. Timing of Compliance Instrument Procurement

[redacted]

[redacted]

[redacted]

3. TIMING OF ABATEMENT ACTIVITIES

The planned abatement activities for 2018 are described in Exhibit 3, Tab 4. Given that the GIF program was implemented in 2017, the timing associated with the program itself is known. However, the timing of customer action under the program is less certain. Union's 2018 forecast assumes 7,035,000 m^3 over the course of the year with respect to the emission reductions related to GIF.

The timing associated with incremental customer abatement programs is uncertain. As described in Exhibit 3, Tab 4, Union's programs, namely RNG, GSHP, ASHP/Natural Gas integrated solutions, hydrogen and power to gas, micro generation, building skins, carbon capture, biomass conversion to RNG, and automatic meter reading are dependent upon government endorsement and funding, and/or the completion of planned pilot programs. As outlined in Exhibit3, Tab 1, Union's plan has sufficient flexibility with respect to compliance instruments and abatement to ensure its compliance obligations will be met.

4. 2018 GREENHOUSE GAS EMISSIONS IMPACT DEFERRAL ACCOUNT (GGEIDA) COST FORECAST

Union's forecast 2018 GGEIDA costs total $6.0 million, including forecast administration costs of $4.0 million and forecast Low Carbon Initiative Fund costs of up to $2.0 million.

4.1 Forecast Administration Costs

Consistent with 2016 and 2017, and as approved in EB-2015-0296, Union will continue to record costs related to implementing and administering the Ontario Government's Cap-and-Trade program in the Greenhouse Gas Emissions Impact Deferral Account (No. 179-152) until such time that these costs are incorporated into rates. The costs in the GGEIDA will be disposed of consistent with the methodology as defined in Exhibit 6. Union is not seeking recovery of its forecasted 2018 administration costs in this proceeding.

As outlined in Exhibit 3, Tab 5, Schedule 2, Union has forecasted 2018 administration costs of $4.0 million, which represents approximately 1.4% of the total forecast cost of compliance.[2] This percentage of total compliance costs is within the range of administrative costs reported by California utilities for 2015 of up to 2.7% (as noted in the OEB Staff discussion paper), and is lower than the forecasted administration costs of $4.2 million (approximately 1.5% of total forecast cost of compliance) for 2017.[3] The OEB Decision and Order on Union's 2017 Compliance Plan noted that administration costs proposed by each of the gas Utilities to meet their 2017 Cap-and-Trade compliance obligations are consistent with expectations established in the Framework.[4]

A description of the components comprising Union's 2018 forecast for administration costs is provided below.

[2] Exhibit 7, Schedule 1, line 5.
[3] EB-2015-0363 Staff Discussion Paper on a Cap and Trade Regulatory Framework for the Natural Gas Utilities, p.30.
[4] EB-2016-0296, Decision and Order, p. 16.

Salaries and Wages

The 2018 estimate of $2.6 million relates to the salaries and wages for 12.5 FTE. This also includes an allocation of benefits, pension, and overhead costs. The level of staffing reflects the incremental level of effort Union expects to require across the organization to administer the Cap-and-Trade program in 2018. There is one less FTE forecast for 2018 than was forecast in Union's 2017 Compliance Plan. The difference is due to a Finance role that was expected to be allocated to Cap-and-Trade on a permanent basis. On an actual basis, the incremental workload associated with this role has been distributed across multiple roles in Finance, with no individual committing more than 25% of their time to Cap-and-Trade activities. These roles and associated costs have not been included in the 2018 Cap-and-Trade FTE forecast because they did not meet the documented threshold. In order to ensure that incremental salaries and wages costs related to Cap-and-Trade obligations are properly accounted for, Union created a decision tree and process that is presented and described in Exhibit 6. A description of the FTE roles organized by functional area is provided in Table 1 below:

Table 1
2018 Cap-and-Trade Roles and Responsibilities

Role and Responsibilities	**Number of FTE's**
Cap-and-Trade Team *Manager, Cap-and-Trade* • Overall responsibility for implementation and ongoing sustainment of Cap-and-Trade regulations and Compliance Plans. *Program Manager, Cap-and-Trade* • Leads activities on establishment of process changes, governance structures, reporting and monitoring, regulatory requirements, and Compliance Plan filings.	3.0

Cap-and-Trade Advisor • Leads interpretation and analysis of regulations, research of other jurisdictions, response to Cap-and-Trade proposals from ministries, and supports Cap-and-Trade communications content.	
<u>GHG Reporting and Forecasting</u> *Principal EHS Technical Advisor* • Accountable for all Regulatory reporting of GHG emissions, including all provincial reporting under O.Reg.452 and O.Reg.143 as well as federal reporting under Section 46 of the Canadian Environmental Protection Act. *Environmental Specialist (2 roles)* • Responsible for emissions calculations and reporting, technical support related to Cap-and-Trade and GHG emissions including emissions measurement, assessment of emission reduction opportunities and research.	3.0
<u>Compliance Purchase Plan and Execution</u> *Senior Buyer, Carbon Markets* • Responsible for the development and execution of Union's compliance instrument procurement strategy and the management of Union's CITSS accounts.	1.0
<u>Technology and Innovation</u> *Manager, Natural Gas Technology and Innovation and* *Project Manager, Natural Gas Technology and Innovation* • Assessment of emerging technologies and innovations for renewable natural gas, with the goal of increasing the technology and commercial readiness levels of those technologies. • Evaluation and development of Cap-and-Trade's Offset Protocols and strategy around offsets. *Manager, Customer Technology and Innovation* • Assessment of emerging technologies and innovations for the natural gas end-user in the residential, commercial, and industrial markets that reduce GHG emissions.	3.0
<u>Distribution Business Development</u> *Director, Distribution Business Development and Strategic Accounts (25% allocated to Cap-and-Trade)* • Accountable for creating and executing strategies and approach to market required to develop new end use markets for natural gas, including renewable natural gas. Interface with government ministries on the development of Climate Change Action Plan initiatives. *Manager, Distribution Business Development – Planning (25% allocated to Cap-and-Trade)* • Supports the development of opportunities in RNG markets by providing research, analytics and stakeholder support. *Manager, Distribution Business Development - RNG* • Accountable for developing the market approach for renewable natural gas, identifying partnerships, business models and products with industry partners,	2.5

potential customers, associations and government. *Business Development Manager* • For RNG, develops new customer and industry relationships in target markets, supports business cases, creates materials and educates potential RNG producers and buyers on market opportunities, facilitates contracting for services and develops sustainable processes.	
Total	**12.5**

In addition to the 12.5 FTE described above, many departments across the organization have adjusted existing workloads to accommodate requirements related to Cap-and-Trade. If an employee will not be committing greater than 25% of their time to Cap-and-Trade activities, then an allocation of that FTE is not included in the 12.5 FTE. There are many examples of existing positions across the organization that have been required to absorb incremental workload as a result of Cap-and-Trade regulations but their costs will not be captured in the deferral account because the time commitment does not meet the 25% threshold. Examples of this situation include staff in departments such as Finance (described above), Gas Supply, Communications, Customer Care, Information Technology, Regulatory, and Sales. In these cases, Union has reallocated work, refined processes and restructured support teams to drive productivity gains allowing for these roles to assume the incremental Cap-and-Trade work.

Consulting

In 2018, Union will continue to use external consulting to support the development of its Compliance Plans and the ongoing sustainment of the Cap-and-Trade program. Union continues to adapt quickly to the dynamic and developing Ontario carbon market, and continues to engage the use of external consultants with specialized knowledge and expertise. These consulting services are forecasted to cost $670,000 in 2018 for work supporting the development and execution of Union's Compliance Plan, in a similar manner to 2017. Union also continues to use consultants in 2018 for carbon strategy and related analysis, GHG reporting and forecasting, offsets, and legal interpretation of regulations. Costs for these services are summarized in Table 2.

The forecast consulting costs by category are expected to be similar in magnitude to what was forecast in Union's 2017 Compliance Plan. The components of the consulting cost forecast are as follows:

- Compliance Planning/Implementation costs relate to the ongoing development of Union's Cap-and-Trade strategy with direct input to Union's Compliance Plans.
- Carbon Strategy and Analysis is related to analysis of new regulations and/or amendments to Cap-and-Trade regulations (e.g. WCI linkage and GHG reporting changes) or climate change policy (provincial, federal, and other relevant jurisdictions) that could impact Union's compliance plan and legal obligations. It also includes Union's subscriptions for carbon market data and market intelligence.
- GHG Reporting and Forecasting consulting supports Union's emissions reporting team with technical assistance in meeting all new regulations and conducting audits on Union's processes to ensure ongoing compliance.
- Offset development consulting will assist with the interpretation of draft offset regulations and protocols, and insights with respect to the developing offset market in Ontario and WCI.

- Legal support will continue to be a requirement for Union on an ongoing basis for interpretation of Cap-and-Trade and Climate Change Act regulations and in support of Union's regulatory requirements ensuring compliance.

Table 2
Forecast 2018 External Consulting Costs

Line No.	Particulars	2018 Cost Forecast ($000)
1	Compliance Planning/Implementation	200
2	Carbon Strategy and Analysis	120
3	GHG Reporting and Forecasting	100
4	Offset Consulting	100
5	Legal Interpretation and Review	150
6	Total	670

Bad Debt Related to Cap-and-Trade

Union has estimated $425,000 in bad debt related to Cap-and-Trade for 2018 (compared to $600,000 forecast for 2017). The decrease in 2018 Cap-and-Trade related bad debt compared to 2017 is attributable to changes in the forecast methodology for 2018. For the 2017 forecast, Union used a simplified method to estimate Cap-and-Trade related bad debts. This method assumed that a 10% increase in customer bills as a result of Cap-and-Trade costs would result in a 10% increase in bad debt. This simplified method was employed because Union had no previous experience with bad debt in a Cap-and-Trade environment and did not know how it would impact customer payment behaviour.

For the 2018 forecast, Cap-and-Trade related bad debt is estimated using Union's corporate bad debt forecast methodology, and is calculated by taking Union's forecast compliance obligation costs for General Service customers and applying Union's average actual write-off factor from the past five years. Even though Cap-and-Trade charges are embedded within the delivery line on customers' invoices, there is configuration built into the billing system that allows for the breakdown of accounts written off to bad debt including the incremental amounts specifically associated with Cap-and-Trade charges. Consistent with the methodology included in Union's 2017 Cap-and-Trade Compliance Plan evidence, only the bad debt specifically related to Cap-and-Trade charges will be captured in the GGEIDA.

Revenue Requirement on Capital Costs

Union has included the 2018 revenue requirement of $193,000 related to capital costs of approximately $673,000 as forecast at December 31, 2018 for billing system changes as a result of Cap-and-Trade. The billing system changes occurred in 2016 and 2017 and there are no forecasted capital costs for billing system changes in 2018.

Ontario Energy Board Costs

Union has included an estimate of OEB costs in its 2018 forecasted administrative costs. These forecast costs represent expectations for the annual LTCPF and related Working Group. As identified in EB-2016-0359, the costs for expert consultants and technical experts that comprise a TAG, established by the OEB, will be recovered from all rate-regulated natural gas distributors based on their respective customer numbers.[5] Union has forecast its portion of OEB costs to be $50,000 for 2018, which is approximately half of the cost Union was charged for this work in 2017. This recognizes that there were costs to complete the MACC in 2017 which are not expected to be repeated in 2018.

Other

Included in the category of other costs forecast for 2018 are employee travel expenses, market research, and internal and external communications totaling $68,000.

4.2 Forecast Low Carbon Initiative Fund Costs

As described in more detail in Exhibit 3, Tab 4, Union is investigating a range of emerging technologies within the scope of impacting customer abatement and reducing carbon emissions in Ontario. In order to identify carbon-reducing technologies, test the proof of concept, and move the most promising ideas through the initiative funnel, a predictable level of funding is required. This ensures that ideas are consistently fed into the funnel, and move through the development process. This improves the likelihood of tangible, measurable abatement opportunities over the long-term. To support this development, Union has identified the need for a Low Carbon Initiative Fund. Union is seeking approval to include the cost consequences of the Low Carbon Initiative Fund in the GGEIDA. The forecast cost consequences for 2018 is expected to be up to $2 million and will fund continued investigation and development costs for new technologies such as, but not necessarily limited to the technologies described in detail in

[5] Technical Advisory Group for the OEB's Long-term Carbon Price Forecast and Marginal Abatement Cost Curve.

Exhibit 3, Tab 4. Technologies and innovations supported by the Fund would be pursued in support of future abatement. The types of costs to support their development will include activities such as consulting, pilot projects, testing, data analysis, and verification.

UNION GAS LIMITED
Forecasted Compliance Cost
For Activity In The 12 Month Period Ending December 31, 2018

		a	b	c	d	e	f	g	h	i
		2018								
		Utility			Non-Utility			Total		
Line No	Compliance Option	Volume to be Procured (tonnes of CO_2e)(1)	Forecasted Price (CAD/tonne of CO_2e)(2)	Forecasted Cost (CAD)	Volume to be Procured (tonnes of CO_2e)(1)	Forecasted Price (CAD/tonne of CO_2e)(2)	Forecasted Cost (CAD)	Volume to be Procured (tonnes of CO_2e)(1)	Forecasted Price (CAD/tonne of CO_2e)(2)	Forecasted Cost (CAD)
	Compliance Instruments	[redacted]								
[redacted]										
	Abatement									
6	Customer Abatement Programs	13,188	-	-	-	-	-	13,188	-	-
7	Facility Abatement Programs	-	-	-	-	-	-	-	-	-
8	Total Abatement	13,188	-	-	-	-	-	13,188	-	-
[redacted]										

[redacted]

UNION GAS LIMITED
Forecasted Cap-and-Trade GGEIDA Costs
for Activity in the 12 Month Period Ending December 31, 2018

	2018 Forecast ('000s)
Forecast Administration Costs	
Salaries and wages	$ 2,598
Consulting	670
Bad debts related to Cap-and-Trade	425
Revenue requirement on capital costs (billing systems)	193
Ontario Energy Board costs	50
Other	68
Total Forecast Administration Costs	4,004
Low Carbon Initiative Fund Costs	2,000
Total Forecasted Cap-and-Trade GGEIDA Costs	$ 6,004
2017 Budgeted FTE's	12.50

UNION GAS LIMITED 2018 CAP-AND-TRADE COMPLIANCE PLAN

RISK MANAGEMENT

This evidence provides a description of the risks related to Union's 2018 Compliance Plan, the potential outcomes that could result if not appropriately managed, and Union's plan for the active management of each risk. It also provides scenario analyses which quantitatively and/or qualitatively model some of the relevant risks discussed.

This exhibit of evidence is organized as follows:

1. Risk Identification and Mitigation
    - 1.1. Emission Volume and Purchase Variability
    - 1.2. Price and Foreign Exchange Risk
    - 1.3. Liquidity
    - 1.4. WCI Linkage Not Occurring or Delayed
    - 1.5. Purchase and Holding Limits
    - 1.6. Credit and Counterparties
    - 1.7. Project Execution
    - 1.8. Non-Compliance
    - 1.9. Government and Legislation
2. Financial Hedging Activities

1. RISK IDENTIFICATION AND MITIGATION

Union recognizes that participation in the carbon market poses certain risks. This is true in the case of any type of market, particularly one in its infancy. The Framework identifies some of these risks including: volume variability, price, credit, and project execution. Union has identified additional risks incremental to those identified in the Framework. Union takes a deliberate and proactive approach to identifying and mitigating risks in order to support the prudent and effective execution of its Compliance Plan. Active risk management allows Union to identify when flexibility within the plan should be exercised to achieve the guiding principles identified in the Framework, as well as to meet Union's legal obligation to comply with the Climate Change Act.

Risk management, in relation to Union's 2018 Compliance Plan, is coordinated centrally through its governance structures and employs functional leadership and expertise. Union's risks are subject to executive oversight and corporate risk management practices. Union's risk management plan is comprehensive and Union has been diligent in proactively identifying and actively managing the risks related to the 2018 Compliance Plan.

Below is a discussion of the risks impacting Union's 2018 Compliance Plan, the potential impacts of those risks, and the mitigation Union is taking to address them.

1.1 Emission Volume and Purchase Variability

Risk Identification – Union's compliance obligation will fluctuate in relation to the demand for natural gas by its customers. These fluctuations can be caused by a number of different physical and economic drivers. The potential drivers of volume variability for Union's 2018 compliance obligation are:

- The impact of warmer or colder than normal weather on customer demand for natural gas;
- Variation in the demand for natural gas by natural gas fired power generators;
- Variation in the use of natural gas to operate Union's compressors;
- Variation in the amount of UFG experienced;
- Variation in the demand for natural gas driven by economic factors impacting residential, commercial and industrial use;
- Variation in the use of natural gas driven by the impacts of facility abatement, DSM, or customer abatement measures; and,
- Variation in Union's obligation, including changes in the MOECC list of large final emitters and voluntary participants.

Emission volume variability was present throughout the first half of 2017; warmer weather and lower than expected natural gas fired power generation demand resulted in lower emissions than originally forecasted. Union's reforecasting process and the inherent flexibility in its 2017 Compliance Plan allowed Union to effectively manage this variability. In Exhibit 3, Tab 6, Schedule 1, Union quantifies various emission volume scenarios for 2018 and how the strategy underpinning its 2018 Compliance Plan addresses these hypothetical variations.

[redacted]

Volume variability poses compliance risk, particularly if caused by a sudden change in supply or demand occurring near the end of the compliance period when the options to address the change are reduced, or may be more expensive. Since 2018 is within the first half of the 2017 – 2020 compliance period, the level of compliance risk posed by volume variability is relatively low as Union still has a two-year period to respond to any such variability.

Risk Mitigation – [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

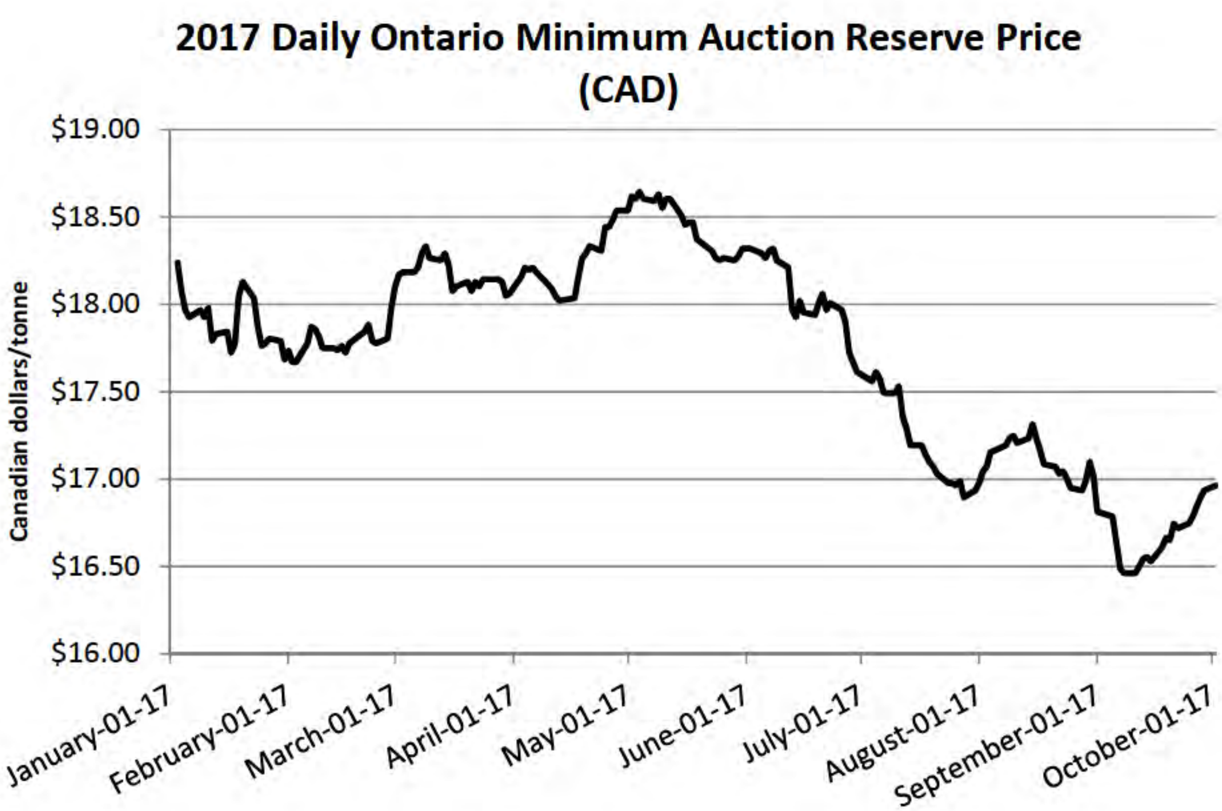
[redacted]

1.2 PRICE AND FOREIGN EXCHANGE RISK

Risk Identification – As with any market, including financial markets or natural gas markets, prices will fluctuate throughout each day, month, and year based on market activity. Compliance entities are exposed to price risk on any position they take in a carbon market. As Union's actual compliance obligation is realized, it will naturally accumulate a short position in the market until compliance instruments are acquired. In this case, if market prices increase between the date when the obligation is incurred and the date instruments are acquired, Union will be exposed to an increased cost of compliance. Conversely, any time prices decrease, Union's cost of compliance will decrease. This price risk is applicable to both primary and secondary carbon markets.

Because the carbon market pricing is based on a US dollar price converted to Canadian dollars for entities in Ontario and Québec, there will be price risk associated with fluctuations in the foreign exchange rate. For example, Figure 1 below depicts the daily 2017 Ontario Minimum Auction Reserve Price in Canadian dollars for the first three quarters of 2017. Even though the 2017 Ontario Minimum Auction Reserve Price is constant at $13.57 US dollar/tonne,[2] the Canadian dollar price varies significantly as the foreign exchange rate changes. The fluctuation in the Ontario Minimum Auction Reserve Price resulting from variations in the foreign exchange rate between January and September 2017 is approximately $2 CAD/tonne.

Figure 1



[2] The 2017 Ontario minimum Auction Reserve Price is intended to be a proxy for both primary and secondary carbon markets and is used for illustration purposes only.

Risk Mitigation – [redacted]

[redacted]

[redacted]

[redacted]

1.3 LIQUIDITY

Risk Identification – Liquidity risk is the risk that Union is unable to obtain the compliance instruments it needs to meet its compliance obligation at a reasonable cost due to the lack of reliable routes to market for those compliance instruments. Low liquidity can result from a number of factors including scarcity of compliance instruments, or a low number of counterparties to transact with. As outlined in Exhibit 3, Tab 1, Union will continue to be one of the larger capped emitters after linkage with the WCI. Because Union is one of the larger capped emitters in the market (and therefore requires a higher volume of compliance instruments), liquidity risk is higher.

[redacted]

Failing to procure the required volume of compliance instruments due to inadequate market liquidity could result in Union being unable to comply with its obligations under the Cap-and-Trade legislation. Liquidity risk is expected to be lower in 2018 than in 2017 because WCI linkage will result in additional compliance instruments becoming available to Ontario entities from California and Québec (where the carbon markets are generally considered to have excess compliance instruments). Linkage to the California and Québec carbon market will also increase the number of counterparties Union can transact with, thereby increasing liquidity and decreasing liquidity risk.

Risk Mitigation – [redacted]

In order to support availability of offsets, Union is taking steps to encourage the development of the offset market in Ontario. Union has been and will continue to be, actively involved in the stakeholder process for the development of offset protocols, by reviewing MOECC draft regulations and protocols and providing comments where applicable. Union's submissions include recommendations which are intended to encourage practical development of compliance offsets in the province.

1.4 WCI Linkage Not Occurring or Delayed

Risk Identification – Union's 2018 Compliance Plan has been developed assuming that Ontario will link its carbon market to the California and Québec market effective January 1, 2018. This assumption is based on the formal announcement by the Ontario government of its intent to link with WCI, and the finalization of an associated linking agreement with California and Québec. However, as described in Exhibit 3, Tab 1, there are still some remaining steps for linkage to be implemented and effective January 1, 2018. Union to assumes these events will occur. However, Union has considered the risk posed if linkage does not proceed as expected since this could have a significant impact on Union's Compliance Plan.

[redacted] Based on the LTCPF, the cost of compliance could be much greater in an Ontario-only market, which would impact not only procurement but also evaluation of abatement options, rates, and customer communications.

Risk Mitigation – [redacted]

[redacted]

1.5 Purchase and Holding Limits

Risk Identification – Auction purchase limits restrict the amount of allowances participants can acquire in any given auction, while holding limits restrict the total amount of allowances a participant can hold at any particular time. Purchase and holding limits are a function of market size. [redacted]

Union is affiliated with both EGD and Gazifère due to common ownership by Enbridge Inc., which became effective on February 27, 2017. EGD is a capped participant in Ontario, and Gazifère is a capped participant in the WCI. When Ontario joins the WCI effective January 1, 2018, Union, EGD and Gazifère will be required to share auction purchase limits and a general holding limit.[3]

[redacted]

Risk Mitigation – [redacted]

[redacted]

[3] Union and EGD did not share purchase and holding limits in 2017 as a result of Ontario Regulation 56/17, Amending O.Reg. 144/16 that expires December 31, 2017.

[redacted]

1.6 Credit and Counterparties

Risk Identification – Counterparty risk is the risk to each party to a contract that the counterparty (other party) does not live up to its contractual obligations. Counterparty risk should be considered when evaluating a contract. For example, in a contract for the forward delivery of allowances, the risk that the seller fails to deliver the allowances per the agreement is counterparty risk. Counterparty risk could also apply to abatement projects (for example, a pilot project to support new technology developments like those identified in Exhibit 3, Tab 4) if a counterparty fails to deliver on contract requirements.

Credit risk is the risk of default on a debt that may arise from a borrower failing to make required payments. For example, if the contract with a counterparty requires the counterparty failing to deliver allowances to pay damages for their failure to deliver, the risk of the counterparty defaulting on the payment of damages would represent credit risk.

The carbon market poses new and incremental credit and counterparty risks for Union that were not present prior to the introduction of Cap-and-Trade in Ontario. This is due to the uniqueness of the carbon market itself, both with regard to the type of products and contracts available and due to the types of counterparties that are active in the carbon market.

Risk Mitigation – Union has developed stringent credit and counterparty contracting requirements which apply to all compliance instrument procurement activities. These requirements are similar to those used for the procurement of natural gas for Union's Sales Service customers. See Exhibit 3, Tab 2, Appendix A, pp. 8-9 for a description of Union's counterparty credit guidelines for compliance instrument procurement.

Union also has comprehensive supply chain processes to protect against counterparty risk for new projects (e.g. for abatement projects): this includes the Contract Approval and Administration Policy that must be followed prior to signing and executing new and amended contracts. The policy involves a review by the core functional departments such as legal, tax, insurance, credit and the controller's department.

1.7 Project Execution

Risk Identification – As noted above, Union has discussed a number of customer abatement initiatives. Of these initiatives, RNG is expected to progress in 2018. However, this progress is contingent upon agreement of program structure with the MOE and MOECC, as well as funding from the province. Therefore, there is some project risk surrounding these initiatives moving forward.

As outlined in Exhibit 3, Tab 4, Union will be working to advance other projects, such as ASHP/natural gas integrated solution, GSHP, and micro generation, which may proceed to the pilot stage in 2018. As these projects are in the early stages, the emissions reduction impact in 2018 is relatively small in comparison to Union's total compliance obligation.

As outlined in Exhibit 3, Tab 4, Union has included forecasted emission reductions related to GIF. Since these volumes are not material to Union's 2018 compliance obligation (approximately 13,188 $tCO2_e$ for 2018), there is no significant project execution risk related to the GIF.

Risk Mitigation – As noted above, Union's RNG initiative targeted for 2018 is contingent upon agreement of program structure with the MOE and MOECC, as well as provincial funding. Union and EGD have defined the program proposal (as detailed in Exhibit 3, Tab 4) and have actively engaged with the province to solidify the structure and required funding. Union has also requested that the OEB grant approval of the RNG proposal no later than the end of January 2018 so that procurement can proceed.

As outlined in Exhibit 3, Tab 4, Union has developed a Low Carbon Initiative Fund to support future abatement projects. Union recognizes that a proactive approach is required to develop abatement projects and the Low Carbon Initiative Fund is intended to support this.

Since the development of the program structure and associated funding is in progress, Union has not included associated emissions reductions in the 2018 forecast. Instead, Union will incorporate any actual reductions in its monthly re-forecasting process, and adjust procurement plans accordingly. Union believes this approach is prudent given the current dependencies on these programs proceeding, and also recognizes the relatively small initial impact they will have on 2018 emissions relative to Union's compliance obligation.

1.8 Non-Compliance

Risk Identification – Non-compliance risk is the risk of Union not fulfilling its requirements under the Cap-and-Trade program. Non-compliance risk includes:

- *Non-compliance with covering Union and Union's customers' GHG obligation:*[4] Failing to submit a sufficient amount of compliance instruments to the MOECC to cover Union's obligation (either customer and/or facility-related obligations) on or before the deadline and in accordance with the regulations. For the first compliance period, the deadline to surrender compliance instruments is November 2021.
- *Non-compliance with confidentiality requirements*: Failing to follow all the applicable regulations, legislation, and guidelines set to protect confidential and market sensitive

[4] Excluding LFEs and voluntary participants.

information, such as requirements prohibiting the dissemination of such information that could jeopardize the integrity of the carbon market.

- *Non-compliance with carbon market rules:* Failing to follow the rules set out in the regulations to protect against market fraud and manipulation and to maintain market stability, such as trading rules, holding and purchase limits, offsets quotas, and auction participation rules.
- *Non-compliance with the GHG reporting regulations and guidelines as they relate to the Cap-and-Trade program:* Failing to comply with GHG reporting requirements as they apply to Union, including in respect of the required methodologies, verifications and timing.

Union could face financial losses in the event of non-compliance. For example, if Union does not submit sufficient compliance instruments to meet its compliance obligation within the prescribed deadline, it would be required to submit additional emission allowances in an amount equal to three times the shortfall. Such penalty would result in a requirement to acquire four compliance instruments for every unit of shortfall, which would have significant cost consequences.

Furthermore, on September 22, 2017, the MOECC issued a proposed regulation that allows the MOECC to impose administrative monetary penalties in the event of non-compliance with certain requirements of the Cap-and-Trade program. Union is in the process of assessing these proposed changes, as details are made available, to ensure continued compliance with applicable rules and regulations.

In addition, Union could incur significant financial penalties in the event it violated market rules or confidentiality requirements. For example, in the event of a violation of such rules, sections 51(4) and (5) of the Climate Change Act identify penalties that could range from $5,000 to $4 million or imprisonment for the first offence for individuals, and from $25,000 to $6 million for the first offence for corporations for each day such offence occurs. Under the Climate Change Act, the MOECC Director may also impose conditions on Union's registration in the Cap-and-Trade program.

Union could also face reputational losses in the event of non-compliance. Union's obligation is to achieve compliance not only for its own facilities, but also on behalf of approximately 1.4 million utility customers. Union highly values its relationship with customers. Throughout its history of more than 100 years, Union has built a strong reputation of providing safe, reliable services in the communities it serves. Union takes both the financial and reputational risks seriously and has developed extensive mitigation plans to proactively address them.

Risk Mitigation – Union has dedicated appropriate resources to execute its Compliance Planning and has implemented processes as part of its ongoing operations to ensure compliance with Cap-and-Trade legislation, guidelines and regulations, and Union's governance policies and requirements. Union has implemented extensive precautions and measures to ensure compliance and address the following types of non-compliance risk:

<u>Non-compliance with covering Union and Union's customers' GHG obligations</u>

In addition to dedicating resources to coordinate and oversee Union's compliance with Cap-and-Trade regulations, Union has taken several steps to mitigate any risk of non-compliance, including:

- Reviewing and assessing applicable statutes, regulations, guidance, and amendments thereto and identifying impacts across the organization;
- Establishing a robust governance structure, with supporting processes and controls;
- Engaging subject matter experts across the organization to implement necessary process and system changes to support compliance;
- Engaging internal and external legal counsel with specialized Cap-and-Trade knowledge and experience to review Union's obligations and advise on steps to achieve compliance;
- Engaging Union's Internal Audit team to conduct a DER of its Cap-and-Trade related internal controls, policies, and procedures; and,
- Employing monitoring and control processes (such as the re-forecasting process) to identify and respond to changes in Union's compliance obligation.
- Periodic review of processes and structures to ensure compliance and continuous improvement.

Non-compliance with confidentiality legislation

As outlined in Exhibit 1, Union believes that confidentiality is critical to the success of Ontario's Cap-and-Trade program. This is especially important in a nascent market, where a breach of confidentiality could compromise Union's competitive position. As described in Exhibit 3, Tab 2, Union has taken action to protect confidential information such as: limiting access to confidential information to a restricted list of employees and consultants; implementing rigorous protocols to protect information internally and externally; and training employees on the Cap-and-Trade confidentiality requirements. Union has also applied confidentiality rules defined by the Climate Change Act and the Framework to the content of this filing, as further detailed in Exhibit 1.

Non-compliance with carbon market rules

Union has leveraged its well-established practices in Gas Supply procurement to ensure the appropriate checks and controls are in place when participating in the newly created carbon market. Given some of the unique aspects of Ontario's carbon market, Union has taken several actions to mitigate the risk of non-compliance with market rules including:

- Documenting detailed procedures for market participation where applicable;
- Applying separation of duty in the execution and approval of the procurement function;
- Registering required CITSS users with different access rights; and
- Attending all training webinars offered by the MOECC.

Non-compliance with the GHG reporting regulations and guidelines

Union has added incremental EHS staff to complete the required GHG reporting. These incremental staff are outlined in Exhibit 3, Tab 5. As stated in Exhibit 3, Tab 2, Union has initiated a pre-audit verification process for GHG reporting related to Cap-and-Trade. The purpose is to have the calculations of the ON.400 emissions assessed to ensure compliance with the regulations. The pre-audit verification process is still in progress and is expected to be completed by the end of 2017.

1.9 GOVERNMENT AND LEGISLATION

Risk Identification – Union is subject to various federal and provincial climate change laws and regulations. Those most relevant to the Cap-and-Trade program include the Climate Change Act, and supporting regulations, and GHG reporting guidelines and regulations. There are also related provincial and federal laws and regulations that intersect with the Cap-and-Trade program which could impact Union's 2018 Compliance Plan. The introduction of new or changed government policies and regulations (both provincial and federal) could be a risk to Union's 2018 Compliance Plan to the extent that they impact the compliance requirements and/or how they can be satisfied.

An example of this is related to the proposed amendments to the Cap-and-Trade program the MOECC released on September 22, 2017 (as outlined in Exhibit 3, Tab 1).[5] Included in these proposed amendments are changes to address a unique situation for customers of the regional

5 http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2017/013-1457_Amendment.pdf

cogeneration system in the Sarnia area. Union is aware of the amendment that the MOECC has proposed to address this situation, and it could impact Union's compliance obligation on behalf of these customers. Therefore, Union is monitoring the development of these proposed amendments closely, and will adjust its 2018 Compliance Plan as required.

Another example is in respect to federal climate policy. In May 2017, Environment and Climate Change Canada ("ECCC") released a technical paper on the Federal Carbon Pricing Backstop (the "Backstop") as part of the development of a Pan-Canadian Framework for Clean Growth and Climate Change intended to reduce emissions. The Backstop is to be effective in 2018, and proposes to supplement the carbon price in jurisdictions without a carbon price or with systems that do not fully meet the federal benchmark price (i.e. where the effective Cap-and-Trade and/or carbon levy price falls short of the federal benchmark). Although Union does not yet know how such a pricing mechanism would work, it is Union's current assessment that Ontario's carbon price and the 2018 Compliance Plan will not be impacted by its implementation.

In a linked market, Ontario entities could also be impacted by carbon policies in California and Québec. Earlier this year, California approved substantial amendments to its Cap-and-Trade program which will take effect beginning in 2021. The changes are further described at Exhibit 3, Tab 1, and include changes to offset limits, allowance banking allocation rules and price containment levels.. These changes could impact the WCI market dynamics which would also impact Ontario compliance entities in a linked market. While Union's preliminary review of Ontario's draft proposed program amendments (released September 22, 2017) and proposed offsets program regulation (released October 4, 2017), indicate that Ontario will not adopt the California amendments initially, it is not yet known if Ontario will adopt them for future compliance plans. Adopting amendments such as these could impact the future market view of carbon instrument supply and demand. See Exhibit 3, Tab 3, Appendix A, p. 12 for more information on California post-2020 program developments.

Union is also aware that a provincial election must occur in Ontario before June 2018, Union cannot speculate on the outcome of that event and its potential implications to the existing carbon pricing mechanism (i.e. the Cap-and-Trade program). Union is dedicated to achieving compliance with all legislative and regulatory requirements, regardless of the election result.

Risk Mitigation - Union has dedicated resources to monitoring Cap-and-Trade program requirements, and to evaluating proposed changes to the Cap-and-Trade programs in Ontario, California, and Québec. In addition, Union expects to continue dialogue with the Ontario government on Cap-and-Trade and its implementation. This allows Union to understand and clarify the application of legal requirements to Union's compliance obligation, and also to be helpful to government in highlighting potential issues to be addressed.

Union has worked collaboratively with the MOECC to address implementation and customer issues. Union will continue to work in that manner to address issues as they arise.

Union continues to engage in regulatory developments through submitting comments on both federal and provincial proposals to request clarifications and identify concerns. Union also works closely with industry associations, consultants, and legal advisors to understand the impact of such developments on the carbon market, and the applicability of regulatory changes to Union's obligation.

Union's 2018 Compliance Plan has been developed to be flexible in order to adapt to regulatory and policy changes if and when they arise.

2. Financial Hedging Activities

For the purposes of this section, Union defines financial hedging activities as the use of financial instruments such as call or put options to manage price or volume risks that are present in Union's 2018 Compliance Plan. In the Framework, the OEB requires utilities to discuss any plans to undertake financial hedging activities. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

UNION GAS LIMITED 2018 CAP-AND-TRADE COMPLIANCE PLAN

LONG-TERM INVESTMENTS

Union's 2018 Compliance Plan does not include any long-term investment projects that will impact its 2018 compliance obligation within regulation. However, as outlined in Exhibit 3, Tab 4, Union is investigating several customer and facility abatement technologies.

UNION GAS LIMITED 2018 CAP-AND-TRADE COMPLIANCE PLAN

NEW BUSINESS ACTIVITIES

Union’s 2018 Compliance Plan does not include any new business activities that will impact its 2018 compliance obligation. In its 2017 Compliance Plan, as part of new business activities, Union included two specific proposals being pursued with the Ontario Government: RNG and CNG. Union’s 2018 updates to these initiatives are included in Exhibit 3, Tab 4.

UNION GAS LIMITED 2018 CAP-AND-TRADE COMPLIANCE PLAN
MONITORING AND REPORTING

The purpose of this evidence is to provide information related to 2017 compliance activities as of the date of submission of this evidence.

This exhibit of evidence is organized as follows:

1. 2017 Partial-Year Monitoring and Reporting
   1.1. Actual vs. Forecast Compliance Portfolio
   [redacted]

1. 2017 Partial-Year Monitoring and Reporting

2017 is the first year that Union has a compliance obligation under Ontario's Cap-and-Trade program. Therefore, Union does not have a full year of compliance activity to report, nor is Union seeking recovery of 2017 compliance costs in this proceeding. Union is providing partial year data related to 2017 compliance activities for informational purposes only and in response to the OEB's 2017 Compliance Plan Decision.[1] Union does not expect to file partial year data in future compliance plans. Union's 2019-2020 Compliance Plan filing submitted in 2018 will include monitoring and reporting for 2017 data in its entirety. Similarly, 2018 data will be reported in 2020.

[1] EB-2016-0296, Decision and Order, September 21, 2017, pp. 28-31.

In the 2017 Compliance Plan Decision, the OEB determined that a Working Group would be established to develop standardized monitoring and reporting templates, and to make a decision on additional reporting thresholds. The schedules provided in this Exhibit are not intended to circumvent the OEB's Working Group, but rather are a template for providing partial 2017 data for this proceeding. Union and EGD have worked collaboratively to develop common templates for reporting 2017 partial year data in this proceeding and these templates could serve as a starting point for the OEB's Working Group. The templates are similar to those each utility presented in their respective 2017 Compliance Plans.

1.1 ACTUAL VS. FORECAST COMPLIANCE PORTFOLIO

Exhibit 4, Schedule 1, provides a summary of compliance instrument purchases including:

- Volumes procured, cost per tonne, applicable transaction and financing costs, and total cost;
- Abatement activity, including volumes of GHG emission reductions, price per tonne, and total cost; and,
- The total weighted average cost of compliance.

For the purposes of providing comparable partial forecast information, the 2017 Compliance Plan forecast has been evenly pro-rated for the first 9 months of the year. Below is a discussion of the various components of Union's Compliance Portfolio.

[redacted]

[redacted]

[redacted]

Abatement

Union’s 2017 Compliance Plan included a forecasted reduction of 6,908 tonnes CO_2e resulting from Union’s participation in GIF. 2017 emission reductions attributed to the GIF as at September 30, 2017 is 3,133 tonnes CO_2e.[2] Emission reductions are annual, modelled figures based on the actual homes that have participated year-to-date.

Total Compliance Plan Volume Variance

[redacted]

Total Compliance Plan Price Variance

[redacted]

---

[2] Emissions reductions (forecast and actual) are from Union customers only. 2017 year-to-date figure is pre-audit.

[redacted]

[redacted]

UNION GAS LIMITED
Actual vs Forecast Compliance Portfolio
for the 9 month period ending September 30, 2017

		a	b	c a*b	d	e	f c d e	g f/a	h	i	j	k i*j	l	m	n k l m	o n/i	p	q a-i	r f-n
		Forecast[1]								**Actual**								**Variance**	
Line No.	Compliance Option	Volume (tonne of CO_2e)	Price ($CAD/tonne of CO_2e)	Cost ($CAD)	Transaction Cost ($CAD)	Financing Cost ($CAD)	Total Cost ($CAD)	Total Cost ($CAD/tonne of CO2e)	Percentage of Portfolio	Volume (tonne of CO_2e)	Price ($CAD/tonne of CO_2e)	Cost ($CAD)	Transaction Cost ($CAD)	Financing Cost ($CAD)	Total Cost ($CAD)	Total Cost ($CAD/tonne of CO2e)	Percentage of Portfolio	Volume (tonne of CO_2e)	Total Cost ($CAD)
	Compliance Instruments																		
[redacted]																			
8	Subtotal - Compliance Instruments	[redacted]																	
	Abatement																		
9	Customer Abatement Programs[6]	5,181	$ -	$ -	$ -	$ -	$ -	$ -	0%	3,133	$ -	$ -	$ -	$ -	$ -	$ -	0%	(2,048)	-
10	Facility Abatement Programs	-	$ -	$ -	$ -	$ -	$ -	$ -	0%	-	$ -	$ -	$ -	$ -	$ -	$ -	0%	-	-
11	Subtotal - Abatement	**5,181**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	0%	**3,133**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	0%	**(2,048)**	**$ -**
12	Total - Compliance Plan	[redacted]																	

Notes
(1) - Forecast data for the 9 month period ending September 30, 2017 has been evenly pro-rated from the total forecast amounts included in the 2017 Compliance Plan (i.e. factor of 9/12)
[redacted]
(6) - As indicated in Union's 2017 Compliance Plan, the only customer abatement program for 2017 is the Ontario GIF program. Forecast and actual GIF volumes for 2017 are as at August 31, 2017 due timing associated with GIF reporting on an actual basis.
Actual volumes represent full year modelled annual savings.

[redacted]

UNION GAS LIMITED 2018 CAP-AND-TRADE COMPLIANCE PLAN

CUSTOMER OUTREACH

The purpose of this evidence is to describe Union's 2018 Cap-and-Trade Customer Outreach and Communication Plan ("Communication Plan"), and to review feedback on Union's actions employed to-date. The evidence also describes next steps with regard to Union's Cap-and-Trade related customer outreach efforts.

This exhibit of evidence is organized as follows:

1. Background
2. Customer Feedback and Response
   2.1. Customer Telephone Surveys
   2.2. Union's Contact Centre and Website Statistics
   2.3. Union's Contract/Large Volume Customer Feedback
3. 2018 Customer Outreach and Communications Plan

1. BACKGROUND

Since early 2016, prior to the launch of the Cap-and-Trade program, Union has implemented incremental customer outreach in an effort to help customers understand Ontario's Cap-and-Trade program, the impact it has on their bills and how they can personally manage their GHG emissions and resulting bill impacts. Union's awareness campaign followed a detailed Cap-and-Trade Communication Plan which included contact centre representative training, targeted Cap-and-Trade communications via bill inserts, dedicated webpages, customer discussions and customer meetings. This Communication Plan was outlined in Union's 2017 Cap-and-Trade Compliance Plan.[1] The Communication Plan and its key messages were frequently reviewed and updated based on customer insight and feedback received. This feedback came through Union's contact centre, customer meetings, direct discussion with sales representatives, and ongoing customer surveys. Union has also considered the response from customers when developing the 2018 communications plan. An example of a communication enhancement resulting from these activities is the addition of a web calculator to Union's website in Q4 2016 in response to customer desires to easily calculate their specific Cap-and-Trade cost.

2. Customer Feedback and Response

2.1 Customer Telephone Surveys

A series of three customer telephone surveys were conducted on behalf of Union by Market Probe Canada in October 2016, December 2016, and March 2017 to assess residential and small business customers' base understanding of Cap-and-Trade, and to track customer awareness of Cap-and-Trade as Union's Communication Plan was implemented. The results of the surveys are provided in Exhibit 5, Appendix A. The survey results indicate that customer awareness of the Cap-and-Trade program increased from the October 2016 to December 2016, and that by March 2017 awareness had plateaued (see Table 1 below):

---

[1] EB-2016-0296, Exhibit 5, Appendix A.

Table 1
Customer Awareness of Cap-and-Trade Program

Survey	Overall awareness[2]
October, 2016	60%
December, 2016	67%
March, 2017	67%

During these surveys, customers who had never heard of Cap-and-Trade were asked to offer their preferred means of receiving communications regarding Cap-and-Trade information. These customers offered suggestions that had, for the most part, already been implemented (i.e. information sent along with or on monthly natural gas bills). This suggests that the low-cost communication tactics implemented by Union were both in line with customer preferences and were successful in reaching the customers that actively view Union's communication materials. The March 2017 results also showed that most customers are aware that Union offers energy conservation programs and that 22% were very likely or extremely likely to implement any measures as a direct result of Cap-and-Trade.[3]

2.2 UNION'S CONTACT CENTRE AND WEBSITE STATISTICS

Another means of gauging the effectiveness of Union's communication activities related to Cap-and-Trade from the residential and small commercial sectors is through Union's contact center activity. Union experienced increased call volumes related to Cap-and-Trade for the first six weeks of the program (beginning January 1, 2017), after which they began to steadily decline.

[2] Percent of customers who identified they had detailed understanding, general understanding, or had heard of the Cap-and-Trade program.
[3] Exhibit 5, Appendix A, p. 12.

Union attributes these declines in part to mild weather and a resulting smaller bill impact. Table 2 below provides contact centre statistics on a weekly basis beginning January 2, 2017 to February 19, 2017. On February 15, 2017 the Cap-and-Trade automated Interactive Voice Response ("IVR") message was removed. Contact centre calls mentioning Cap-and-Trade have remained consistently low from the end of February to November 2017.

Table 2
Contact Centre Statistics (January 2 – February 19, 2017)

	Jan 2-8	**Jan 9-15**	**Jan 16-22**	**Jan 23-29**	**Jan 30-Feb 5**	**Feb 6-12**	**Feb 13-19**
Number of customers who selected and listened to the Cap-and-Trade automated IVR message	50	68	71	106	83	94	31
Number of customers who mentioned Cap-and-Trade while speaking to a Contact Centre agent	51	64	70	86	89	72	31
Number of customers who listened to the automated Cap-and-Trade IVR message and then spoke to an agent	2	3	4	6	7	6	3
Number of email inquiries about Cap-and-Trade			6	6	15	7	2
For reference: total number of phone inquiries answered during the week	16,658	18,896	14,987	15,888	16,112	14,150	14,656

Union also created a dedicated Cap-and-Trade section on its website (www.uniongas.com) for generic customer communication and customer outreach. Prior to the Cap-and-Trade program's launch, these web pages became the second most popular area of Union's website (second only to Union's homepage). Views of the Cap-and-Trade pages reached a peak of 33,000 views during the week of January 1, 2017. Page views and calculations made using the Cap-and-Trade online calculator began to decline during the month of February 2017. By the week of February

19, 2017, page views dropped to approximately 4,900 per week and by the month of May 2017 views were less than 500 per week. From May 2017 to present, page views have stayed relatively consistent, ranging from approximately 250 – 400 per week.

2.3 UNION'S CONTRACT/LARGE VOLUME CUSTOMER FEEDBACK

Union account managers continue to support Contract customers directly. Anecdotal feedback received by Union through account managers suggests that customers are appreciative of the information Union has provided in helping them understand Cap-and-Trade and how it will impact their bill. Union is aware, through direct conversation, associations, and media coverage, that some contract rate customers and customer sectors remain concerned about the cost of the program and its presentation on their bill.

Union has educated customers on how the program affects their rates, how the Cap-and-Trade rate is calculated, how it shows on their bill, and the potential deferral impacts. Union's messaging to Contract customers about the Cap-and-Trade program also includes actions customers can take to reduce their Cap-and-Trade costs and how DSM programs can continue to assist customers to reduce their natural gas consumption and GHG emissions. These messages have been delivered through one-on-one discussions, customer meetings, and newsletters.

3. 2018 CUSTOMER OUTREACH AND COMMUNICATIONS PLAN

Union's customer communications will continue to ensure that the OEB's four key objectives are achieved in a clear and understandable manner. These four objectives are: [4]

1. Improve customer awareness of the government's climate change actions including the Cap-and-Trade program;
2. Provide an explanation of the Utilities' role in relation to emissions reduction, and the two types of emissions – facility-related and customer-related;
3. Provide an understanding of the process of regulatory review and approval of Utility costs of compliance that will occur before customers will be charged; and,
4. Provide customers with information on how to manage their GHG emissions and reduce their invoices by reducing gas consumption.

Based on customer feedback, Union has transitioned Cap-and-Trade outreach from program awareness and general education to communications focused on Cap-and-Trade rates as a component of customers' bills. Cap-and-Trade rate changes will be communicated with customers in the same way as other annual rate changes. Typical rate change communications include (but are not limited to): bill inserts, bill messages, website, contact centre, customer FAQ's, Enerline newsletters, customer meetings and one-on-one discussions. This will involve a strong focus on available energy saving programs (DSM) and associated incentives as a means to reduce customers' energy use and therefore to mitigate the impact of Cap-and-Trade. Union will continue to monitor customer awareness and feedback through existing avenues such as its call

[4] Framework, p.35.

centre, account managers, and ongoing market research. Union will continue to look for opportunities to communicate with customers and will use multiple existing communication channels to reach each customer group including General Service, Low-Income, Contract and Gas-Fired Generators, as required. No new customer communication channels are anticipated at this time. However, Union will continue to monitor customer feedback and will consider whether this feedback reflects the need to establish new communications channels accordingly. Union has, and continues to utilize multiple targeted activities to reach each customer group, as indicated in Table 3 below.

Table 3
2018 Communications Plan Targeted Customer Communication Vehicles

Audience	**Sample Communication Vehicles**
Mass Market - Residential and Small/Medium Business	• Website • Bill inserts/newsletter • Bill messages • Contact Centre • Social Media
Low-income	• Above mass market tactics • Annual Low-Income Energy Network conference (attend and present) • Ongoing discussions between Union low-income marketing and low income advocacy groups such as the Low-Income Energy Network, Vulnerable Energy Consumers Coalition and Low-Income Energy Assistance Program agencies • Ongoing discussions with social service agencies such as United Way, intake agencies for our Energy Assistance Program (“EAP”)
Large Commercial/Industrial (Contract Market) & Energy	• Enerline Newsletter • Factsline Newsletter

Marketers	• Ongoing one-on one customer support from Union account managers • Formal customer meetings/webinars/customer visits • Participation at partner events • Attestation process communications as required for new participants
Power Generators	• Enerline • One-on-one communications with Union's account managers • Customer meetings/webinars/customer visits

During the 2017 Compliance Plan proceedings Union indicated its willingness to consider collaboration with social service agencies as part of its customer outreach efforts in order to enhance Low-Income customers' access to information about DSM and how to manage their bills, energy consumption, and their GHG emissions.[5] Union provides comprehensive award-winning low-income DSM programs,[6] and in the development of its 2015-2020 DSM Plan Union consulted with low-income stakeholders. As part of Union's Cap-and-Trade customer outreach (including such items as bill insert newsletters, bill messages and website content), customers have been educated that their Cap-and-Trade costs are directly related to their gas usage and that they can reduce this usage by taking advantage of Union's DSM energy saving programs and tips, including the Low Income Home Weatherization program.

In addition, Union recently created a new partnership with the lead intake agency for the Union Gas Energy Assistance Program ("EAP") and Hydro One Low Income Energy Assistance

[5] EB-2016-0296 Volume 2 TR, pp. 192-193.
[6] Union received the second place award from ESource for the "Best Broadcast Radio Ad" for its Home Weatherization Program.

Program ("LEAP") that screens for grants to customers who are having difficulty managing their bills. Customers applying for any of these grants through United Way Simcoe Muskoka ("UWSM") are also asked additional questions for program eligibility, and advised that participation in the Home Weatherization may help them to more effectively manage their bills moving forward.

Further, Union is expanding its work with the United Way Centraide North East Ontario ("UWCNEO") to include conversations with their partners, both social agencies and municipalities, about how the Home Weatherization can help their customers. Union will continue to expand its partnership with UWCNEO in 2018 as they will be staffing a Certified Energy Advisor who will be performing home assessments for the Home Weatherization program, promoting the program at community events throughout North East Ontario.

Cap-and-Trade messaging for 2018 will adapt to both the purpose of the communication activity (i.e. rate changes, deferral clearing, DSM program promotion) as well as the target audience. Union and EGD continue to align messages to achieve consistency.

As outlined on p. 36 of the Framework, the OEB intends to establish a Working Group to assist with implementation of specific elements of the Framework. The Framework specifically references that the Working Group is an opportunity to provide input and advice on the ongoing approach to customer outreach. This Working Group has yet to be established by the OEB but Union looks forward to being an active participant once created.

Cap and Trade

Communication and Awareness Study

Wave 3 Results (March 2017)
Market Research & Analysis
High-Level Report

Objectives

Union Gas would like to …

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

Methodology

- Fieldwork was conducted by telephone by Market Probe Canada
  - Wave 1: October 7 to October 17, 2016
  - Wave 2: December 7 to December 14, 2016
  - Wave 3: March 7 to March 15, 2017

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

	Completed Interviews			Margin of Error / Wave
	Wave 1	Wave 2	Wave 3	
Residential	401	401	409	+/- 4.8%
Commercial / Industrial (BANNER-billed)	100	100	103	+/- 9.8%

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

An Enbridge Company

Residential Results

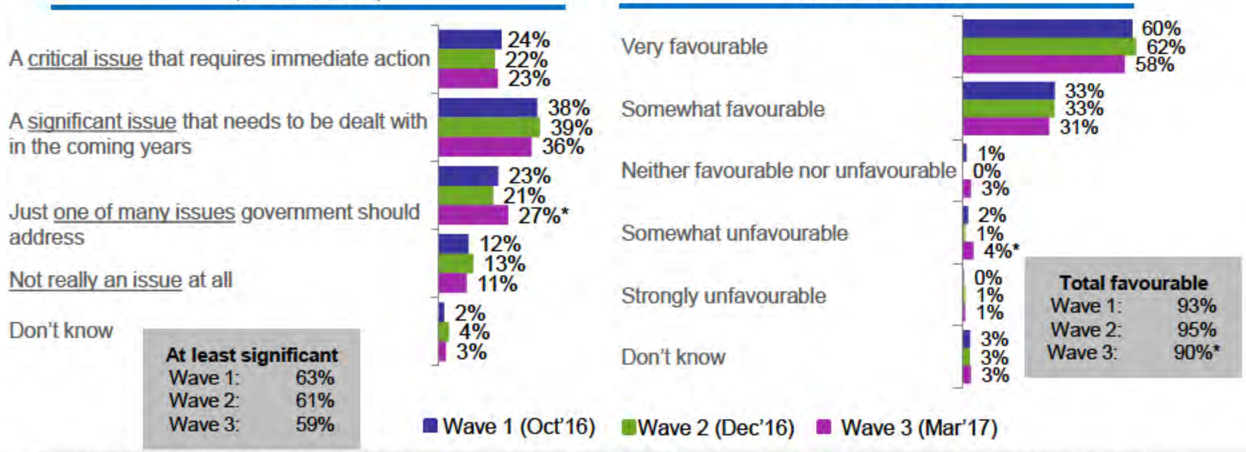
Residential attitudes towards environment

uniongas
An Enbridge Company

- The majority of customers believe that the environment is at least a significant issue
- Favourability of natural gas continues to be strong among customers with 90% indicating a very or somewhat favourable impression of the product (compared to 79% in Jan'16)
  - While still high, favourability is lower among those who have never heard of C&T (86%), and younger customers (87%)

Importance of Environment (base: all customers)

Impression of NG as an Energy Source (base: all customers)

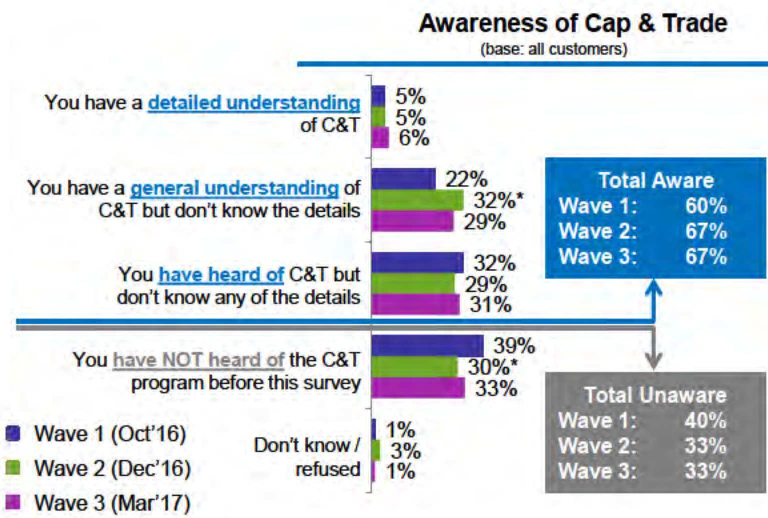


Q: Now, to start, thinking about all of the issues that face the Ontario government today, how important would you say the issue of the environment is to you? Q: Thinking about natural gas specifically, generally speaking, would you say you have a [level of favourability] impression of natural gas as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

Residential C&T awareness

uniongas
An Enbridge Company

- In Wave 3, it appears that C&T awareness has plateaued with 67% indicating they have at least heard of C&T, while the remainder have not heard of it (similar results as in Wave 2)

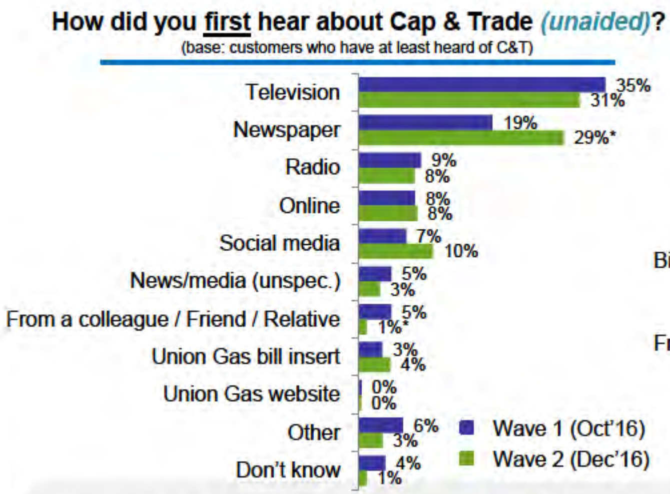


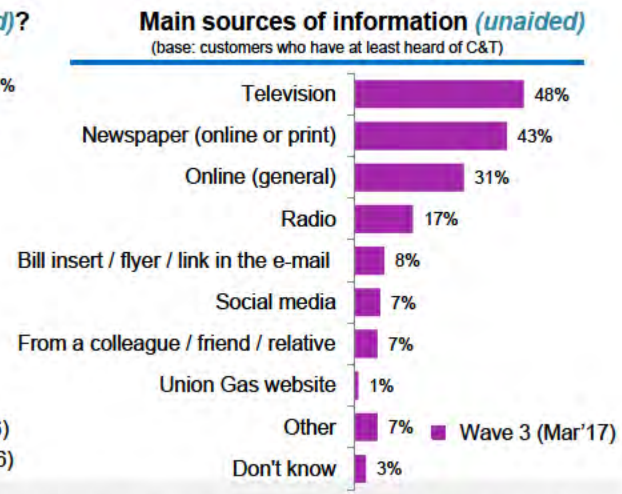
Unaware: Have NOT Heard of C&T (%)	W1	W2	W3
Overall	40	33*	33
18-34	49	33	47
35-54	40	41	40
55-64	39	35	28
65+	40	27*	26
Male	34	30	29
Female	47	38	39
High school or less	50	48	45
College	38	31	29
University or more	32	23	24
<$40K	59	60	46
$40-$80K	31	30	30
$80K+	33	22	28
Looked at their recent monthly bill	40	29*	25
Think the environment is critical issue	39	35	33
Paper customers, no MyAccount (P)	42	37	39
MyAccount (paper/paperless billing)	38	29	29

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

Residential sources of C&T awareness

- Majority of customers first heard about C&T through traditional media channels – most likely through news coverage – similarly, in Wave 3, customers identify these same areas as the main sources of C&T information
- While point of first awareness is not likely to be a Union Gas bill insert (4%), more customers cite the bill insert as their main source of information (8%)



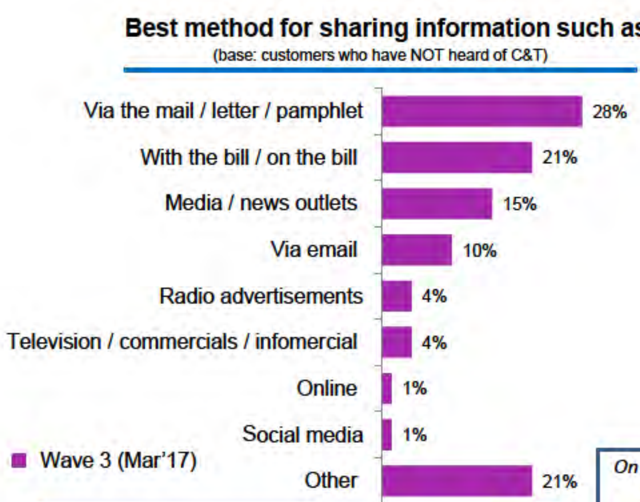


Wave 1-2 Q: How did you first hear about the Cap and Trade program? Wave 3 Q: What are the main sources of information or places where you learned about Cap and Trade?

Preferred method for communicating information

unongas
An Enbridge Company

- Customers who have not heard of C&T specified a number of ways in which they would like to be notified – for the most part however, they mention tactics that have already been implemented



If it came with my gas bill or advertisement or was covered in the newspaper or something, but the gas bill would be the best.

Send an email to everyone receiving gas because no one looks at the piece of paper that comes in the bill anyway.

Radio. I don t do TV or read flyers.

A brief letter would be nice; something that I could read.

Probably detailed information on your bill or online.

I would say the news would be the best source for me to get this information.

On gas bill. In a few big words. On a separate page before you open up the letter, the first page being the 5-6 words to catch my attention. And something similar to finding all the information. Something in point form.

A very noticeable notice or a very highlighted newsletter.

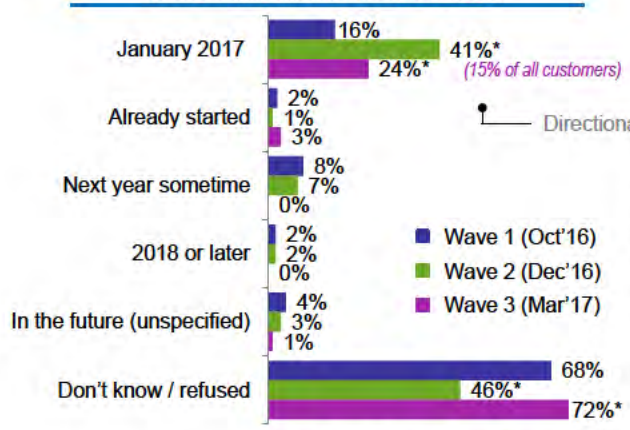
Wave 3 Q: Based on C&T explanation, what would you say is the best method to make you aware of this type of information or program?

Residential C&T program start expectations

unionGas
An Enbridge Company

- In Wave 3, the level of uncertainty about the program's start date is quite high at 72% (even higher than in Wave 1)

Expected Program Start ***(Unaided Awareness)***
(base: customers who have at least heard of C&T)



Directionally higher among some groups:

	W1	W2	W3
Overall	16	41*	24*
18-34	25	48	25
35-54	17	31	28
55-64	13	43*	22*
65+	16	46*	19*
Have read a C&T bill insert	40	73	51*
Think environment is critical issue	12	28*	23
Think environment is one of many issues	17	54*	25*
MyAccount (paper/paperless billing)	18	47*	24*
Paper customers, no MyAccount (P)	14	36*	19*

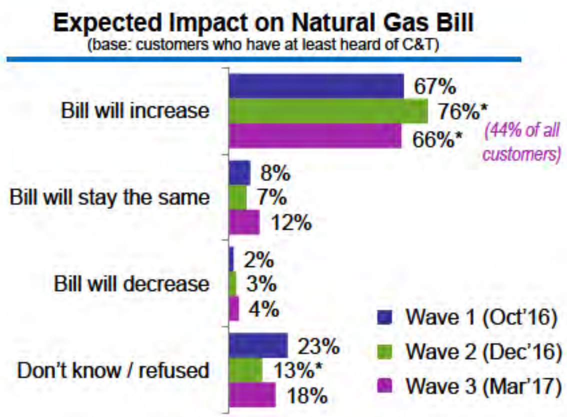
Wave 1 (Oct'16) Wave 2 (Dec'16) Wave 3 (Mar'17)

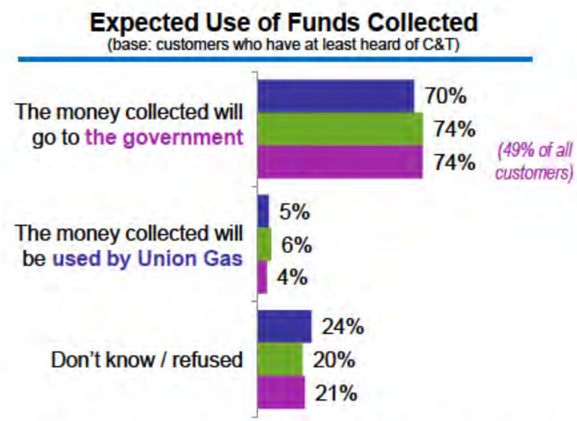
Q: Let's discuss some of the details of the Cap and Trade system. Would you be able to tell me the program start date? Note: wording slightly revised in Wave 3.

Residential C&T program expectations

uniongas
An Enbridge Company

- Now that C&T has started, fewer customers feel that their bill will increase as a result of the program – likely because they do not feel that their bills have seen much change to-date
- Awareness of the fact that the money will go to the government remains stable





Q: And thinking about your natural gas bill, which of the following comes closest to your understanding of how the program will affect your natural gas bill? Q: Considering everything you know about the Cap and Trade program to date, which of the following two statements best describes your understanding.

Residential bill awareness and C&T impact

unionGas
An Enbridge Company

- When asked, most customers are familiar with how their bills are structured (e.g. inclusion of variable charges such as the delivery charge)
- Among those who have heard of C&T, many (57%) understand that the charges will be based on their NG usage, and just over half understand that the C&T charge will be included in the delivery charge (a significant improvement in awareness over Wave 1) – these results are similar to Wave 2 results

Aware that … *(aided)*

… there are 3 Variable Charges on the Bill (% Yes) (base: all customers)	… C&T charge would be tied to NG usage (% Yes) (base: customers who have at least heard of C&T)	… C&T is to be included in delivery charge (% Yes) (base: customers who have at least heard of C&T)
Wave 1: 87%	Wave 1: 55%	Wave 1: 39%
Wave 2: 85%	Wave 2: 62%	Wave 2: 52%*
Wave 3: 84%	Wave 3: 57%	Wave 3: 54%

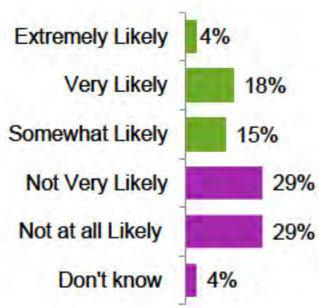
Q: Referring to the new Ontario Government's Cap and Trade program are you aware that the Ontario Energy Board has determined that the cap and trade charge will not be a separate charge identified on your natural gas bill, but instead will be included within the Delivery Charge I just described? Q: And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

Residential customer response to C&T

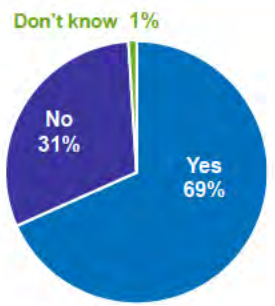
uniongas
An Enbridge Company

- 38% of customers aware of C&T indicate that they are at least somewhat likely to implement an EE project as a result of C&T *(interestingly, this likelihood is not impacted by knowledge of the fact that C&T is tied to NG usage)*
- The majority of customers are aware that Union Gas offers energy conservation programs
  - Awareness is highest among ages 55-64 (80%) and among those who believe the environment is one of many issues (79%)

Likelihood of Implementing EE projects as a result of C&T
(base: customers who have at least heard of C&T)



Aware that Union Gas offers energy conservation and efficiency programs
(base: all customers)



Among those at least somewhat likely to implement EE projects: 72%

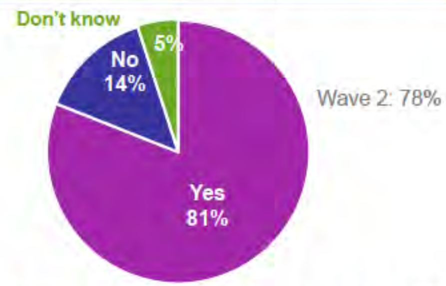
Q: Considering everything you know about the Cap and Trade program, how likely would you say you are to change your energy consumption behaviour or implement any energy efficiency solutions in the next year as a result of the Cap and Trade program? Would you say you are ...Q: Are you aware that Union Gas offers energy conservation and energy efficiency improvement programs and incentives to help customers like you to save money on their energy bills?

uniongas
An Enbridge Company

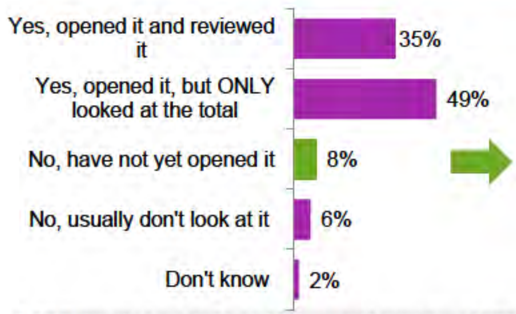
Residential bill readership (Wave 3)

- While most customers recall seeing their February bill, not all have opened and looked at it (or looked at the detail beyond the total amount) – results in Wave 3 are very similar to Wave 2

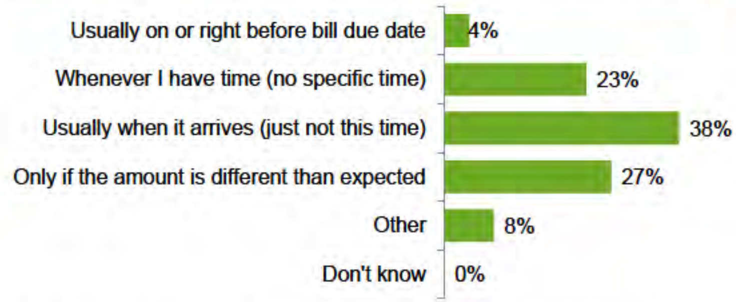
Have received February Bill *(at the time of the survey)*
(base: all customers)



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



When would you typically look at your bill?
(base: customers who have not yet looked at their bill, n=26)



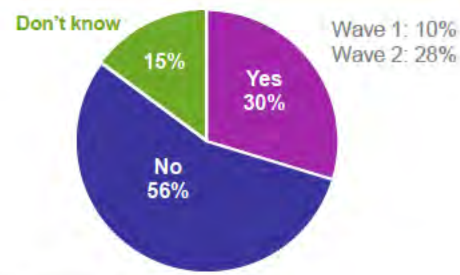
Q: Still thinking about your monthly gas bill, do you recall receiving your FEBRUARY bill? This would be the bill that was sent to you during the month of February. Q: Have you opened this bill, and looked at it? *Interviewer note: either the paper copy or online?* Q: When would you say you would typically look at your Union Gas bill? Would you say ....

Residential C&T bill insert readership (Wave 3)

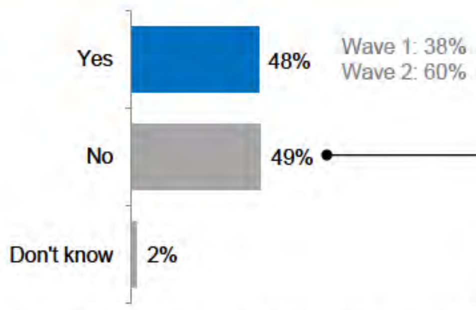
unionGas
An Enbridge Company

- In Wave 3, 30% of customers recall seeing any (or all) of the C&T bill inserts shared to date and 48% have read it (one or more) – overall readership is similar to Wave 2

Recollection of any C&T Bill Insert (Paper or Online) in past few months
(base: all customers)



Have read any of the C&T Bill Inserts
(base: customers who recall seeing a C&T insert)



Total seen and read
(base: all customers)

Wave 1:	4%
Wave 2:	17%
Wave 3:	14%

While some customers recall seeing the bill insert, they may not have read it for a number of reasons (sample of comments is provided below):

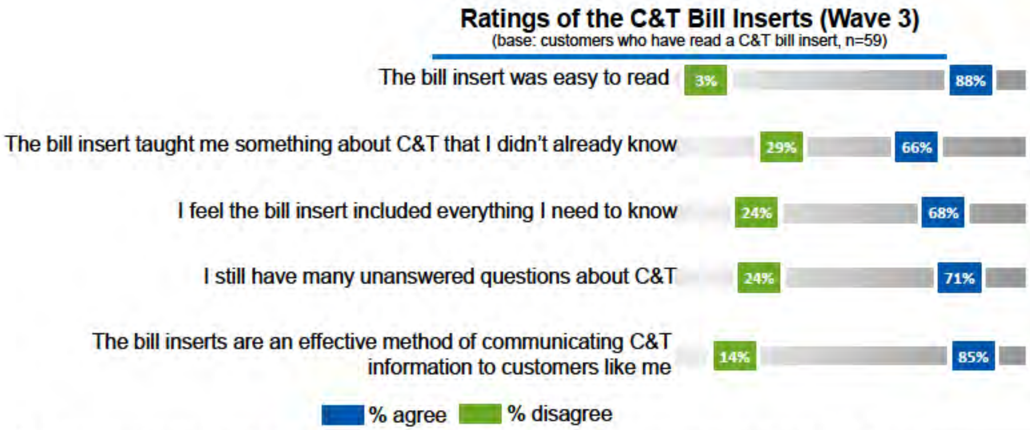
- No specific reason. You just see the bill and pay the bill.
- I just throw it out. It's garbage to me except for the bill. If I knew about it, I would have read it.
- I have a lot of reading material to go through. I just haven't gotten to it.
- I don't know why. We don't understand it.

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

Residential C&T bill insert ratings (Wave 3)

uniongas
An Enbridge Company

- Overall ratings of the C&T bill inserts are very positive, with strong agreement that the inserts are easy to read and are an effective method of communicating information to customers



Statement	(Wave 2) Disagree	(Wave 2) Agree
The bill insert was easy to read	3%	96%
The bill insert taught me something about C&T that I didn't already know	32%	65%
I feel the bill insert included everything I need to know	26%	69%
I still have many unanswered questions about C&T	31%	59%
The bill inserts are an effective method of communicating C&T information to customers like me	n/a	n/a

Q: I am going to read you a number of statements on topics related to the bill insert. For each statement, please tell me if you agree or disagree.

Residential other communication tactics

unionigas
An Enbridge Company

- Few customers (3%) have visited the C&T page on the Union Gas website (only slightly higher among those who have heard of C&T at 4%)
  - Higher among those who have read a C&T related bill insert (12%) and those who have seen a C&T notification on the bill (7%)
- Among customers who receive a paper bill, relatively few recall seeing C&T related notifications on the bill or envelope

Have visited the C&T page on the Union Gas website
(base: all customers)

Recall seeing any C&T notifications on …
(base: customers who receive a paper bill)

… the Paper Bill

Wave 3: 13%

… the Envelope your bill came in

Wave 3: 14%

Q: To date, have you visited the Cap and Trade page on the Union Gas website? Q: Thinking about your paper bill in the last few months, do you recall seeing any Cap and Trade related notifications on …. A) The Paper Bill (that is the copy of the bill that has your charges on it) B) The Envelope your bill came in.

Residential unanswered questions about C&T Wave 3: (1 of 2)

unıongas
An Enbridge Company

- Majority of unanswered questions are comments wondering about the value of the program, questions about how the money collected will be used by the government, and why the charges are not shown on a separate line on the bill

Unanswered questions about Cap & Trade were as follows (42 customers, who had already seen the bill insert, were asked this question):
Everybody's bills are high enough now, nobody needs extra charges on their bills. I just don't know why they keep adding more things on.
How **much in the long run will it cost?** It'll keep going up every time.
How will that affect the environment with the money they collect?
I believe it's a program to have an invisible taxation on people that use Union Gas.
I didn't get the information yet. Maybe it is on its way to me, but I don't understand much about it.
I don't even know and I don't want to know anything about it. **I want to see the bill separate - a cap and trade line**. You don't know what the cap and trade amount is.
I don't know why this had to happen.
I don't know. I know I have more questions. I can learn more information over time or through conversation with other people.
I don't see how the government is going to force people to change their habits. It's like they want you to live in the cold and sell the electrical to the U.S.
I don't understand it. We are going to be charged for consumption. The money goes to government. **What are they going to do with it?**
I just don't understand and I think it's government BS.
I just want to know **how it's going to affect my bill.**
I know we're going to get nailed with an increase. I know Union Gas has nothing to do with it. It's the government.
I really don't know. I just think it all goes to the government.
I think it should be separate. **I want to know what it's costing me.**
I'll be honest, I want to read more about it ... in the paper about cap and trade.
I'm not sure how it works exactly. It goes by usage or deals with basically a billing of sorts. That will be an increase to one of the 3 charges and I would like to know the details of it.
Just how is the money going to be used?

Residential unanswered questions about C&T Wave 3: (2 of 2)

uniongas
An Enbridge Company

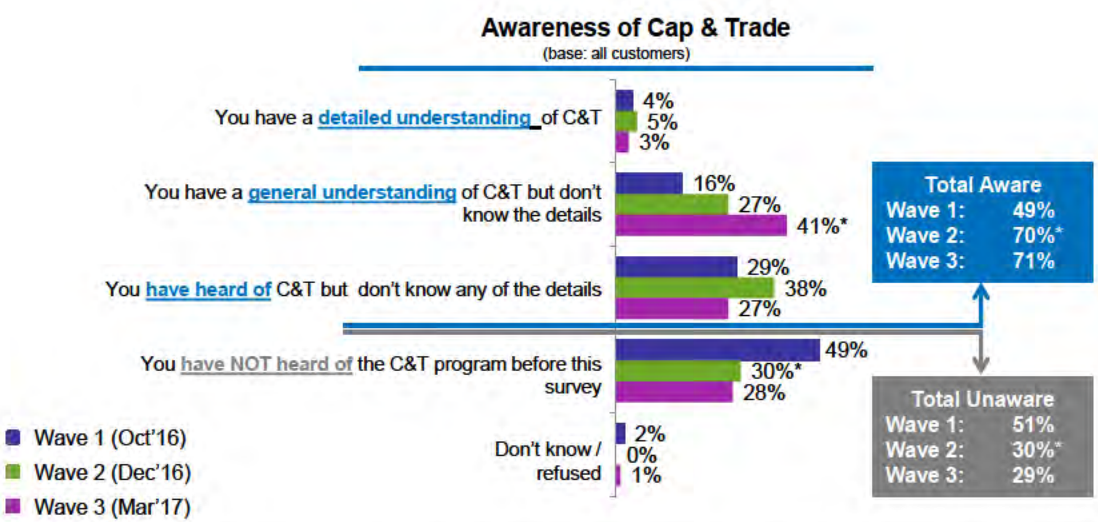
Unanswered questions about Cap & Trade were as follows (42 customers, who had already seen the bill insert, were asked this question):
Just the value of it and what it is going to do for the environment?
My big question is just what exactly the government is going to do with this revenue to achieve their stated objectives of reducing greenhouse gases. I am concerned that it is going to be another case of money going from the taxpayer to a government general revenue fund and than just disappearing. It is the same problem we have with paying EI. The government is taking money out of the EI fund and using it for other purposes. I wish that the Ontario government would actually do things to help the average Ontario resident reduce their energy consumption and implement green energy alternatives instead of paying large multi-national corporations to develop green energy at an exorbitant cost.
Not enough information provided. We need more than a flyer or a little pamphlet. I don't understand it. Just another way for the government to screw us.
Not really sure. I will have to read the thing again. It was a lot to read.
Not sure. **Why don't they show it on the bill**. It's almost like a hidden charge.
The main question is I just feel that the government is hitting the lower to middle class people with this C&T and there is nothing we can do to fight it.
The one biggest one that I would like to know is why did they not include it as a second line? Why didn't they put it as a second line for people to see? And another question is what are they going to get out of it?
The percentage they are charging and will it perhaps increase or decrease, and if so, when?
The question deals with the actual break down on my gas bill. I read on the bill insert that I have to go to the internet to apply for a formula. It should be **broken down on the gas bill.** I don't have time to go online and apply for a formula.
They just need to **give more information** about the cap and trade.
What are they going to do with the money?
Where is the cap and trade money going? I was told it was going to California and Quebec.
Where is the money going to go? The need for cap-and-trade was not there. To make a new bureaucracy for collecting more tax is not necessary. Cap-and-trade is a fancy name for a new tax.
Where is the money going?
With an increased rate what does that mean for businesses and their bottom line when consumers are not going to carry the increase for products and services.

An Enbridge Company

Commercial/Industrial Results

C/I C&T awareness and sources of information

- 71% of C/I customers have at least heard of C&T, while the remaining 29% have not heard of it at all (an improvement over Wave 1, but similar to Wave 2)



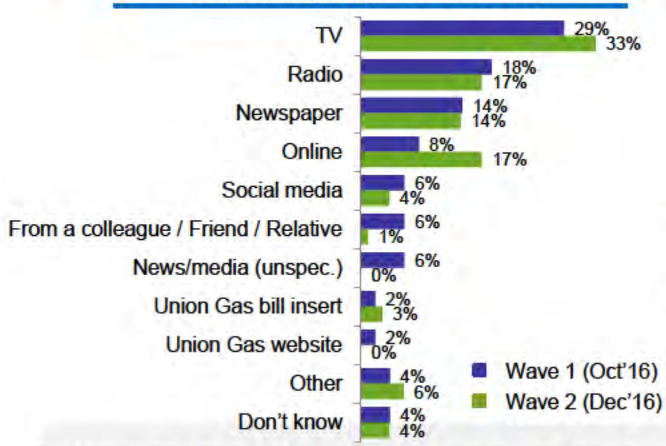
Q: Last year the Ontario provincial government announced that it will be implementing a cap-and-trade program. How familiar would you say you are with this program?

C/I sources of C&T awareness

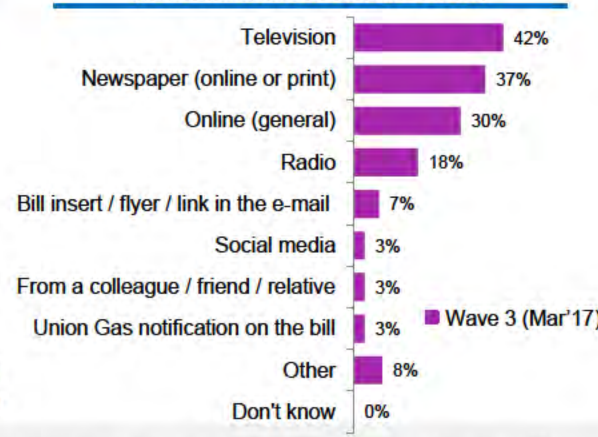
uniongas
An Enbridge Company

- Majority of customers first heard about C&T through traditional media channels – most likely through news coverage – similarly, in Wave 3, C/I customers identify these same areas as the main sources of information (similar to residential customers)

How did you first hear about Cap & Trade ***(unaided)*****?**
(base: customers who have at least heard of C&T)



Main sources of information ***(unaided)***
(base: customers who have at least heard of C&T)



Wave 1-2 Q: How did you first hear about the Cap and Trade program? Wave 3 Q: What are the main sources of information or places where you learned about Cap and Trade?

Preferred method for communicating information

unionGas
An Enbridge Company

- Customers who have not heard of C&T specified a number of ways in which they would like to be notified – for the most part however, they mention tactics that have already been implemented

Best method for sharing information such as C&T
(base: customers who have NOT heard of C&T, n=21)

We're a small town; have a meeting in the town. You get mail and most people throw it out. Hold general meetings.

Call everyone and tell them. I had no idea what it was.

Some information on the bills, advertisement, communications to other people.

Just let them put a form in with the invoice when they send me my bill.

It's ridiculous, the carbon tax.

I am totally against the program.

Online.
Email.
Email.
Email or insert flyers. Facebook/social media.

Through the gas bill.
Through the bill.
Put up with the bill.
On the bill.
To look at the line on the bill.
Information on the bill.
Included in the bill.

Media, news.
An insert, an email, a phone call, a TV commercial, a big ad in the newspaper.

Newsletter.
By mail.

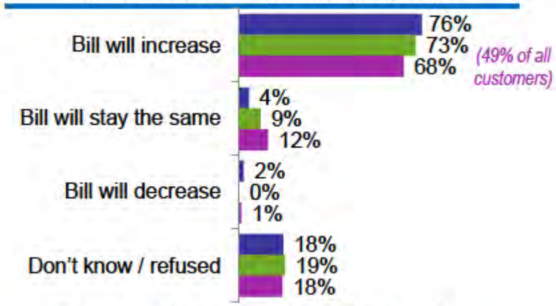
Wave 3 Q: Based on C&T explanation, what would you say is the best method to make you aware of this type of information or program?

C/I C&T program expectations

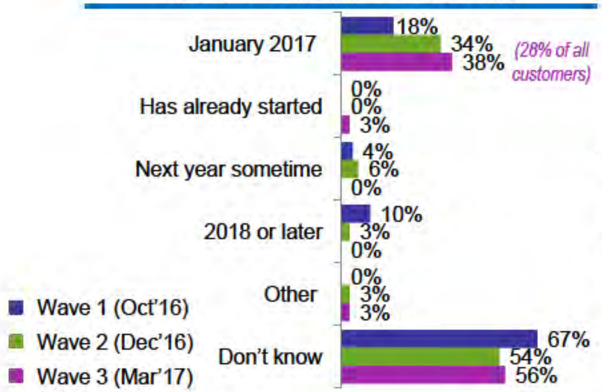
unongas
An Enbridge Company

- Among those who heard of C&T, the majority are aware that it will impact their UG bill and that the funds will go to the government but most are still unaware of the program's actual start date

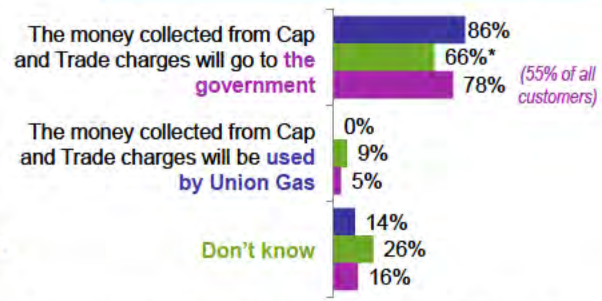
Expected Impact on Natural Gas Bill
(base: customers who have at least heard of C&T)



Expected Program Start *(Unaided Awareness)*
(base: customers who have at least heard of C&T)



Expected Use of Funds Collected
(base: customers who have at least heard of C&T)



Q: Let's discuss some of the details of the Cap and Trade system. Would you be able to tell me the program start date? Note: wording slightly revised in Wave 3. Q: And thinking about your natural gas bill, which of the following comes closest to your understanding of how the program will affect your natural gas bill? Q:Considering everything you know about the Cap and Trade program to date, which of the following two statements best describes your understanding.

C/I bill awareness and C&T impact

uniongas
An Enbridge Company

- At 86% we see that most customers are aware of how their bills are structured
- Among those who have heard of C&T, significantly more C/I customers understand that the charges will be based on their NG usage in Wave 3, while just about half are aware that the C&T charge will be included in the delivery charge (same as in Wave 2)

Aware that … *(aided)*

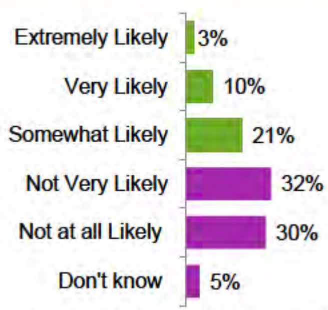
… there are 3 Variable Charges on the Bill (% Yes) (base: all customers)	… C&T charge would be tied to NG usage (% Yes) (base: customers who have at least heard of C&T)	… C&T is to be included in delivery charge (% Yes) (base: customers who have at least heard of C&T)
Wave 1: 83% Wave 2: 87% Wave 3: 86%	Wave 1: 55% Wave 2: 60% Wave 3: 78%*	Wave 1: 37% Wave 2: 49% Wave 3: 49%

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

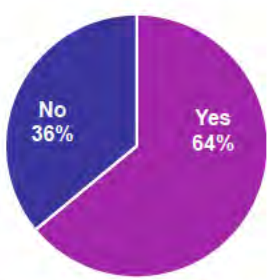
C/I customer response to C&T

- 33% of customers aware of C&T indicate that they are at least somewhat likely to implement an EE project as a result of C&T
- The majority of customers are aware that Union Gas offers energy conservation programs

Likelihood of Implementing EE projects as a result of C&T
(base: customers who have at least heard of C&T)



Aware that Union Gas offers energy conservation and efficiency programs
(base: all customers)



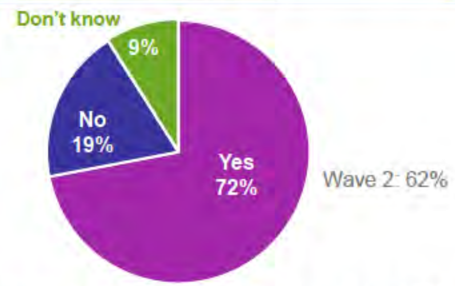
Q: Considering everything you know about the Cap and Trade program, how likely would you say you are to change your energy consumption behaviour or implement any energy efficiency solutions in the next year as a result of the Cap and Trade program? Would you say you are ...Q: Are you aware that Union Gas offers energy conservation and energy efficiency improvement programs and incentives to help customers like you to save money on their energy bills?

C/I bill readership (Wave 3)

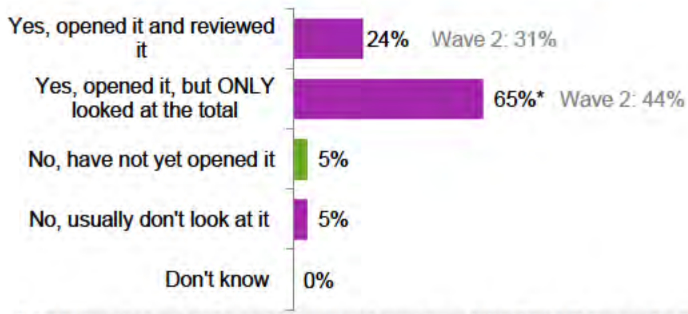
unionGas
An Enbridge Company

- While most customers recall seeing their February bill, not all have opened and looked at it (or looked at the detail beyond the total amount) yet

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



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



When would you typically look at your bill?
(base: customers who have not yet looked at their bill, n=4)

Not enough data available to report results (n=4)

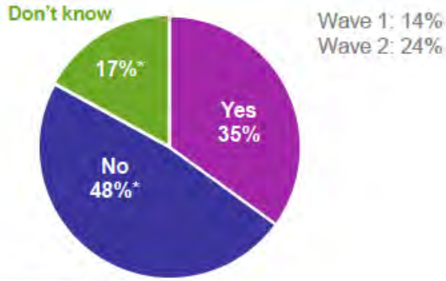
Q: Still thinking about your monthly gas bill, do you recall receiving your NOVEMBER bill? This would be the bill that was sent to you during the month of November. Q: Have you opened this bill, and looked at it? *Interviewer note: either the paper copy or online?* Q: When would you say you would typically look at your Union Gas bill? Would you say ....

C/I C&T bill insert readership (Wave 3)

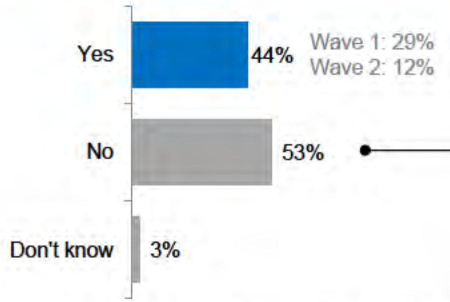
unionGas
An Enbridge Company

- In Mar'17, approx. 1-in-3 customers recall seeing a C&T-related bill insert and 44% (or 16% of all customers) have read it

Recollection of any C&T Bill Insert (Paper or Online) in past few months
(base: all customers)



Have read any of the C&T Bill Inserts
(base: customers who recall seeing a C&T insert)



Total seen and read
(base: all customers)

Wave 1:	2%
Wave 2:	10%
Wave 3:	16%

While some customers recall seeing the bill insert, they may not have read it for a number of reasons (sample of comments is provided below):
- Too many emails.
- Not enough time.
- Just took a glance. Didn't read it.
- It feels repetitive and I don't see much point.
- Because it's online and I don't have time for that.

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

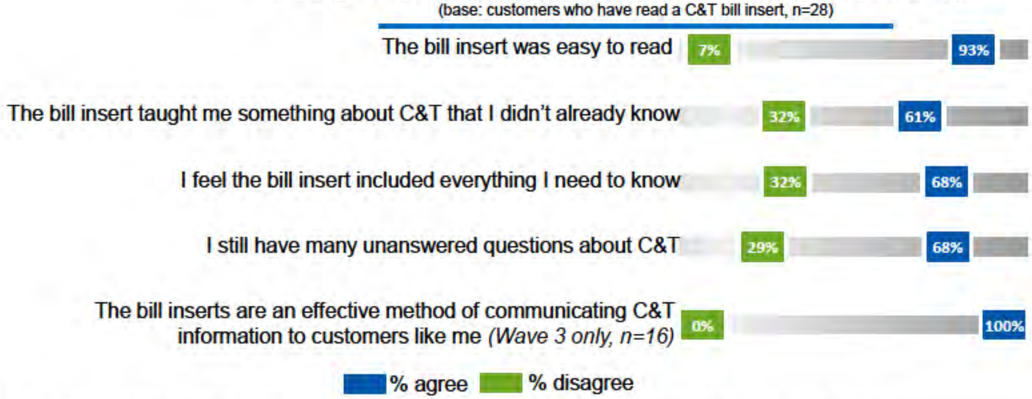
C/I C&T bill insert ratings (Wave 3)

uniongas
An Enbridge Company

- Overall ratings of the C&T bill inserts are very positive, with strong agreement that the inserts are easy to read and are an effective method of communicating information to customers (among those who have read a bill insert)

Ratings of the C&T Bill Inserts (Wave 1 to 3 data combined)

(base: customers who have read a C&T bill insert, n=28)



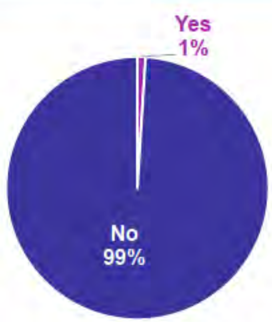
Q: I am going to read you a number of statements on topics related to the bill insert. For each statement, please tell me if you agree or disagree.

C/I other communication tactics

unionGas
An Enbridge Company

- Few customers (1%) indicate that they have visited the C&T page on the Union Gas website
- Among customers who receive a paper bill, similar to Residential, few saw C&T related notifications on the bill or envelope

Have visited the C&T page on the Union Gas website
(base: all customers)



Recall seeing any C&T notifications on …
(base: customers who receive a paper bill)

… the Paper Bill

Wave 3: 13%

… the Envelope your bill came in

Wave 3: 18%

Q: To date, have you visited the Cap and Trade page on the Union Gas website? Q: Thinking about your paper bill in the last few months, do you recall seeing any Cap and Trade related notifications on …. A) The Paper Bill (that is the copy of the bill that has your charges on it) B) The Envelope your bill came in.

C/I unanswered questions about C&T Wave 3

unionGas
An Enbridge Company

- Majority of unanswered questions are about how the money collected will be used by the government …

Unanswered questions about Cap & Trade were as follows (in Wave 3 there were 14 customers, who had already seen the bill insert, that were asked this question):
Wondering **if some of the money is to go back to farmers**. Regarding carbon, I don't know all the answers for sure.
Where the money is going? Is it going to end up in Ontario or going to California or something? Also are farmers going to get a rebate, like they do in Alberta?
Where is the money going?
What is the purpose of having a little bit of money come back. Why not charge us in the first place. If they charge 2 dollars and give back a nickel, they might as well charge us 1.95. It's total bulls**t and everyone is aware of that, but since I need gas in my house I put up with it. I live in Montreal and Ontario is getting double ripped off.
What are they doing with the money?
To be honest, I don't know enough about the cap and trade to generate any educated questions. I would have to look into that.
They need to disclose the charge of cap and trade as a line item, not with delivery and transportation.
It's more on the government side. **What are they doing with the money?**
I had not read the whole thing. It's my busiest time of the year.
How is the government going to use the $ collected from C&T?
A little bit more of the details.

C/I attitudes towards environment

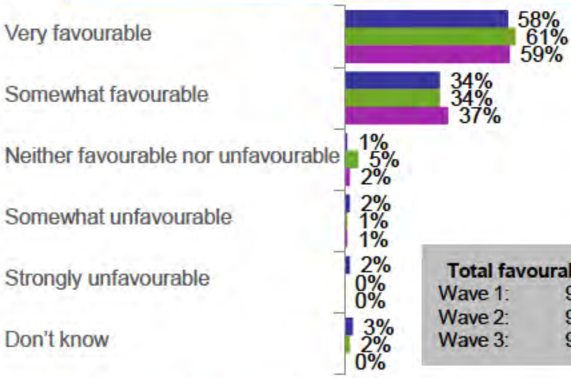
uniongas
An Enbridge Company

- 43% of C/I customers believe that the environment is at least a significant issue that needs to be dealt with
- The great majority of C/I customers have a favourable impression of natural gas

Importance of Environment
(base: all customers)

At least significant
Wave 1: 48%
Wave 2: 36%
Wave 3: 43%

Impression of NG as an Energy Source
(base: all customers)



Total favourable
Wave 1: 92%
Wave 2: 95%
Wave 3: 96%

Wave 1 (Oct'16) Wave 2 (Dec'16) Wave 3 (Mar'17)

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

uniongas
An Enbridge Company

Appendix

Residential vs. C/I comparison

unionGas
An Enbridge Company

- Awareness of C&T, and some of the details of the program, are stagnant in Wave 3 (compared to Wave 2) among both Residential and C/I customers

	Residential			C/I		
	W1	W2	W3	W1	W2	W3
Natural Gas favourability	93%	95%	90%*	92%	95%	96%
Think the environment is a critical issue	24%	22%	23%	13%	6%	14%
Have heard of C&T	60%	67%*	67%	49%	70%	71%
Have **not** heard of C&T *(includes don't know)*	40%	33%*	33%	51%	30%	29%
Total aware that C&T starts in Jan'17	9%	27%	15%	9%	24%	28%
Government is expected user of C&T funds	70%	74%	74%	86%	66%	78%
Aware that C&T charge is tied to NG usage	55%	62%	57%	55%	60%	78%*
Aware that C&T charge will be included in the delivery	39%	52%	54%	37%	49%	49%
Have visited the C&T page on the Union Gas website	--	--	3%	--	--	1%
Have seen <u>and read</u> any C&T bill inserts	4%	17%	14%	2%	10%	16%

Total aware refers to a base of all customers. Aware refers to a base of customers who have at least heard of C&T.

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

WAVE 3

Introduction

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

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

B. Good (morning / afternoon/evening), my name is __________________ and I'm calling from Market Probe, a national research company, on behalf of Union Gas. Let me assure you this is not a sales call. We are conducting an 8 to 10 minute survey and would like to include your viewpoints on energy and your natural gas bill.

IF NECESSARY:

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

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

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

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

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

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

Attitudes toward Environment and Natural Gas

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

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

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

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

3. Removed.

Attitudes toward Cap and Trade

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

4. In 2015 the Ontario provincial government announced that it will be implementing a cap-and-trade program. How familiar would you say you are with this program? [**READ LIST**]

01	You have a detailed understanding of the cap-and-trade program	**Continue to Q4c**
02	You have a general understanding of the cap-and-trade program but don't know the details.	**Continue to Q4c**
03	You have heard of the cap-and-trade program but don't know any of the details.	**Continue to Q4c**
04	You haven't heard of the cap-and-trade program before this survey.	**Skip to Q4D**
98	Don't know **(DO NOT READ)**	**Skip to Q8**
99	Refuse **(DO NOT READ)**	**Skip to Q8**

IF QUESTION 4 = 04 THEN ASK
4D. I am now going to read you a brief introduction about Cap and Trade.

The provincial government introduced a cap-and-trade program in Ontario beginning Jan. 1, 2017. This plan caps the amount of greenhouse gas emissions that Ontario homes and businesses are allowed to emit, and lowers that limit over time. Funds generated by the cap-and-trade program will be used to support the Ontario government's Climate Change Action Plan to promote low-carbon energy solutions.

Under this new legislation, Union Gas must buy emission allowances for the natural gas used by its residential and business customers, as applicable. The cost recovery is shown on the delivery line of your natural gas bill.

Based on this explanation, what would you say is the best method to make you aware of this type of information or program?

01	______________________**Record Answer**	**Continue to Q8**
95	Actually, I have heard about this program **(DO NOT READ)**	**Continue to Q4C**
96	I am not interested in learning more about this program/ this type of information **(DO NOT READ)**	**Continue to Q8**
98	Don't know **(DO NOT READ)**	**Continue to Q8**
99	Refuse **(DO NOT READ)**	**Continue to Q8**

IF QUESTION 4 = 01, 02, 03 THEN ASK Q4C

Q4C. What are the main sources of information or places where you learned about Cap and Trade? **[DO NOT READ LIST]**

01	Union Gas bill insert/flyer/link included within the e-mail *(interviewer note: included within a monthly bill envelope)*
02	Union Gas website
10	Union Gas notifications written on the bill
03	Newspaper (online or print)
04	Radio
05	TV
06	Online (general)
07	Social media
08	From a colleague / friend / relative
09	Other **(please specify)** ___________
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

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

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

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

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

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

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

99	Refuse **(DO NOT READ)**

7. Removed.

Bill

Now, please think about your monthly natural gas bill.

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

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

   Prior to today, were you aware of this?

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

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

[IF Q4 = 01, 02, 03 OR Q4D=95 ASK Q9, AND Q10, Q10A. OTHERWISE SKIP TO Q10B]

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

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

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

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

10a. Considering everything you know about the Cap and Trade program, how likely would you say you are to change your energy consumption behaviour or implement any energy efficiency solutions in the next year as a result of the Cap and Trade program? Would you say you are … **(READ LIST, ROTATE Top-to-Bottom)**

01	Extremely Likely
02	Very Likely
03	Somewhat Likely
04	Not Very Likely
05	Not at all Likely
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

Ask all
10b. Are you aware that Union Gas offers energy conservation and energy efficiency improvement programs and incentives to help customers like you to save money on their energy bills?

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

99	Refuse **(DO NOT READ)**

[RANDOMIZE LIST]

a. The bill inserts were easy to read
b. The bill inserts taught me something about Cap and Trade that I didn't already know
c. I feel the bill inserts included everything I need to know about Cap and Trade
d. I still have many unanswered questions about Cap and Trade
g. The bill inserts are an effective method of communicating Cap and Trade information to customers like me

[END BATTERY]

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

Ask all
25. To date, have you visited the Cap and Trade page on the Union Gas website?

01	Yes	**Continue to Q26**
02	No, have not	**Skip to Q27**
03	No, do not have internet / a computer	**Skip to Q27**
98	Don't know **(DO NOT READ)**	**Skip to Q27**
99	Refuse **(DO NOT READ)**	**Skip to Q27**

26. Thinking about the Cap and Trade page on the Union Gas website, and using a scale of 1 to 10, where "1" is "poor" and "10" is "excellent", how would you rate it, overall?

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

PROGRAMMER NOTE: ASK IF PAPER BILLING (TYPE= "A" OR "P")
27. Thinking about your paper bill in the last few months, do you recall seeing any Cap and Trade related notifications on ….

	Yes	No	Don't Know
The Paper Bill (that is the copy of the bill that has your charges on it)			
The Envelope your bill came in			

16. Removed.

Comments/suggestions

ASK ALL

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

Demographics

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

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

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

19. Do you currently own or rent your home?

Own
Rent

20. Record **Gender**

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

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

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

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

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

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

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

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

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

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

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

WAVE 3

Introduction

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

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

_____**Capture referral name.**

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

IF NECESSARY:

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

Let me start with some quick questions about your business.

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

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

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

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

Attitudes toward Environment and Natural Gas

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

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

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

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

Attitudes toward Cap and Trade

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

4. In 2015 the Ontario provincial government announced that it will be implementing a cap-and-trade program.   How familiar would you say you are with this program? [**READ LIST**]

01	You have a detailed understanding of the cap-and-trade program	**Continue to Q4c**
02	You have a general understanding of the cap-and-trade program but don't know the details.	**Continue to Q4c**
03	You have heard of the cap-and-trade program but don't know any of the details.	**Continue to Q4c**
04	You haven't heard of the cap-and-trade program before this survey.	**Skip to Q4D**
98	Don't know **(DO NOT READ)**	**Skip to Q8**
99	Refuse **(DO NOT READ)**	**Skip to Q8**

IF QUESTION 4 = 04 THEN ASK
4D. I am now going to read you a brief introduction about Cap and Trade.

The provincial government introduced a cap-and-trade program in Ontario beginning Jan. 1, 2017. This plan caps the amount of greenhouse gas emissions that Ontario homes and businesses are allowed to emit, and lowers that limit over time. Funds generated by the cap-and-trade program will be used to support the Ontario government's Climate Change Action Plan to promote low-carbon energy solutions.

Under this new legislation, Union Gas must buy emission allowances for the natural gas used by its residential and business customers, as applicable. The cost recovery is shown on the delivery line of your natural gas bill.

Based on this explanation, what would you say is the best method to make you aware of this type of information or program?

01	________________________**Record Answer**	**Continue to Q8**
95	Actually, I have heard about this program **(DO NOT READ)**	**Continue to Q4C**
96	I am not interested in learning more about this program/ this type of information **(DO NOT READ)**	**Continue to Q8**
98	Don't know **(DO NOT READ)**	**Continue to Q8**
99	Refuse **(DO NOT READ)**	**Continue to Q8**

Q4C. What are the main sources of information or places where you learned about Cap and Trade? **[DO NOT READ LIST]**

01	Union Gas bill insert/flyer/link included within the e-mail *(interviewer note: included within a monthly bill envelope)*
02	Union Gas website
10	Union Gas notifications written on the bill
03	Newspaper (online or print)
04	Radio
05	TV
06	Online (general)
07	Social media
08	From a colleague / friend / relative
09	Other **(please specify)** ___________
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

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

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

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

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

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

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

Bill

Now, please think about your monthly natural gas bill.

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

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

   Prior to today, were you aware of this?

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

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

[IF Q4 = 01, 02, 03 ASK Q9, AND Q10, Q10A. OTHERWISE SKIP TO Q10B]

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

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

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

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

10a. Considering everything you know about the Cap and Trade program, how likely would you say you are to change your energy consumption behaviour or implement any energy efficiency solutions in the next year as a result of the Cap and Trade program? Would you say you are … **(READ LIST, ROTATE Top-to-Bottom)**

01	Extremely Likely
02	Very Likely
03	Somewhat Likely
04	Not Very Likely
05	Not at all Likely
98	Don't know **(DO NOT READ)**
99	Refuse **(DO NOT READ)**

Ask all
10b. Are you aware that Union Gas offers energy conservation & energy efficiency improvement programs and incentives to help residential customers like you to save money on their energy bills?

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

[RANDOMIZE LIST]

a. The bill insert were easy to read
b. The bill inserts taught me something about Cap and Trade that I didn't already know
c. I feel the bill inserts included everything I need to know about Cap and Trade
d. I still have many unanswered questions about Cap and Trade
e. The bill inserts are an effective method of communicating Cap and Trade information to customers like me

[END BATTERY]

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

Ask all
25. To date, have you visited the Cap and Trade page on the Union Gas website?

01	Yes	**Continue to Q26**
02	No, have not	**Skip to Q27**
03	No, do not have internet / a computer	**Skip to Q27**
98	Don't know **(DO NOT READ)**	**Skip to Q27**
99	Refuse **(DO NOT READ)**	**Skip to Q27**

26. Thinking about the Cap and Trade page on the Union Gas website, and using a scale of 1 to 10, where "1" is "poor" and "10" is "excellent", how would you rate it, overall?

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

PROGRAMMER NOTE: ASK IF PAPER BILLING (TYPE= "A" OR "P")
27. Thinking about your paper bill in the last few months, do you recall seeing any Cap and Trade related notifications on ….

	Yes	No	Don't Know
The Paper Bill (that is the copy of the bill that has your charges on it)			
The Envelope your bill came in			

Comments/suggestions

ASK ALL

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

____

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

UNION GAS LIMITED 2018 CAP-AND-TRADE COMPLIANCE PLAN

DEFERRAL AND VARIANCE ACCOUNTS

The purpose of this evidence is to address deferral and variance account matters associated with Union's Cap-and-Trade program. Allocation and disposition of Cap-and-Trade deferral accounts is addressed at Exhibit 7, Tab 2.

This exhibit of evidence is organized as follows:

1. Cap-and-Trade Program Deferral and Variance Account Descriptions
2. Cap-and-Trade Program Deferral and Variance Account Balances
   2.1. 2016 Greenhouse Gas Emissions Impact Deferral Account

1. CAP-AND-TRADE PROGRAM DEFERRAL AND VARIANCE ACCOUNT DESCRIPTIONS

Union has three deferral accounts associated with its Cap-and-Trade program:

- Greenhouse Gas Emissions Compliance Obligation – Customer-Related Deferral Account (Account No. 179-154) – approved in EB-2016-0296;
- Greenhouse Gas Emissions Compliance Obligation – Facility-Related Deferral Account (Account No. 179-155) – approved in EB-2016-0296; and,
- Greenhouse Gas Emissions Impact Deferral Account (Account No. 179-152) – approved in EB-2015-0367 and amended in EB-2016-0296.

The purpose of the Greenhouse Gas Emissions Compliance Obligation – Customer-Related and Facility-Related Deferral Accounts is to record variances between actual Cap-and-Trade obligation costs and the costs recovered in OEB-approved rates.

The purpose of the Greenhouse Gas Emissions Impact Deferral Account is to record administrative costs associated with the impacts of provincial and federal regulations related to GHG emission requirements until such time as those costs are incorporated into rates.

Union is not requesting approval of new deferral accounts as part of this proceeding. This proceeding is the first application in which the OEB will issue final approval of Cap-and-Trade deferral account balances. Accordingly, Union has made no adjustments to final balances previously approved by the OEB.

2. Cap-and-Trade Program Deferral and Variance Account Balances

Union is not requesting disposition of balances associated with the Greenhouse Gas Emissions Compliance Obligation – Customer-Related or Facility-Related Deferral Accounts. The Cap-and-Trade program became effective January 1, 2017 and Union began charging customers Cap-and-Trade unit rates on that date. Accordingly, Union has not yet incurred a full year of revenue and costs to determine a deferral account balance in these accounts. The Framework specifies that deferral accounts will be disposed of on an annual basis.[1] Union will bring forward balances for disposition in these accounts in a future proceeding.

[1] Framework, p. 32 Section 6.2.1.

2.1 2016 Greenhouse Gas Emissions Impact Deferral Account

Union is requesting approval of the disposition of the 2016 balance in its Greenhouse Gas Emissions Impact Deferral Account ("GGEIDA"). The 2016 balance in Union's GGEIDA is a debit from ratepayers of $2.225 million, plus interest of $0.007 million,[2] for a total debit from ratepayers of $2.232 million (see Table 1 below).[3] Union's 2016 GGEIDA balance includes costs incurred related to the Ontario Government's Cap-and-Trade program and the Climate Change Act. The costs are all incremental and administrative in nature for 2016 with some being unique to the initial setup of the program. Union expects to continue to incur program implementation costs as well as ongoing program costs including Low Carbon Initiative Fund costs which will be tracked in this deferral account for 2017 and beyond. Union's forecasted GGEIDA costs for 2018 are described in Exhibit 3, Tab 5.

To understand the nature of the requirements of Cap-and-Trade in 2016 and the resulting costs, it is important to review the context in which the program was introduced and implemented. First, the Cap-and-Trade program is new to Ontario, to the natural gas utilities and, to customers. In addition, the Cap-and-Trade program was implemented in Ontario more quickly than any other jurisdiction, including California and Québec. Ontario's intention to adopt a Cap-and-Trade system was announced in spring 2015, with program design options being shared with stakeholders in late fall of that same year. The draft regulations and legislation, issued in

[2] Interest of $0.007 million was calculated using the OEB-approved prescribed interest rate for deferral and variance accounts (which was 1.10% for each quarter of 2016).
[3] The amount filed in Union's 2016 Reporting and Record-keeping Requirements and in Union's 2016 audited financial statements was $2.240 million (including interest). The difference of $0.008 million is due to a 2017 true-up of the 2016 balance.

February 2016, gave participants the first glimpse around program design and timing, set for January 1, 2017.[4] Through March and April 2016, stakeholders (including Union) filed submissions of comment regarding the draft regulations and legislation. In May 2016 the final regulations were issued and the Climate Change Act was passed. Soon after, in June the province released the Climate Change Action Plan which laid out how Ontario plans to invest the proceeds from Cap-and-Trade to further reduce GHG emissions.

With the regulations in place, the focus then shifted to the OEB process for the utilities. By the end of July 2016, the OEB determined how customer charges would be reflected on customers' bills, and Union promptly began to implement billing system changes necessary for January 1, 2017. For the remainder of the summer, the OEB worked to develop the Regulatory Framework for natural gas utilities, which was delivered at the end of September 2016. This required the utilities to file a comprehensive Compliance Plan by mid-November. This plan included elements such as Union's forecasted compliance obligation, strategy for achieving compliance, forecasted costs and rate impacts, and customer communication plans. By early December, Union had received an interim rate order which then reflected the Cap-and-Trade charges on customers' bills for January 1, 2017.

In order to meet these legislative and regulatory deadlines, Union had to quickly develop internal expertise on the program and its impacts, and relied heavily on external consultants who had

4 Ontario accomplished in 10 months what California did in 5 years and Québec did in 3.5 years with respect to natural gas distribution.

some familiarity with Cap-and-Trade programs in other jurisdictions (i.e. California, Québec, and Europe) to assist. In addition, these consultants provided specialized knowledge and experience that Union did not have internally, and were critical to program implementation and compliance. Union will continue to leverage the expertise of external consultants in future years.

As the second largest participant in the Ontario Cap-and-Trade program, and the natural gas utility for more than 1.4 million customers in over 400 communities across the province, it was critical that Union dedicate sufficient resources in order to implement the program effectively, efficiently and on time. The consequence of not meeting the compliance obligations of the Cap-and-Trade program is very high, including penalties for non-compliance. In addition, a successful and seamless implementation of the billing system changes is expected by Union's customers. The accuracy of bills including these changes and proper communication is very important as it relates to overall customer satisfaction.

Union's experience in 2016, and expected continued development of the Cap-and-Trade program, provided the basis for Union's forecast of 2017 GGEIDA costs. Detail of Union's 2017 GGEIDA costs were filed as part of its 2017 Compliance Plan (EB-2016-0296), and the OEB stated in its Decision and Order that it found that "the administration costs proposed by each of the Gas Utilities to meet their 2017 cap and trade compliance obligations are consistent with the expectations established in the Cap and Trade Framework."[5]

---

5 EB-2016-0296 Decision and Order (dated September 21, 2017), p.16

As outlined in Union's December 17, 2015 letter to the OEB, examples of the types of costs for inclusion in the GGEIDA include, but are not limited to:

- Emissions reporting compliance costs;
- External consultant costs; and,
- Implementation costs (including additional salaries and employee expenses).

The details of these costs as incurred in 2016 are captured in Table 1 below.

Table 1
Total GGEIDA Costs for the year ending December 31, 2016

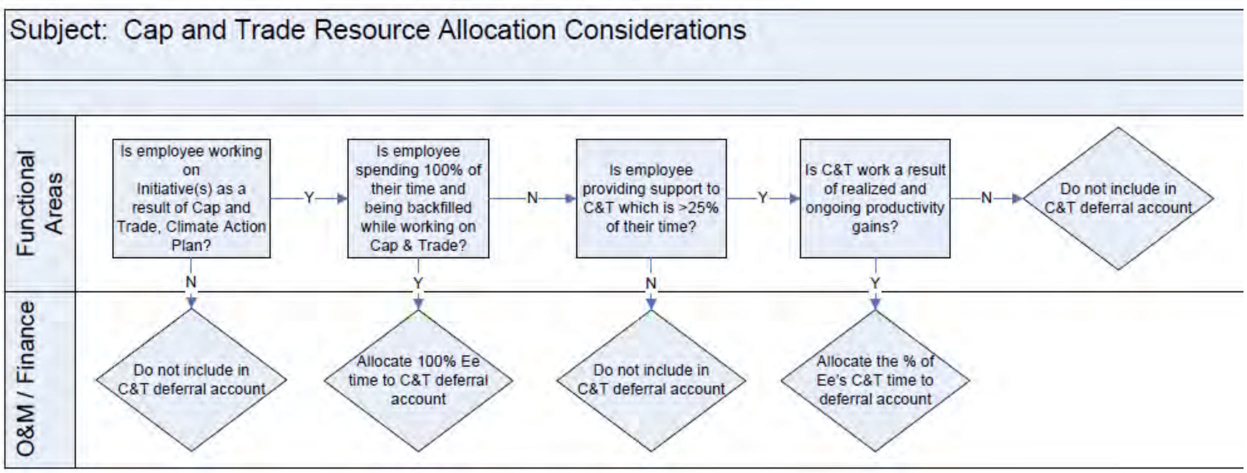
Line No.	Particulars	2016 Cost ($000)
1	Salaries and Wages	1,682
2	Consulting and Market Research	484
3	Other	63
4	Revenue Requirement on Capital Costs	(4)
5	Total	**2,225**

Salaries and Wages

To support the implementation and ongoing operation of Union's Cap-and-Trade program, Union incurred incremental administrative costs. These costs are comprised of 13 new roles and portions of existing roles totaling 0.5 full time employees. The new roles were added throughout the year; the average incremental FTE for the year was 8 FTE. In the case of existing roles, Union reallocated work, refined processes and restructured support teams to drive productivity gains allowing for these roles to take on incremental Cap-and-Trade work. As shown in Figure 1, a decision tree was created to ensure that incremental administrative costs related to Cap-and-

Trade obligations are properly accounted for. These costs are reviewed quarterly to ensure appropriateness and correct capture of administrative costs.

Figure 1
Decision Tree for Incremental GGEIDA Costs



A detailed breakdown of the activities performed by these FTE is provided in Table 2 below and described as follows.

Table 2
GGEIDA FTE Breakdown by Activity

Line No.	Activity Description	Number of FTEs
1	Compliance Plan Development and Implementation of Cap-and-Trade	5.0
2	GHG Reporting and Forecasting	3.0
3	Accounting and Financial Processes	1.0
4	Compliance Purchase Plan and Execution	1.0
5	Distribution Business Development	1.5
6	Technology, Innovation and Offsets	2.0
7	Total	13.5

Compliance Plan Development and Implementation of Cap-and-Trade

Union required incremental resources related to interpreting Ontario's Cap-and-Trade regulations, implementing its Cap-and-Trade program and developing its 2017 Compliance Plan. To accomplish this, Union established the Cap-and-Trade department to focus on the interpretation of Cap-and-Trade regulations and the development and implementation of its Compliance Plans. This team acted as the project management office, leading the work to address the following:

- New and/or updated processes;
- Governance structures;
- Reporting and monitoring;
- Research related to programs and regulations in other jurisdictions;
- Review and response to draft proposals from regulators;
- Ongoing dialogue with government regarding program structure and implementation;
- Cap-and-Trade program registration; and,
- Program related communications for customers, employees and stakeholders.

GHG Reporting and Forecasting

Union required incremental resources to ensure that Union's Cap-and-Trade program is compliant with new provincial GHG emission measurement, verification, and reporting requirements including the development of a new GHG reporting framework.[6] These employees are also responsible for the following:

- Development of GHG forecasts in support of Union's annual Compliance Plans;
- GHG forecast updates;
- Ongoing technical support for Union's Cap-and-Trade program; and,
- Consultations with MOECC on new GHG reporting regulations.

Accounting and Financial Processes

Union required an incremental resource for financial analyses supporting the implementation and ongoing operation of Union's Cap-and-Trade program; development of business design requirements including billing and reporting changes; and, financial tracking of a compliance instrument acquisition process.

Compliance Purchase Plan and Execution

Union has added an incremental resource related to the development of Union's Compliance Instrument Purchasing Strategy and Cap-and-Trade Compliance Instrument Procurement Procedures. In addition, this resource was responsible for developing Union's compliance instrument procurement capabilities and initial setup of Union's CITSS account in preparation for Cap-and-Trade program implementation in 2017. This employee is also responsible for the ongoing monitoring and interpretation of market fundamentals and the development of Union's

[6] ON.400 – Natural Gas Distributor and ON.350 – Natural Gas Operations as required under the MOECC Greenhouse Gas Reporting Guideline.

procurement processes and strategies.

Distribution Business Development

Union incurred incremental employee costs related to developing its market strategy for renewable natural gas as related to Climate Change Action Plan initiatives. In 2016, these employees were focused on renewable natural gas in support of Union's market strategy. These employees identified opportunities, completed analyses, interfaced with government ministries and key stakeholders, and developed sustainable processes.

Technology, Innovation and Offsets

Union required incremental resources to focus on the investigation, evaluation and pursuit of new technologies and innovations that could result in GHG emissions reductions. This resulted in the establishment of a Technology and Innovation department. This group is also involved in reviewing and commenting on proposed offset regulations and protocols and the evaluation of offset market opportunities to aid compliance planning.

<u>Consulting and Market Research</u>

Ontario's Cap-and-Trade program was implemented in a very short timeframe relative to other jurisdictions. Considering the magnitude of Union's compliance obligation and the speed of program implementation, it was necessary for Union to develop internal expertise quickly. As a result, Union relied heavily on external consultants with carbon market, regulation and program expertise from other jurisdictions (i.e. California, Québec, and Europe) to provide support and knowledge. Union's consulting costs for 2016 totaled $484,000. A detailed breakdown of the consulting costs is provided in Table 3 below and described as follows.

Table 3
Consulting and Market Research Costs for the Year Ending December 31, 2016

Line No.	Particulars	2016 Cost ($000)
1	Legal Interpretation and Review	135
2	Carbon Strategy and Analysis	152
3	Compliance Planning, Implementation and Customer Communication/Research	162
4	GHG Reporting and Forecasting	35
5	**Total**	**484**

Legal Interpretation and Review

Union incurred costs of approximately $135,000 for external legal support throughout 2016. Legal interpretation and review was critical to implementation and interpretation of Cap-and-Trade regulations and the Climate Change Act, operationalizing Union's Cap-and-Trade program and ensuring Union's GHG compliance obligation is consistent with applicable regulations.

Carbon Strategy and Analysis

Union incurred costs of approximately $152,000 for carbon strategy and analysis consulting services including third party analysis of draft and final Cap-and-Trade regulations, the Climate Change Action Plan, and analysis to support the LTEP. This cost also includes Union's subscription for carbon market data.

Compliance Planning, Implementation and Customer Communication/Research

Union incurred costs of approximately $162,000 for consulting services for the following items:

- Carbon market expertise in support of Union's Cap-and-Trade process and strategy development. This expertise was utilized in the development of Union's subsequent Compliance Plans.
- Development of customer communications material including design and content for the new Cap-and-Trade section of its website (https://www.uniongas.com/environment/cap-and-trade).
- Customer research comprised of two specific studies. In the first study, Union held focus group sessions (June 2016) to assess general awareness of the government's Cap-and-Trade plan, reactions to the plan and to Cap-and-Trade costs, and preferences related to how Cap-and-Trade costs might appear on natural gas bills. The final report, titled "Natural Gas Consumer Reaction to Ontario Government Reported Cap-and-Trade Plan", was filed with the OEB on July 6, 2016 (EB-2015-0363). In the second study, Union engaged a consultant to conduct customer surveys among Residential and General Service business customers to evaluate the effectiveness of Union's Cap-and-Trade customer communications. This study is discussed further in Exhibit 5.

GHG Reporting and Forecasting

Union incurred costs of approximately $35,000 for GHG Reporting and Forecasting consulting in 2016. Union received ongoing technical assistance from an environmental consultant in order to meet new regulatory GHG emissions reporting requirements associated with the implementation of Cap-and-Trade in Ontario, including O.Reg. 452. This includes the development of new reporting tools to facilitate reporting and forecasting of GHG emissions for a natural gas distributor, critical review of calculation methodologies, and assistance with submissions in response to the Greenhouse Gas Reporting Guideline.[7]

Other

Union incurred costs of approximately $63,000 for employee expenses related to travel to meetings with regulators and consultants, IT O&M expenses and office supplies in 2016.

Revenue Requirement on Capital Costs

Union incurred capital costs of approximately $454,000 related to changes to its IT billing systems for both General Service and Contract customers required to support the implementation of its Cap-and-Trade program in 2016. Consistent with similar capital costs, these costs will be depreciated over the appropriate number of years dependent on the category. Union calculated the revenue requirement and has recorded a credit of $4,000 in the GGEIDA, as a result of the CCA exceeding the provision of book depreciation during 2016.

---

[7] Guideline for Quantification, Reporting And Verification Of Greenhouse Gas Emissions-2017,https://www.ontario.ca/page/report-greenhouse-gas-ghg-emissions

UNION GAS LIMITED
Cap-and-Trade Deferral Account Balances
Year Ending December 31, 2016

Line No.	Account Number	Account Name	Balance (1) ($000's)
			(a)
1	179-152	Greenhouse Gas Emissions Impact Deferral Account	2,232
2	179-154	Greenhouse Gas Emissions Compliance - Customer-Related Deferral Account	-
3	179-155	Greenhouse Gas Emissions Compliance - Facility-Related Deferral Account	-
4	Total Cap-and-Trade Deferral Account Balances		2,232

Notes:
(1) Account balances include interest to December 31, 2016.

UNION GAS LIMITED 2018 CAP-AND-TRADE COMPLIANCE PLAN

COST RECOVERY

This Exhibit has been divided into the following tabs, which provide details on the cost recovery associated with the following elements:

Tab 1 – 2018 Cap-and-Trade Compliance Plan

Tab 2 – 2016 Cap-and-Trade Deferral Accounts

2018 CAP-AND-TRADE COMPLIANCE PLAN

The purpose of this evidence is to address the changes proposed to Union's delivery and transportation rates associated with the 2018 Compliance Plan. Union requests approval to update the customer-related and facility-related Cap-and-Trade unit rates effective January 1, 2018 consistent with the implementation of the 2018 Compliance Plan. Union requests the OEB approve the proposed rates as interim by November 30, 2017 prior to the effective date of January 1, 2018. Union will file a draft rate order for final rates following the issuance of the OEB's Decision and Order for this Application.

As described further below, Union is proposing to deviate from the Framework by using a "proxy carbon price" to represent the price of all compliance instruments for the purpose of establishing the customer-related and facility-related obligation costs used to set Cap-and-Trade charges.

This Tab 1 evidence is organized as follows:

1. Proposed Proxy Carbon Price
2. Customer-Related Obligation Costs
3. Facility-Related Obligation Costs
4. Administrative Costs
5. Rate Schedule Changes
6. Customer Bill Impacts

1. PROPOSED PROXY CARBON PRICE

The Framework specifies that customer-related and facility-related charges are to be set based on the Utilities' annual weighted average cost of its proposed compliance options ("WACC")[1]. Union is proposing to deviate from the Framework and use a "proxy carbon price" to represent the price of all compliance instruments for purposes of approximating the customer-related and facility-related obligation costs to set Cap-and-Trade charges.

The main benefit of using a proxy carbon price is that Cap-and-Trade charges will be set using information from a verifiable, public source, which provides transparency for customers and stakeholders. The use of a proxy carbon price achieves an effective balance between transparency and the importance to maintain market integrity and compliance with legislation. Disclosure of Union's WACC would contravene the Climate Change Act by compromising the Strict Confidentiality of Union's compliance instrument procurement plan.

[1] Framework, p. 31.

Union proposes to use the annual carbon price forecast, as outlined in the Framework[2], as the proxy carbon price for setting Cap-and-Trade charges. Union has calculated the 2018 annual carbon price forecast to be $18.99/tonne CO_2e (calculated using a foreign exchange rate of 1.23) as provided at Exhibit 2, Schedule 2, p.1.

The use of a proxy carbon price for all compliance instruments is consistent with rate setting by California gas utilities, as acknowledged in the Framework, and reflects the evolution of Ontario's Cap-and-Trade program while consistently applying the guiding principles of the Framework. In its Decision and Order on Union's 2017 Compliance Plan, the OEB indicated that as of January 1, 2018, all three Gas Utilities shall use the Ontario auction reserve price for the purpose of carbon price forecasting in the absence of linkage to the WCI[3]. On September 22, the MOECC formally announced Ontario's intention to link to the WCI on January 1, 2018. As a result of Ontario linking to the WCI, the Ontario auction reserve price is no longer a better indicator of 2018 carbon prices than the annual carbon price forecast methodology outlined in the Framework. Union has used the annual carbon price forecast as the proposed proxy carbon price to reflect the expectation that Ontario will link with the WCI effective January 1, 2018, and that the Utilities' current compliance plans will be largely based on compliance instruments and not abatement. In future years, as abatement comprises a more significant component of Union's compliance plan, further review of the rate setting methodology may be required.

---

[2] Framework, p. 19.
[3] EB-2016-0296 Decision and Order, p. 21.

Variances between the 2018 proxy carbon price used to set Cap-and-Trade charges and the actual costs of the 2018 Compliance Plan will accrue to Union's Greenhouse Gas Emissions Compliance Obligation – Customer-Related Deferral Account and the Greenhouse Gas Emissions Compliance Obligation – Facility-Related Deferral Account. Union will bring forward the 2018 balance in these accounts for disposition following the end of the compliance year.

2. CUSTOMER-RELATED OBLIGATION COSTS

Union is responsible for the GHG emissions obligation for most of its end-use distribution customers, with the exception of mandatory, voluntary participants and wholesale customers[4]. Union proposes to apply the proxy carbon price to the forecast customer-related emissions to reflect the approximate cost of the customer-related obligation for recovery from these customers. Union is proposing to increase the Cap-and-Trade customer-related volumetric unit rate from 3.3181 cents/m^3 to 3.5599 cents/m^3, effective January 1, 2018. The increase to the customer-related charge is caused by an increase to the proxy carbon price. The proxy carbon price has increased as a result of a higher 21-day CCA strip forecast price net of a decrease in the foreign exchange rate.

Details of the customer-related obligation total cost and unit rate can be found at Exhibit 7, Tab 1, Schedule 1, p.1.

[4] The obligation refers to the obligation of natural gas distributors to cover applicable GHG customer emissions through the purchases of allowances and other market instruments (e.g. offsets, secondary market transactions) and does not refer to the GHG emissions reporting obligations which applicable customers need to comply with themselves.

3. FACILITY-RELATED OBLIGATION COSTS

Union is also responsible for the GHG emissions obligation associated with its own operations. Union's facility-related obligation is generated largely from GHG emissions associated with UFG, compressor fuel and blowdowns, and buildings and line heaters (company use gas). Union proposes to apply the proxy carbon price to the forecast facility-related emissions to reflect the approximate cost of the facility-related obligation for recovery from customers. Union is proposing to decrease the facility-related costs for recovery included in rates from $9.926 million to $8.584 million, effective January 1, 2018. The decrease to the facility-related costs is caused by a decrease to the facility emissions described at Exhibit 2, which is partly offset by an increase to the proxy carbon price. The change to the facility-related obligation and the allocation of facility-related obligation costs is summarized at Exhibit 7, Tab 1, Schedule 1.

In the 2017 Compliance Plan Decision and Order, the OEB found that the Utilities should allocate compliance obligation costs in a manner consistent with the Framework. The Framework states that facility-related obligation costs should be recovered from all customers, as they directly relate to the delivery of natural gas to customers. It further states that, similar to customer-related charges, facility-related charges should be allocated to rate classes based on consumption and recovered through a volumetric charge ($/m^3).[5,6] Consistent with this direction, Union has allocated the facility-related obligation costs to rate classes based on in-franchise delivery volumes and ex-franchise transportation volumes. This allocation methodology is consistent with the Framework and the 2017 Compliance Plan Decision and Order. The

[5] EB-2016-0296 Decision and Order, p. 39.
[6] Framework, p. 30.

allocation of compliance costs to rate classes and the facility-related unit rates is provided at Exhibit 7, Tab 1, Schedule 1, pp. 2-3.

3.2 Parkway Delivery Commitment Incentive Costs

The derivation of Union's Parkway Delivery Commitment Incentive ("PDCI") rate for any continued obligated DCQ quantities at Parkway includes the Rate M12 Cap-and-Trade facility-related unit rate. The calculation of PDCI costs in Union's 2017 Compliance Plan final rate order included the 2017 facility-related unit rate of $0.006/GJ. The 2018 Rate M12 facility-related unit rate as provided at Exhibit 7, Tab 1, Schedule 1 p.2 remains at $0.006/GJ. Accordingly, there is no change to the PDCI costs as a result of this application and no update required to in-franchise delivery rates.

4. ADMINISTRATIVE COSTS

Union has not incorporated administrative costs or Low Carbon Initiative Fund costs associated with the Cap-and-Trade program in rates. Union will use the previously approved GGEIDA discussed in Exhibit 6 to record administrative costs and up to $2 million of costs associated with the Low Carbon Initiative Fund until such time as the costs are incorporated into rates.

5. RATE SCHEDULE CHANGES

Union has updated the wholesale service Rate M9, Rate M10 and Rate T3 rate schedules to exclude the customer-related Cap-and-Trade unit rate. Union has not been billing wholesale customers customer-related Cap-and-Trade charges because they are not covered by Union's compliance obligation. Accordingly, it is not necessary for Union to provide the option for the customer-related Cap-and-Trade unit rate on these rate schedules.

Union has also updated the Rate C1 rate schedule to remove the facility-related Cap-and-Trade unit rates for interruptible transportation and short-term firm transportation under Rate C1. The Rate C1 rate schedule allows for interruptible and short-term (1 year or less) firm transportation service pricing up to a maximum of $75/GJ. Facility-related Cap-and-Trade unit rates for these services are not required on the Rate C1 rate schedule, as the pricing for the services is either negotiated or provided under Union's Schedule 2 Hub pricing (available at uniongas.com). This change to the Rate C1 rate schedule does not impact the facility-related costs allocated to interruptible and short-term firm transportation.

Blackline versions of the Rate M9, Rate M10, Rate T3 and Rate C1 rate schedules are provided at Exhibit 7, Schedule 5.

6. CUSTOMER BILL IMPACTS

The bill impact of the Cap-and-Trade program, including the customer-related Cap-and-Trade costs, for a typical Union South and Union North residential customer consuming 2,200 m^3 annually is an increase of $5 per year.

The bill impact of the Cap-and-Trade program, excluding customer-related Cap-and-Trade costs, for a typical Union South and Union North residential customer consuming 2,200 m^3 annually is a decrease of less than $1 per year.

Exhibit 7, Tab 1, Schedule 2 provides customer bill impacts, both including and excluding customer-related obligations, for General Service rate classes Rate M1, Rate M2, Rate 01 and Rate 10. Exhibit 7, Tab 1, Schedule 3 provides the customer bill impacts, both including and excluding customer-related obligations, for all in-franchise rate classes.

The calculation of Supplemental Service Charges is provided at Exhibit 7, Tab 1, Schedule 4.

Bill impacts included in this application do not reflect changes to rates included in Union's 2017 Compliance Plan final rate order (EB-2016-0296), proposed changes in Union's 2018 Rates application (EB-2017-0087) or changes to Union's gas commodity and fuel rates that will be implemented with Union's January 1, 2018 QRAM application.

UNION GAS LIMITED
Derevation of 2018 Cap-and-Trade Forecast Cost of Compliance
and 2018 Customer-Related Unit Rate

Line No.	Particulars	Customer-Related Obligation	Facility-Related Obligation: UFG	Compressor Fuel	Blowdown	Building and Line Heater Fuel	Total Facility-Related Obligation	Total 2018 Cap-and-Trade Obligation	Total 2017 Cap-and-Trade Obligation	Change
		(a)	(b)	(c)	(d)	(e)	(f) = (b+c+d+e)	(g) = (a+f)	(h)	(i) = (g-h)
	Cap-and-Trade Forecast Cost of Compliance									
1	Forecast Emission Volume (10^3m^3) (1)	7,702,700	70,890	145,404	4,623	12,510	233,427	7,936,127	8,287,762	(351,634)
2	Conversion Factor ($tCO2e/m^3$) (2)	0.001875	0.001875	0.001966	0.001875	0.001966				
3	Total Emission Forecast (tCO2e) (line1 x line 2 * 1000)	14,439,690	132,892	285,868	8,667	24,595	452,022	14,891,712	15,553,804	(662,092)
4	Proxy Carbon Price ($/tCO2e) (3)	18.99	18.99	18.99	18.99	18.99	18.99	18.99	17.70	1.29
5	Total Forecast Cost of Compliance Instruments ($000's) (line 3 x line 4 / 1000)	274,210	2,524	5,429	165	467	8,584	282,794	275,302	7,491
6	Total Forecast Cost of Abatement ($000's) (4)	-	-	-	-	-	-	-	-	-
7	Total Forecast Cost of Compliance ($000's) (line 5 + line 6)	274,210	2,524	5,429	165	467	8,584	282,794	275,302	7,491
	2018 Customer-Related Unit Rate (5)									
8	Total Forecast Cost of Compliance ($000's) (line 7)	274,210								
9	Forecast Volume (10^3m^3) (line 1)	7,702,700								
10	Customer-Related Compliance Cost Unit Rate ($cents/m^3$) (line 8 / line 9 * 100)	3.5599								

Notes:
(1) Exhibit 2, Schedule 1, column (c), line 7 - 12.
(2) Exhibit 2, Schedule 1, column (c), line 14 & 15.
(3) Exhibit 2, Schedule 2, line 3.
(4) Exhibit 3, Schedule 1, column (c), lines 6 and 7.
(5) Customer-related Cap-and-Trade charge applicable to all customer-related emissions, regardless of rate class.
Facility-related Cap-and-Trade charge unit rate by rate class calculated on Exhibit 7, Tab 1, Schedule 1, pp. 2-3.

UNION GAS LIMITED
Derivation of 2018 Cap-and-Trade Facility-Related Unit Rates

Line No.	Rate Class	2018 Forecast Delivery and Transportation Volumes (10^3m^3) (1)	Total Facility Compliance Cost ($000's) (2)	Unit Rate (cents / m^3)
		(a)	(b)	(c) = (b / a)
	Union South In-Franchise - Delivery			
1	Rate M1	2,941,675	643	0.0219
2	Rate M2	1,199,552	262	0.0219
3	Rate M4	656,436	144	0.0219
4	Rate M5	80,780	18	0.0219
5	Rate M7	483,679	106	0.0219
6	Rate M9	81,243	18	0.0219
7	Rate M10	277	0	0.0219
8	Rate T1	452,041	99	0.0219
9	Rate T2	3,938,686	862	0.0219
10	Rate T3	278,023	61	0.0219
11	Total South In-Franchise	10,112,393	2,212	
	Union North In-Franchise - Delivery			
12	Rate 01	957,267	209	0.0219
13	Rate 10	360,125	79	0.0219
14	Rate 20	723,234	158	0.0219
15	Rate 25	70,079	15	0.0219
16	Rate 100	976,171	214	0.0219
17	Total Union North In-Franchise - Delivery	3,086,877	675	
18	Total In-Franchise	13,199,270 (3)	2,887	

Notes:
(1) Includes in-franchise delivery volumes and ex-franchise transportation volumes.
(2) Allocated in proportion to column (a).
(3) Exhibit 2, Schedule 1, line 4, column (e).

UNION GAS LIMITED
Derivation of 2018 Cap-and-Trade Facility-Related Unit Rates

Line No.	Rate Class	2018 Forecast Delivery and Transportation Volumes (10^3m^3) (1)	Total Facility Compliance Cost ($000's) (2)	Unit Rate ($/GJ) (3)
		(a)	(b)	(c) = (b/a/HV)
	Ex-Franchise			
	Rate M12 - Firm Transportation			
1	Dawn to Kirkwall/Parkway (Cons)/Lisgar	2,781,513	608	0.006
2	Kirkwall to Parkway (TCPL/EGT)	3,741,353	818	0.006
3	Dawn to Parkway (TCPL/EGT)	7,837,174	1,714	0.006
4	Parkway to Dawn/Kirkwall	390,744	85	0.006
5	Parkway to Parkway (Cons)	879,205	192	0.006
6	Kirkwall to Dawn (3)	1,613,336	353	0.006
7	Total Rate M12	17,243,326	3,772	
8	Rate M13	98,892	22	0.006
	Rate M16			
9	East of Dawn - To Dawn	-	-	-
10	East of Dawn - To Pool	-	-	-
11	West of Dawn - To Dawn	126,861	28	0.006
12	West of Dawn - To Pool	136,952	30	0.006
13	Total Rate M16	263,813	58	
	Rate C1 - Firm Transportation			
14	St. Clair/Ojibway/Bluewater & Dawn	370,006	81	0.006
15	Parkway to Dawn/Kirkwall	2,209,767	483	0.006
16	Kirkwall to Dawn	3,639,683	796	0.006
17	Dawn to Parkway (TCPL)	200,616	44	0.006
18	Dawn to Dawn-Vector	338,742	74	0.006
19	Dawn to Dawn-TCPL	578,624	127	0.006
20	Interruptible and Short-term Transportation	1,099,358	240	0.006
21	Total Rate C1	8,436,795	1,845	
22	Excess Utility Storage Space	-	-	
23	Total Ex-Franchise	26,042,826	5,697	
24	Total In-Franchise & Ex-Franchise (4)	39,242,095	8,584 (5)	

Notes:
(1) Includes in-franchise delivery volumes and ex-franchise transportation volumes.
(2) Allocated in proportion to column (a).
(3) Conversion to GJs based on 38.81 $GJ/10^3m^3$.
(4) Page 2, line 18 + Page 3, line 23.
(5) Page 1, column (f), line 7.

UNION GAS LIMITED
Union South
General Service Customer Bill Impacts

Line No.	Particulars	Rate M1 - Residential (Annual Consumption of 2,200 m³) EB-2016-0296 Implemented 01-Jan-18 Total Bill ($) (1)	EB-2017-0255 Proposed 01-Jan-18 Total Bill ($) (1)	Impact ($)	Rate M2 - Commercial (Annual Consumption of 73,000 m³) EB-2016-0296 Implemented 01-Jan-18 Total Bill ($) (1)	EB-2017-0255 Proposed 01-Jan-18 Total Bill ($) (1)	Impact ($)
		(a)	(b)	(c) = (b) - (a)	(d)	(e)	(f) = (e) - (d)
	Delivery Charges						
1	Monthly Charge	252.00	252.00	-	840.00	840.00	-
	Delivery Commodity Charge						
2	Cap-and-Trade Customer-Related	73.00	78.31	5.31	2,422.23	2,598.72	176.49
3	Other Delivery Commodity	97.60	97.56	(0.04)	3,321.13	3,319.59	(1.54)
4	Storage Services	15.75	15.75	-	456.38	456.38	-
5	Total Delivery Charge	438.35	443.62	5.27	7,039.74	7,214.69	174.95
	Supply Charges						
6	Transportation to Union	-	-	-	-	-	-
7	Commodity	302.10	302.10	-	10,023.78	10,023.78	-
8	Total Gas Supply Charge	302.10	302.10	-	10,023.78	10,023.78	-
	Total Bill						
9	Including Cap-and-Trade Customer-Related Charge	740.45	745.72	5.27	17,063.52	17,238.47	174.95
10	Excluding Cap-and-Trade Customer-Related Charge	667.45	667.41	(0.04)	14,641.29	14,639.75	(1.54)
	Impacts						
	Sales Service						
11	Including Cap-and-Trade Customer-Related Charge (line 9)			5.27			174.95
12	Excluding Cap-and-Trade Customer-Related Charge (line 10)			(0.04)			(1.54)
	Direct Purchase						
13	Including Cap-and-Trade Customer-Related Charge (line 5)			5.27			174.95
14	Excluding Cap-and-Trade Customer-Related Charge (line 5 - line 2)			(0.04)			(1.54)

Notes:
(1) Excludes temporary charges/(credits) and prospective recovery.

UNION GAS LIMITED
Union North
General Service Customer Bill Impacts

Line No.	Particulars	Union North West Zone Rate 01 - Residential (Annual Consumption of 2,200 m³) EB-2016-0296 Implemented 01-Jan-18 Total Bill ($) (1)	EB-2017-0255 Proposed 01-Jan-18 Total Bill ($) (1)	Impact ($)	Union North East Zone Rate 01 - Residential (Annual Consumption of 2,200 m³) EB-2016-0296 Implemented 01-Jan-18 Total Bill ($) (1)	EB-2017-0255 Proposed 01-Jan-18 Total Bill ($) (1)	Impact ($)
		(a)	(b)	(c) = (b) - (a)	(d)	(e)	(f) = (e) - (d)
	Delivery Charges						
1	Monthly Charge	252.00	252.00	-	252.00	252.00	-
	Delivery Commodity Charge						
2	Cap-and-Trade Customer-Related	73.00	78.31	5.31	73.00	78.31	5.31
3	Other Delivery Commodity	197.47	197.43	(0.04)	197.47	197.43	(0.04)
4	Total Delivery Charge	522.47	527.74	5.27	522.47	527.74	5.27
	Supply Charges						
5	Transportation to Union	150.89	150.89	-	66.02	66.02	-
6	Storage Services	45.19	45.19	-	146.73	146.73	-
7	Subtotal	196.08	196.08	-	212.75	212.75	-
8	Commodity	228.36	228.36	-	308.29	308.29	-
9	Total Gas Supply Charge	424.44	424.44	-	521.04	521.04	-
	Total Bill						
10	Including Cap-and-Trade Customer-Related Charge	946.91	952.18	5.27	1,043.51	1,048.78	5.27
11	Excluding Cap-and-Trade Customer-Related Charge	873.91	873.87	(0.04)	970.51	970.47	(0.04)
	Impacts						
	Sales Service						
12	Including Cap-and-Trade Customer-Related Charge (line 10)			5.27			5.27
13	Excluding Cap-and-Trade Customer-Related Charge (line 11)			(0.04)			(0.04)
	Direct Purchase						
14	Including Cap-and-Trade Customer-Related Charge (line 4 + line 7)			5.27			5.27
15	Excluding Cap-and-Trade Customer-Related Charge (line 4 + line 7 - line 2)			(0.04)			(0.04)

Notes:
(1) Excludes temporary charges/(credits) and prospective recovery.

UNION GAS LIMITED
Union North
General Service Customer Bill Impacts

		Union North West Rate 10 - Commercial / Industrial (Annual Consumption of 93,000 m³)			Union North East Rate 10 - Commercial / Industrial (Annual Consumption of 93,000 m³)		
Line No.	Particulars	EB-2016-0296 Implemented 01-Jan-18 Total Bill ($) (1)	EB-2017-0255 Proposed 01-Jan-18 Total Bill ($) (1)	Impact ($)	EB-2016-0296 Implemented 01-Jan-18 Total Bill ($) (1)	EB-2017-0255 Proposed 01-Jan-18 Total Bill ($) (1)	Impact ($)
		(a)	(b)	(c) = (b) - (a)	(d)	(e)	(f) = (e) - (d)
	Delivery Charges						
1	Monthly Charge	840.00	840.00	-	840.00	840.00	-
	Delivery Commodity Charge						
2	Cap-and-Trade Customer-Related	3,085.83	3,310.70	224.87	3,085.83	3,310.70	224.87
3	Other Delivery Commodity	5,880.00	5,878.06	(1.94)	5,880.00	5,878.06	(1.94)
4	Total Delivery Charge	9,805.83	10,028.76	222.93	9,805.83	10,028.76	222.93
	Supply Charges						
5	Transportation to Union	5,585.01	5,585.01	-	2,568.66	2,568.66	-
6	Storage Services	1,435.63	1,435.63	-	4,378.24	4,378.24	-
7	Subtotal	7,020.64	7,020.64	-	6,946.90	6,946.90	-
8	Commodity	9,652.93	9,652.93	-	13,032.65	13,032.65	-
9	Total Gas Supply Charge	16,673.57	16,673.57	-	19,979.55	19,979.55	-
	Total Bill						
10	Including Cap-and-Trade Customer-Related Charge	26,479.40	26,702.33	222.93	29,785.38	30,008.31	222.93
11	Excluding Cap-and-Trade Customer-Related Charge	23,393.57	23,391.63	(1.94)	26,699.55	26,697.61	(1.94)
	Impacts						
	Sales Service						
12	Including Cap-and-Trade Customer-Related Charge (line 10)			222.93			222.93
13	Excluding Cap-and-Trade Customer-Related Charge (line 11)			(1.94)			(1.94)
	Direct Purchase						
14	Including Cap-and-Trade Customer-Related Charge (line 4 + line 7)			222.93			222.93
15	Excluding Cap-and-Trade Customer-Related Charge (line 4 + line 7 - line 2)			(1.94)			(1.94)

Notes:
(1) Excludes temporary charges/(credits) and prospective recovery.

UNION GAS LIMITED

Calculation of Sales Service and Direct Purchase Bill Impacts for Typical Small and Large Customers - Union North

		Excluding Cap-and-Trade Customer-Related Charge						Including Cap-and-Trade Customer-Related Charge (2)					
		EB-2016-0296 (1)		Proposed - EB-2017-0255				EB-2016-0296 (1)		Proposed - EB-2017-0255			
Line No.	Particulars	Total Bill ($)	Unit Rate (cents/m³)	Total Bill ($)	Unit Rate (cents/m³)	Total Bill Change ($)	Bill Impact (%)	Total Bill ($)	Unit Rate (cents/m³)	Total Bill ($)	Unit Rate (cents/m³)	Total Bill Change ($)	Bill Impact (%)
		(a)	(b)	(c)	(d)	(e) = (c - a)	(f) = (e / a)	(g)	(h)	(i)	(j)	(k) = (I - g)	(l) = (k / g)
	Small Rate 01												
1	Delivery Charges	449	20.4305	449	20.4287	(0.04)	0.0%	522	23.7486	528	23.9882	5.27	1.0%
2	Gas Supply Charges	521	23.6836	521	23.6836	-	0.0%	521	23.6836	521	23.6836	-	0.0%
3	Total Bill	971	44.1141	970	44.1123	(0.04)	0.0%	1,044	47.4323	1,049	47.6719	5.27	0.5%
4	Sales Service Impact					(0.04)	0.0%					5.27	0.5%
5	Bundled-T (Direct Purchase) Impact					(0.04)	0.0%					5.27	1.0%
	Small Rate 10												
6	Delivery Charges	4,745	7.9090	4,744	7.9069	(1)	0.0%	6,736	11.2271	6,880	11.4668	144	2.1%
7	Gas Supply Charges	12,890	21.4834	12,890	21.4834	-	0.0%	12,890	21.4834	12,890	21.4834	-	0.0%
8	Total Bill	17,635	24.1581	17,634	24.1564	(1)	0.0%	19,626	26.8853	19,770	27.0824	144	0.7%
9	Sales Service Impact					(1)	0.0%					144	0.7%
10	Bundled-T (Direct Purchase) Impact					(1)	0.0%					144	1.3%
	Large Rate 10												
11	Delivery Charges	15,573	6.2292	15,568	6.2271	(5)	0.0%	23,868	9.5473	24,468	9.7870	599	2.5%
12	Gas Supply Charges	53,709	21.4834	53,709	21.4834	-	0.0%	53,709	21.4834	53,709	21.4834	-	0.0%
13	Total Bill	69,282	27.7126	69,276	27.7105	(5)	0.0%	77,577	31.0307	78,176	31.2704	599	0.8%
14	Sales Service Impact					(5)	0.0%					599	0.8%
15	Bundled-T (Direct Purchase) Impact					(5)	0.0%					599	1.4%
	Small Rate 20												
16	Delivery Charges	75,675	2.5225	75,612	2.5204	(63)	-0.1%	175,218	5.8406	182,409	6.0803	7,191	4.1%
17	Gas Supply Charges	547,733	18.2578	547,733	18.2578	-	0.0%	547,733	18.2578	547,733	18.2578	-	0.0%
18	Total Bill	623,409	20.7803	623,346	20.7782	(63)	0.0%	722,952	24.0984	730,143	24.3381	7,191	1.0%
19	Sales Service Impact					(63)	0.0%					7,191	1.0%
20	Bundled-T (Direct Purchase) Impact					(63)	0.0%					7,191	2.3%
	Large Rate 20												
21	Delivery Charges	294,194	1.9613	293,879	1.9592	(315)	-0.1%	791,909	5.2794	827,864	5.5191	35,955	4.5%
22	Gas Supply Charges	2,639,659	17.5977	2,639,659	17.5977	-	0.0%	2,639,659	17.5977	2,639,659	17.5977	-	0.0%
23	Total Bill	2,933,853	19.5590	2,933,538	19.5569	(315)	0.0%	3,431,568	22.8771	3,467,523	23.1168	35,955	1.0%
24	Sales Service Impact					(315)	0.0%					35,955	1.0%
25	Bundled-T (Direct Purchase) Impact					(315)	0.0%					35,955	2.6%

Notes:
(1) Reflects rates per Union's 2017 Cap-and-Trade Compliance Plan Rate Order (EB-2016-0296), Appendix A to be implemented January 1, 2018.
(2) Bill impacts including Cap-and-Trade customer-related charge are applicable to customers for whom Union is required to fulfill Cap-and-Trade obligations.

UNION GAS LIMITED

Calculation of Sales Service and Direct Purchase Bill Impacts for Typical Small and Large Customers - Union North

		Excluding Cap-and-Trade Customer-Related Charge						Including Cap-and-Trade Customer-Related Charge (2)					
		EB-2016-0296 (1)		Proposed - EB-2017-0255				EB-2016-0296 (1)		Proposed - EB-2017-0255			
Line No.	Particulars	Total Bill ($)	Unit Rate (cents/m^3)	Total Bill ($)	Unit Rate (cents/m^3)	Total Bill Change ($)	Bill Impact (%)	Total Bill ($)	Unit Rate (cents/m^3)	Total Bill ($)	Unit Rate (cents/m^3)	Total Bill Change ($)	Bill Impact (%)
		(a)	(b)	(c)	(d)	(e) = (c - a)	(f) = (e / a)	(g)	(h)	(i)	(j)	(k) = (I - g)	(l) = (k / g)
	Average Rate 25												
1	Delivery Charges	62,310	2.7389	62,262	2.7368	(48)	-0.1%	137,797	6.0570	143,250	6.2967	5,453	4.0%
2	Gas Supply Charges	347,172	15.2603	347,172	15.2603	-	0.0%	347,172	15.2603	347,172	15.2603	-	0.0%
3	Total Bill	409,482	17.9992	409,434	17.9971	(48)	0.0%	484,969	21.3173	490,422	21.5570	5,453	1.1%
4	Sales Service Impact					(48)	0.0%					5,453	1.1%
5	T-Service (Direct Purchase) Impact					(48)	-0.1%					5,453	4.0%
	Small Rate 100												
6	Delivery Charges	263,680	0.9766	263,113	0.9745	(567)	-0.2%	1,159,567	4.2947	1,224,286	4.5344	64,719	5.6%
7	Gas Supply Charges	6,634,970	24.5740	6,634,970	24.5740	-	0.0%	6,634,970	24.5740	6,634,970	24.5740	-	0.0%
8	Total Bill	6,898,650	25.5506	6,898,083	25.5485	(567)	0.0%	7,794,537	28.8687	7,859,256	29.1084	64,719	0.8%
9	Sales Service Impact					(567)	0.0%					64,719	0.8%
10	T-Service (Direct Purchase) Impact					(567)	-0.2%					64,719	5.6%
	Large Rate 100												
11	Delivery Charges	2,143,360	0.8931	2,138,320	0.8910	(5,040)	-0.2%	10,106,800	4.2112	10,682,080	4.4509	575,280	5.7%
12	Gas Supply Charges	57,829,173	24.0955	57,829,173	24.0955	-	0.0%	57,829,173	24.0955	57,829,173	24.0955	-	0.0%
13	Total Bill	59,972,532	24.9886	59,967,492	24.9865	(5,040)	0.0%	67,935,972	28.3067	68,511,252	28.5464	575,280	0.8%
14	Sales Service Impact					(5,040)	0.0%					575,280	0.8%
15	T-Service (Direct Purchase) Impact					(5,040)	-0.2%					575,280	5.7%

Notes:

(1) Reflects rates per Union's 2017 Cap-and-Trade Compliance Plan Rate Order (EB-2016-0296), Appendix A to be implemented January 1, 2018.

(2) Bill impacts including Cap-and-Trade customer-related charge are applicable to customers for whom Union is required to fulfill Cap-and-Trade obligations.

UNION GAS LIMITED
Calculation of Sales Service and Direct Purchase Bill Impacts for Typical Small and Large Customers - Union South

Excluding Cap-and-Trade Customer-Related Charge

Line No.	Particulars	EB-2016-0296 (1) Total Bill ($) (a)	EB-2016-0296 (1) Unit Rate (cents/m^3) (b)	Proposed - EB-2017-0255 Total Bill ($) (c)	Proposed - EB-2017-0255 Unit Rate (cents/m^3) (d)	Total Bill Change ($) (e) = (c - a)	Bill Impact (%) (f) = (e / a)
	Small Rate M1						
1	Delivery Charges	365	16.6068	365	16.6050	(0.04)	0.0%
2	Gas Supply Charges	302	13.7318	302	13.7318	-	0.0%
3	Total Bill	667	30.3386	667	30.3368	(0.04)	0.0%
4	Sales Service Impact					(0.04)	0.0%
5	Direct Purchase Impact					(0.04)	0.0%
	Small Rate M2						
6	Delivery Charges	4,158	6.9296	4,157	6.9275	(1)	0.0%
7	Gas Supply Charges	8,239	13.7312	8,239	13.7312	-	0.0%
8	Total Bill	12,396	20.6608	12,395	20.6587	(1)	0.0%
9	Sales Service Impact					(1)	0.0%
10	Direct Purchase Impact					(1)	0.0%
	Large Rate M2						
11	Delivery Charges	14,129	5.6514	14,123	5.6493	(5)	0.0%
12	Gas Supply Charges	34,328	13.7312	34,328	13.7312	-	0.0%
13	Total Bill	48,457	19.3826	48,451	19.3805	(5)	0.0%
14	Sales Service Impact					(5)	0.0%
15	Direct Purchase Impact					(5)	0.0%
	Small Rate M4						
16	Delivery Charges	44,815	5.1217	44,796	5.1196	(18)	0.0%
17	Gas Supply Charges	120,148	13.7312	120,148	13.7312	-	0.0%
18	Total Bill	164,963	18.8529	164,944	18.8508	(18)	0.0%
19	Sales Service Impact					(18)	0.0%
20	Direct Purchase Impact					(18)	0.0%
	Large Rate M4						
21	Delivery Charges	339,189	2.8266	338,937	2.8245	(252)	-0.1%
22	Gas Supply Charges	1,647,744	13.7312	1,647,744	13.7312	-	0.0%
23	Total Bill	1,986,933	16.5578	1,986,681	16.5557	(252)	0.0%
24	Sales Service Impact					(252)	0.0%
25	Direct Purchase Impact					(252)	-0.1%

Including Cap-and-Trade Customer-Related Charge (2)

Line No.	Particulars	EB-2016-0296 (1) Total Bill ($) (g)	EB-2016-0296 (1) Unit Rate (cents/m^3) (h)	Proposed - EB-2017-0255 Total Bill ($) (i)	Proposed - EB-2017-0255 Unit Rate (cents/m^3) (j)	Total Bill Change ($) (k) = (I - g)	Bill Impact (%) (l) = (k / g)
	Small Rate M1						
1	Delivery Charges	438	19.9250	444	20.1645	5.27	1.2%
2	Gas Supply Charges	302	13.7318	302	13.7318	-	0.0%
3	Total Bill	740	33.6568	746	33.8964	5.27	0.7%
4	Sales Service Impact					5.27	0.7%
5	Direct Purchase Impact					5.27	1.2%
	Small Rate M2						
6	Delivery Charges	6,149	10.2477	6,292	10.4874	144	2.3%
7	Gas Supply Charges	8,239	13.7312	8,239	13.7312	-	0.0%
8	Total Bill	14,387	23.9789	14,531	24.2186	144	1.0%
9	Sales Service Impact					144	1.0%
10	Direct Purchase Impact					144	2.3%
	Large Rate M2						
11	Delivery Charges	22,424	8.9695	23,023	9.2092	599	2.7%
12	Gas Supply Charges	34,328	13.7312	34,328	13.7312	-	0.0%
13	Total Bill	56,752	22.7007	57,351	22.9404	599	1.1%
14	Sales Service Impact					599	1.1%
15	Direct Purchase Impact					599	2.7%
	Small Rate M4						
16	Delivery Charges	73,848	8.4398	75,945	8.6795	2,097	2.8%
17	Gas Supply Charges	120,148	13.7312	120,148	13.7312	-	0.0%
18	Total Bill	193,996	22.1710	196,093	22.4107	2,097	1.1%
19	Sales Service Impact					2,097	1.1%
20	Direct Purchase Impact					2,097	2.8%
	Large Rate M4						
21	Delivery Charges	737,361	6.1447	766,125	6.3844	28,764	3.9%
22	Gas Supply Charges	1,647,744	13.7312	1,647,744	13.7312	-	0.0%
23	Total Bill	2,385,105	19.8759	2,413,869	20.1156	28,764	1.2%
24	Sales Service Impact					28,764	1.2%
25	Direct Purchase Impact					28,764	3.9%

Notes:
(1) Reflects rates per Union's 2017 Cap-and-Trade Compliance Plan Rate Order (EB-2016-0296), Appendix A to be implemented January 1, 2018.
(2) Bill impacts including Cap-and-Trade customer-related charge are applicable to customers for whom Union is required to fulfill Cap-and-Trade obligations.

UNION GAS LIMITED
Calculation of Sales Service and Direct Purchase Bill Impacts for Typical Small and Large Customers - Union South

		Excluding Cap-and-Trade Customer-Related Charge						Including Cap-and-Trade Customer-Related Charge (2)					
		EB-2016-0296 (1)		Proposed - EB-2017-0255				EB-2016-0296 (1)		Proposed - EB-2017-0255			
Line No.	Particulars	Total Bill ($)	Unit Rate (cents/m^3)	Total Bill ($)	Unit Rate (cents/m^3)	Total Bill Change ($)	Bill Impact (%)	Total Bill ($)	Unit Rate (cents/m^3)	Total Bill ($)	Unit Rate (cents/m^3)	Total Bill Change ($)	Bill Impact (%)
		(a)	(b)	(c)	(d)	(e) = (c - a)	(f) = (e / a)	(g)	(h)	(i)	(j)	(k) = (I - g)	(l) = (k / g)
	Small Rate M5												
1	Delivery Charges	32,488	3.9379	32,470	3.9358	(17)	-0.1%	59,862	7.2560	61,839	7.4957	1,978	3.3%
2	Gas Supply Charges	113,282	13.7312	113,282	13.7312	-	0.0%	113,282	13.7312	113,282	13.7312	-	0.0%
3	Total Bill	145,770	17.6691	145,753	17.6670	(17)	0.0%	173,144	20.9872	175,122	21.2269	1,978	1.1%
4	Sales Service Impact					(17)	0.0%					1,978	1.1%
5	Direct Purchase Impact					(17)	-0.1%					1,978	3.3%
	Large Rate M5												
6	Delivery Charges	185,969	2.8611	185,833	2.8590	(137)	-0.1%	401,646	6.1792	417,226	6.4189	15,581	3.9%
7	Gas Supply Charges	892,528	13.7312	892,528	13.7312	-	0.0%	892,528	13.7312	892,528	13.7312	-	0.0%
8	Total Bill	1,078,497	16.5923	1,078,361	16.5902	(137)	0.0%	1,294,174	19.9104	1,309,754	20.1501	15,581	1.2%
9	Sales Service Impact					(137)	0.0%					15,581	1.2%
10	Direct Purchase Impact					(137)	-0.1%					15,581	3.9%
	Small Rate M7												
11	Delivery Charges	756,091	2.1003	755,335	2.0982	(756)	-0.1%	1,950,607	5.4184	2,036,899	5.6581	86,292	4.4%
12	Gas Supply Charges	4,943,232	13.7312	4,943,232	13.7312	-	0.0%	4,943,232	13.7312	4,943,232	13.7312	-	0.0%
13	Total Bill	5,699,323	15.8315	5,698,567	15.8294	(756)	0.0%	6,893,839	19.1496	6,980,131	19.3893	86,292	1.3%
14	Sales Service Impact					(756)	0.0%					86,292	1.3%
15	Direct Purchase Impact					(756)	-0.1%					86,292	4.4%
	Large Rate M7												
16	Delivery Charges	2,873,793	5.5265	2,872,701	5.5244	(1,092)	0.0%	4,599,205	8.8446	4,723,849	9.0843	124,644	2.7%
17	Gas Supply Charges	7,140,224	13.7312	7,140,224	13.7312	-	0.0%	7,140,224	13.7312	7,140,224	13.7312	-	0.0%
18	Total Bill	10,014,017	19.2577	10,012,925	19.2556	(1,092)	0.0%	11,739,429	22.5758	11,864,073	22.8155	124,644	1.1%
19	Sales Service Impact					(1,092)	0.0%					124,644	1.1%
20	Direct Purchase Impact					(1,092)	0.0%					124,644	2.7%

Notes:
(1) Reflects rates per Union's 2017 Cap-and-Trade Compliance Plan Rate Order (EB-2016-0296), Appendix A to be implemented January 1, 2018.
(2) Bill impacts including Cap-and-Trade customer-related charge are applicable to customers for whom Union is required to fulfill Cap-and-Trade obligations.

UNION GAS LIMITED
Calculation of Sales Service and Direct Purchase Bill Impacts for Typical Small and Large Customers - Union South

		Excluding Cap-and-Trade Customer-Related Charge						Including Cap-and-Trade Customer-Related Charge (2)					
		EB-2016-0296 (1)		Proposed - EB-2017-0255				EB-2016-0296 (1)		Proposed - EB-2017-0255			
Line No.	Particulars	Total Bill ($)	Unit Rate (cents/m^3)	Total Bill ($)	Unit Rate (cents/m^3)	Total Bill Change ($)	Bill Impact (%)	Total Bill ($)	Unit Rate (cents/m^3)	Total Bill ($)	Unit Rate (cents/m^3)	Total Bill Change ($)	Bill Impact (%)
		(a)	(b)	(c)	(d)	(e) = (c - a)	(f) = (e / a)	(g)	(h)	(i)	(j)	(k) = (I - g)	(l) = (k / g)
	Small Rate M9												
1	Delivery Charges	167,481	2.4098	167,336	2.4077	(146)	-0.1%						
2	Gas Supply Charges	954,318	13.7312	954,318	13.7312	-	0.0%						
3	Total Bill	1,121,800	16.1410	1,121,654	16.1389	(146)	0.0%						
4	Sales Service Impact					(146)	0.0%						
5	Direct Purchase Impact					(146)	-0.1%						
	Large Rate M9												
6	Delivery Charges	497,605	2.4661	497,181	2.4640	(424)	-0.1%						
7	Gas Supply Charges	2,770,682	13.7312	2,770,682	13.7312	-	0.0%						
8	Total Bill	3,268,286	16.1973	3,267,863	16.1952	(424)	0.0%						
9	Sales Service Impact					(424)	0.0%						
10	Direct Purchase Impact					(424)	-0.1%						
	Average Rate M10												
11	Delivery Charges	6,375	6.7464	6,373	6.7443	(2)	0.0%						
12	Gas Supply Charges	12,976	13.7312	12,976	13.7312	-	0.0%						
13	Total Bill	19,351	20.4776	19,349	20.4755	(2)	0.0%						
14	Sales Service Impact					(2)	0.0%						
15	Direct Purchase Impact					(2)	0.0%						
	Small Rate T1												
16	Delivery Charges	144,146	1.9125	143,988	1.9104	(158)	-0.1%	394,231	5.2306	412,298	5.4703	18,066	4.6%
17	Gas Supply Charges	1,034,921	13.7312	1,034,921	13.7312	-	0.0%	1,034,921	13.7312	1,034,921	13.7312	-	0.0%
18	Total Bill	1,179,067	15.6437	1,178,909	15.6416	(158)	0.0%	1,429,152	18.9618	1,447,218	19.2015	18,066	1.3%
19	Sales Service Impact					(158)	0.0%					18,066	1.3%
20	Direct Purchase Impact					(158)	-0.1%					18,066	4.6%
	Average Rate T1												
21	Delivery Charges	221,168	1.9122	220,925	1.9101	(243)	-0.1%	604,938	5.2303	632,661	5.4700	27,724	4.6%
22	Gas Supply Charges	1,588,142	13.7312	1,588,142	13.7312	-	0.0%	1,588,142	13.7312	1,588,142	13.7312	-	0.0%
23	Total Bill	1,809,310	15.6434	1,809,067	15.6413	(243)	0.0%	2,193,080	18.9615	2,220,803	19.2012	27,724	1.3%
24	Sales Service Impact					(243)	0.0%					27,724	1.3%
25	Direct Purchase Impact					(243)	-0.1%					27,724	4.6%

Notes:
(1) Reflects rates per Union's 2017 Cap-and-Trade Compliance Plan Rate Order (EB-2016-0296), Appendix A to be implemented January 1, 2018.
(2) Bill impacts including Cap-and-Trade customer-related charge are applicable to customers for whom Union is required to fulfill Cap-and-Trade obligations.

UNION GAS LIMITED

Calculation of Sales Service and Direct Purchase Bill Impacts for Typical Small and Large Customers - Union South

		Excluding Cap-and-Trade Customer-Related Charge						Including Cap-and-Trade Customer-Related Charge (2)					
		EB-2016-0296 (1)		Proposed - EB-2017-0255				EB-2016-0296 (1)		Proposed - EB-2017-0255			
Line No.	Particulars	Total Bill ($)	Unit Rate (cents/m^3)	Total Bill ($)	Unit Rate (cents/m^3)	Total Bill Change ($)	Bill Impact (%)	Total Bill ($)	Unit Rate (cents/m^3)	Total Bill ($)	Unit Rate (cents/m^3)	Total Bill Change ($)	Bill Impact (%)
		(a)	(b)	(c)	(d)	(e) = (c - a)	(f) = (e / a)	(g)	(h)	(i)	(j)	(k) = (I - g)	(l) = (k / g)
	Large Rate T1												
1	Delivery Charges	490,653	1.9148	490,115	1.9127	(538)	-0.1%	1,340,886	5.2329	1,402,307	5.4726	61,421	4.6%
2	Gas Supply Charges	3,518,494	13.7312	3,518,494	13.7312	-	0.0%	3,518,494	13.7312	3,518,494	13.7312	-	0.0%
3	Total Bill	4,009,147	15.6460	4,008,609	15.6439	(538)	0.0%	4,859,379	18.9641	4,920,800	19.2038	61,421	1.3%
4	Sales Service Impact					(538)	0.0%					61,421	1.3%
5	Direct Purchase Impact					(538)	-0.1%					61,421	4.6%
	Small Rate T2												
6	Delivery Charges	632,716	1.0678	631,472	1.0657	(1,244)	-0.2%	2,598,889	4.3859	2,740,926	4.6256	142,037	5.5%
7	Gas Supply Charges	8,136,560	13.7312	8,136,560	13.7312	-	0.0%	8,136,560	13.7312	8,136,560	13.7312	-	0.0%
8	Total Bill	8,769,276	14.7990	8,768,032	14.7969	(1,244)	0.0%	10,735,449	18.1171	10,877,486	18.3568	142,037	1.3%
9	Sales Service Impact					(1,244)	0.0%					142,037	1.3%
10	Direct Purchase Impact					(1,244)	-0.2%					142,037	5.5%
	Average Rate T2												
11	Delivery Charges	1,523,353	0.7702	1,519,199	0.7681	(4,154)	-0.3%	8,086,218	4.0883	8,560,320	4.3280	474,102	5.9%
12	Gas Supply Charges	27,158,920	13.7312	27,158,920	13.7312	-	0.0%	27,158,920	13.7312	27,158,920	13.7312	-	0.0%
13	Total Bill	28,682,273	14.5014	28,678,119	14.4993	(4,154)	0.0%	35,245,138	17.8195	35,719,240	18.0592	474,102	1.3%
14	Sales Service Impact					(4,154)	0.0%					474,102	1.3%
15	Direct Purchase Impact					(4,154)	-0.3%					474,102	5.9%
	Large Rate T2												
16	Delivery Charges	2,522,381	0.6816	2,514,609	0.6795	(7,772)	-0.3%	14,802,304	3.9997	15,689,407	4.2394	887,103	6.0%
17	Gas Supply Charges	50,817,661	13.7312	50,817,661	13.7312	-	0.0%	50,817,661	13.7312	50,817,661	13.7312	-	0.0%
18	Total Bill	53,340,042	14.4128	53,332,270	14.4107	(7,772)	0.0%	65,619,965	17.7309	66,507,068	17.9706	887,103	1.4%
19	Sales Service Impact					(7,772)	0.0%					887,103	1.4%
20	Direct Purchase Impact					(7,772)	-0.3%					887,103	6.0%
	Large Rate T3												
21	Delivery Charges	5,303,824	1.9448	5,298,097	1.9427	(5,727)	-0.1%						
22	Gas Supply Charges	37,446,630	13.7312	37,446,630	13.7312	-	0.0%						
23	Total Bill	42,750,454	15.6760	42,744,727	15.6739	(5,727)	0.0%						
24	Sales Service Impact					(5,727)	0.0%						
25	Direct Purchase Impact					(5,727)	-0.1%						

Notes:

(1) Reflects rates per Union's 2017 Cap-and-Trade Compliance Plan Rate Order (EB-2016-0296), Appendix A to be implemented January 1, 2018.

(2) Bill impacts including Cap-and-Trade customer-related charge are applicable to customers for whom Union is required to fulfill Cap-and-Trade obligations.

UNION GAS LIMITED
Union North
Calculation of Supplemental Service Charges
Commissioning and Decommissioning Rates
Effective January 1, 2018

Line No.	Particulars	Union North West (a)	Union North East (b)
	Rate 20 - At 50% Load Factor		
	Delivery (cents / m³)		
1	Monthly Demand (1)	28.6326	28.6326
2	Line 1 x 12 months	343.5912	343.5912
3	Line 2 / 365 days	0.9413	0.9413
4	Line 3 @ 50% Load Factor	1.8827	1.8827
5	Delivery Commodity Charge (1)	0.5413	0.5413
6	Total Delivery Commissioning and Decommissioning	2.4240	2.4240
	Gas Supply (cents / m³)		
7	Monthly Demand (1)	56.4242	50.1792
8	Gas Supply Demand - Price Adjustment (1)	-	-
9	(Line 7 + Line 8) x 12 months	677.0904	602.1504
10	Line 9 / 365 days	1.8550	1.6497
11	Line 10 @ 50% Load Factor	3.7101	3.2995
12	Commodity Transportation 1 (1)	3.6200	2.6498
13	Commodity Transportation 1 - Price Adjustment	-	-
14	(Line 12 + Line 13) x (4/5)	2.8960	2.1198
15	Commodity Transportation 2 (1)	-	-
16	Line 15 * (1/5)	-	-
	Total Commodity Transportation		
17	Charge for Commissioning and Decommissioning Rate	6.6061	5.4193
	Rate 100 - At 70% Load Factor		
	Delivery (cents / m³)		
18	Monthly Demand (2)	15.1083	15.1083
19	Line 18 x 12 months	181.2996	181.2996
20	Line 19 / 365 days	0.4967	0.4967
21	Line 20 @ 70% Load Factor	0.7096	0.7096
22	Commodity Charge (2)	0.2201	0.2201
23	Total Delivery Commissioning and Decommissioning	0.9297	0.9297
	Gas Supply (cents / m³)		
24	Monthly Demand (2)	114.2215	161.5404
25	Line 24 x 12 months	1,370.6580	1,938.4848
26	Line 25 / 365 days	3.7552	5.3109
27	Line 26 @ 70% Load Factor	5.3646	7.5870
28	Commodity Transportation 1 (2)	6.4075	9.2385
29	Line 28 * (3/7)	2.7461	3.9594
30	Commodity Transportation 2 (2)	-	-
31	Line 30 * (4/7)	-	-
	Total Commodity Transportation		
32	Charge for Commissioning and Decommissioning Rate	8.1107	11.5464

Notes:
(1) Appendix A, p.3.
(2) Appendix A, p.4.

UNION GAS LIMITED
Union South
Calculation of Supplemental Service Charges
Effective January 1, 2018

Line No.	Particulars		cents / m³ (a)		$ / GJ (b)
	Minimum Annual Gas Supply Commodity Charge - Rate M4, Rate M5A				
1	Compressor Fuel		-		
2	Transportation Tolls		-		
3	Administration Charge		0.1902		
4	Minimum annual gas supply commodity charge		0.1902		0.049
	Gas Supply Commodity Charges				
5	Commodity Cost of Gas		13.8234		
6	FT Transportation Commodity		-		
7	FT Fuel		-		
8	Total Gas Supply Commodity Charge		13.8234		3.549
	Firm Gas Supply Service Monthly Demand Charge				
9	FT Demand Charge		234.8691		60.300
	Firm Backstop Gas:				
	Demand:				
10	Monthly space charge	0.0428			
11	Units required (1)	43			
12	Number of months	12	22.1080	(a)	
	Inventory carrying costs:				
13	Sales WACOG	13.7312			
14	Overrun storage withdrawal	0.3350			
15		14.0662			
16	Units required (m³)	43			
17	Pre-tax return (%)	8.170%	49.4159	(b)	
18	Annual demand charge		71.5239	(a) + (b)	
19	Number of months		12		
20	Monthly demand charge		5.9603		1.530
	Commodity:				
21	Sales WACOG		13.7312		
22	Overrun storage withdrawal		0.3350		
23	Rate T1 - Overrun transportation		1.3395		
24	Rate T1 - Cap-and-Trade Facility-Related charge		0.0219		
25	Commodity charge		15.4276		3.961

Notes:
(1) Each unit of added delivery requires 43 m³ of additional inventory.

UNION GAS LIMITED
Union South
Calculation of Supplemental Service Charges
Effective January 1, 2018

Line No.	Particulars	cents / m³ (a)	$ / GJ (b)
	Reasonable Efforts Backstop Gas:		
1	Rate M1 - Block 1 delivery rate	4.6608	
2	Rate M1 - Storage rate	0.7153	
3	Rate M1 - Cap-and-Trade Facility-Related charge	0.0219	
4	Sales WACOG	13.7312	
5	Total	19.1292	4.911
	Supplemental Inventory:		
6	Sales WACOG	13.7312	
7	Injection commodity	0.1502	
8	Space charge (p.2, line 10 x 12)	0.5141	
9		14.3955	3.696
	Carrying costs (1/2 year)		
10	(line 9 x p.2, line 17) / 2	0.5881	
11	Total (line 9 + line 10)	14.9835	3.847
	Supplemental Gas Sales:		
12	Supplemental inventory	14.9835	
13	Overrun storage withdrawal	0.3350	
14	Rate T1 - Overrun transportation	1.3395	
15	Rate T1 - Cap-and-Trade Facility-Related charge	0.0219	
16	Total	16.6799	
	Failure to Deliver:		
17	Rate M1 - Block 1 delivery rate	4.6608	1.197
18	Rate M1 - Storage rate	0.7153	0.184
19	Rate M1 - Cap-and-Trade Facility-Related charge	0.0219	0.006
20	Failure to Deliver Adjustment	5.1708	1.328
21	Failure to Deliver Charge	10.5688	2.713
	Parkway Delivery Commitment Incentive ("PDCI")		
22	Rate M12 Dawn to Parkway demand rate (1)		3.402
23	Line 22 x 12 months		40.824
24	Line 23 / 365 days		0.112
25	Rate M12 average Dawn to Parkway (TCPL / EGT) fuel rate (2)		0.037
26	Rate M12 Dawn to Parkway Cap-and-Trade Facility-Related Charge (3)		0.006
27	Total (line 24 + line 25 + line 26)		(0.155)

Notes:
(1) Appendix A, p.14, line 2, column (c).
(2) EB-2016-0296, Rate M12 Rate Schedule C, p. 1, average of Dawn to Parkway (TCPL/EGT) monthly fuel rates.
(3) Appendix A, p.14, line 10, column (c).

UNION GAS LIMITED
Union South
Calculation of Supplemental Service Charges
Calculation of Minimum & Maximum Charges
Effective January 1, 2018

Line No.	Particulars		cents / m³ (a)
	Minimum Charges		
	Rate M4 (F)	Minimum annual delivery commodity charge:	
1		Monthly delivery commodity charge (Rate M4 1st Block)	1.3501
2		Gas Supply Admin Charge	0.1902
3		Minimum annual delivery commodity charge	1.5403
	Rate M4 (I) / M5	Minimum annual delivery commodity charge:	
4		Monthly delivery commodity charge (Rate M5 1st Block)	2.9624
5		Gas Supply Admin Charge	0.1902
6		Minimum annual delivery commodity charge	3.1526
	Maximum Charges		
	Rate 25 Interruptible		
7		Average Rate 10 Firm Delivery Charge	5.6188
8		Percent of Average Firm Delivery Price	90%
9		Rate 25 Maximum interruptible delivery commodity charge	5.0569
	Rate M7 Interruptible	Maximum interruptible delivery commodity charge:	
10		Rate M7 firm commodity charge	0.3809
11		Rate M7 firm demand charge commoditized at a Load Factor of 19.56%	5.1802
12		Rate M7 maximum interruptible charge	5.5611
13	Rate T1 Interruptible	Maximum interruptible delivery commodity charge	5.5611
14	Rate T2 Interruptible	Maximum interruptible delivery commodity charge	5.5611
	Rate M7 - Commissioning and Decommissioning Rate		
	Delivery (cents / m³)		
15	Monthly Demand (1)		30.8246
16	Annual Demand (line 15 x 12 months)		369.8952
17	Daily Demand (line 16 / 365 days)		1.0134
18	@ Class Average Firm Load Factor of 27.95%		3.6262
19	Delivery Commodity Charge (1)		0.3809
20	Delivery - Price Adjustment		-
21	Total Delivery Commissioning and Decommissioning (line 18 + line 19 + line 20)		4.0071

Notes:
(1) Appendix A, p.9.

UNION GAS LIMITED
Union South
Calculation of Supplemental Service Charges
Effective January 1, 2018

Line No.	Particulars	Union Supplies Fuel (a)	Customer Supplies Fuel (b)
	Rate T1 / Rate T2 / Rate T3 - At 100% Load Factor		
	Authorized Storage Overrun ($ / GJ)		
1	Monthly Demand (1)	1.459	1.459
2	Annual Demand (line 1 x 12 months)	17.508	17.508
3	Daily Demand (line 2 / 365 days)	0.048	0.048
4	@ 100% Load Factor	0.048	0.048
5	Commodity Charge (2)	0.039	0.008
6	Total Storage Overrun (line 4 + line 5)	0.086	0.056
	Rate T1 - At 100% Load Factor		
	Authorized Transportation Overrun (cents / m³)		
7	Monthly Demand (3)	35.4376	35.4376
8	Annual Demand (line 7 x 12 months)	425.2512	425.2512
9	Daily Demand (line 8 / 365 days)	1.1651	1.1651
10	@ 100% Load Factor	1.1651	1.1651
11	Commodity Charge (4)	0.1744	0.1322
12	Total Transportation Overrun (line 10 + line 11)	1.3395	1.2973
	Rate T2 - At 100% Load Factor		
	Authorized Transportation Overrun (cents / m³)		
13	Monthly Demand (5)	26.4455	26.4455
14	Annual Demand (line 13 x 12 months)	317.3460	317.3460
15	Daily Demand (line 14 / 365 days)	0.8694	0.8694
16	@ 100% Load Factor	0.8694	0.8694
17	Commodity Charge (6)	0.0776	0.0385
18	Total Transportation Overrun (line 16 + line 17)	0.9470	0.9079
	Rate T3 - At 100% Load Factor		
	Authorized Transportation Overrun (cents / m³)		
19	Monthly Demand (7)	16.7213	16.7213
20	Annual Demand (line 19 x 12 months)	200.6556	200.6556
21	Daily Demand (line 20 / 365 days)	0.5497	0.5497
22	@ 100% Load Factor	0.5497	0.5497
23	Commodity Charge (8)	0.1564	0.1039
24	Total Transportation Overrun (line 22+ line 23)	0.7061	0.6536

Notes:
(1) Appendix A, p.10.
(2) Column (a) calculated as WACOG / Heat Value * Overrun Fuel Ratio + Injection Commodity = $138.234 /10³m³ / 38.95 GJ/10³m³ * 0.861%
(3) Appendix A, p.10.
(4) Column (a) calculated as WACOG / 10 * Transportation Fuel Ratio + Firm Commodity Transport = $138.234 /10³m³ / 10 * 0.305% + 0.1322 cents/m³.
(5) Appendix A, p.11.
(6) Column (a) calculated as WACOG / 10 * Transportation Fuel Ratio + Firm Commodity Transport = $138.234 /10³m³ / 10 * 0.283% + 0.0385 cents/m³.
(7) Appendix A, p.12.
(8) Column (a) calculated as WACOG / 10 * Transportation Fuel Ratio + Firm Commodity Transport = $138.234 /10³m³ / 10 * 0.380% + 0.1039 cents/m³.

UNION GAS LIMITED
Union South
Calculation of Union Supplied Fuel Rates for
In-Franchise Semi-Unbundled Rate T1, Rate T2 and Rate T3
Effective January 1, 2018

Line No.	Particulars	Union Supplies Fuel (a)	Customer Supplies Fuel (b)
	Rate T1 Transportation Service (cents/m³)		
1	Dawn Price as per EB-2017-0255	13.8234	
2	2017 Fuel Ratio as per EB-2017-0255	0.305%	
3	Fuel Rate (line 1 x line 2)	0.0422	
4	Firm Transportation Commodity Charge	0.1322	0.1322
5	All Volumes	0.1744	0.1322
6	Interruptible Transportation Commodity Charge - Maximum	5.5611	5.5189
	Rate T2 Transportation Service (cents/m³)		
7	Dawn Price as per EB-2017-0255	13.8234	
8	2017 Fuel Ratio as per EB-2017-0255	0.283%	
9	Fuel Rate (line 7 x line 8)	0.0391	
10	Firm Transportation Commodity Charge	0.0385	0.0385
11	All Volumes	0.0776	0.0385
12	Interruptible Transportation Commodity Charge - Maximum	5.5611	5.5220
	Rate T3 Transportation Service (cents/m³)		
13	Dawn Price as per EB-2017-0255	13.8234	
14	2017 Fuel Ratio as per EB-2017-0255	0.380%	
15	Fuel Rate (line 13 x line 14)	0.0525	
16	Firm Transportation Commodity Charge	0.1039	0.1039
17	All Volumes	0.1564	0.1039
	Rate T1, Rate T2 & Rate T3 Storage Service ($/GJ)		
18	Dawn Price as per EB-2017-0255	3.549	
19	2017 Fuel Ratio as per EB-2017-0255	0.406%	
20	Fuel Rate (line 18 x line 19)	0.014	
21	Storage Commodity Charge	0.008	0.008
22	All Volumes	0.022	0.008
	Rate T1, Rate T2 & Rate T3 Annual Firm Injection/Withdrawal Right	$ / GJ (c)	
23	Customer provides deliverability Inventory Rate	1.186 (1)	
	Inventory Carrying Costs		
24	Space	75,177,124 (2)	
25	Inventory Percentage	20%	
26	Inventory (line 24 x line 25)	15,035,425	
27	Dawn Price as per EB-2017-0255	3.549	
28	ICC %	8.2%	
29	Inventory Carrying Costs (line 26 * line 27 * line 28)	4,360	
30	Deliverability Demand Allocation Units	1,332,764 (3)	
31	Line 29 / line 30 x 1000 / 12	0.273	
32	Union provides deliverability Inventory as per EB-2017-0255 (line 23 + line 31)	1.459	

Notes:
(1) EB-2016-0245, Rate Order, Working Papers, Schedule 4, p.16, line 2, column (u).
(2) EB-2011-0210, Rate Order, Working Papers, Schedule 19, p.2, line 8, column (b).
(3) EB-2011-0210, Rate Order, Working Papers, Schedule 19, p.1, line 5, column (e).

LARGE WHOLESALE SERVICE RATE

(A) Availability

Available to customers in Union's Southern Delivery Zone.

(B) Applicability

To a distributor who enters into a contract to purchase and/or receive delivery of a firm supply of gas for distribution to its customers and who agrees to take or pay for an annual quantity of at least two million cubic metres.

(C) Rates

The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated which may be higher than the identified rates.

(i)	A Monthly Demand Charge of established daily demand determined in accordance with the service contract, such demand charge to be computed on a calendar month basis and a pro-rata charge to be made for the fraction of a calendar month which will occur if the day of first regular delivery does not fall on the first day of a month.	22.3154 ¢ per m³
(ii)	A Delivery Commodity Charge for gas delivered of	0.2112 ¢ per m³
	and a Delivery - Price Adjustment of	- ¢ per m³
	Cap-and-Trade Charges (in addition to Delivery Commodity Charge)	
	Cap-and-Trade Facility-Related Charge	0.0219 ¢ per m³
(iii)	Gas Supply Charge (if applicable)	

The gas supply charge is comprised of charges for transportation and for commodity and fuel. The applicable rates are provided in Schedule "A".

(D) Delayed Payment

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

(E) Direct Purchase

Unless otherwise authorized by Union, customers who are delivering gas to Union under direct purchase arrangements must obligate to deliver at a point(s) specified by Union, and must acquire and maintain firm transportation on all upstream pipeline systems. Customers initiating direct purchase arrangements, who previously received Gas Supply service, must also accept, unless otherwise authorized by Union, an assignment from Union of transportation capacity on upstream pipeline systems.

(F) Overrun Charge

Authorized:

For all quantities on any day in excess of 103% of the customer's contractual rights, for which authorization has been received, the customer will be charged at the identified authorized overrun delivery charge. Overrun will be authorized by Union at its sole discretion.

Unauthorized:

For all quantities on any day in excess of 103% of the customer's contractual rights, for which authorization has not been received, the customer will be charged at the identified unaurthorized overrun delivery charge.

Authorized Overrun Delivery Charge	0.9449 ¢ per m³
Unauthorized Overrun Delivery Charge	36.0000 ¢ per m³

Cap-and-Trade Charges (in addition to Delivery Charge)

Cap-and-Trade Facility-Related Charge	0.0219 ¢ per m³

(G) Bundled Direct Purchase Delivery

Where a customer elects transportation service under this rate schedule the customer must enter into a Bundled T Gas Contract with Union for delivery of gas to Union.

Bundled T Gas Contract Rates and Gas Purchase Contract Rates are described in rate schedule R1.

SMALL WHOLESALE SERVICE RATE

(A) Availability

Available to customers in Union's Southern Delivery Zone.

(B) Applicability

To a non-contract distributor who purchases and/or receives delivery of a firm supply of gas for distribution only to its own customers.

(C) Rates

The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated which may be higher than the identified rates.

1. A Delivery Commodity Charge of — 6.7224 ¢ per m³

Cap-and-Trade Charges (in addition to Delivery Commodity Charge)

Cap-and-Trade Facility-Related Charge — 0.0219 ¢ per m³

2. Gas Supply Charge (if applicable)

The gas supply charge is comprised of charges for transportation and for commodity and fuel.
The applicable rates are provided in Schedule "A".

(D) Delayed Payment

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

(E) Direct Purchase

Unless otherwise authorized by Union, customers who are delivering gas to Union under direct purchase arrangements must obligate to deliver at a point(s) specified by Union, and must acquire and maintain firm transportation on all upstream pipeline systems. Customers initiating direct purchase arrangements must also accept, unless otherwise authorized by Union, an assignment from Union of transportation capacity on upstream pipeline systems.

(F) Overrun Charge

In the event that a direct purchase customer fails to deliver its contracted volumes to Union, and Union has the capability to continue to supply the customer, Union will do so. This gas shall be paid for at the identified unauthorized overrun delivery charge and, if applicable, the total gas supply charge for utility sales provided in Schedule "A" per m³, plus 7¢ per m³ for all gas supply volumes purchased.

Unauthorized Overrun Delivery Charge — 5.3761 ¢ per m³

Cap-and-Trade Charges (in addition to Delivery Charge)

Cap-and-Trade Facility-Related Charge — 0.0219 ¢ per m³

(G) Bundled Direct Purchase Delivery

Where a customer elects transportation service under this rate schedule, the customer must enter into a Bundled T Gas Contract with Union for delivery of gas to Union.

Bundled T Gas Contract Rates and Gas Purchase Contract Rates are described in rate schedule R1.

Effective January 1, 2018 Chatham, Ontario
O.E.B. Order # EB-2017-0255

Supersedes EB-2016-0296 Rate Schedule implemented January 1, 2018.

uniongas

STORAGE AND TRANSPORTATION RATES FOR CONTRACT CARRIAGE CUSTOMERS

(A) Availability

Available to customers in Union's Southern Delivery Zone.

(B) Applicability

To a Distributor:

a) whose minimum annual transportation of natural gas is 700 000 m^3 or greater; and

b) who enters into a Carriage Service Contract with Union for the transportation or the storage and transportation of Gas for distribution to its customers; and

c) who has meters with electronic recording at each Point of Redelivery; and

d) for whom Union has determined transportation and/or storage capacity is available.

(C) Rates

The following rates shall be charged for all quantities contracted or handled as appropriate. The identified rates represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated, which may be higher than the identified rates.

STORAGE SERVICE:

	Demand Charge Rate/GJ/mo	Commodity Charge Rate/GJ	For Customers Providing Their Own Compressor Fuel: Fuel Ratio	For Customers Providing Their Own Compressor Fuel: Commodity Charge Rate/GJ
a) Annual Firm Storage Space Applied to contracted Maximum Annual Storage Space	$0.011			
b) Annual Firm Injection/Withdrawal Right: Applied to the contracted Maximum Annual Firm Injection/Withdrawal Right				
Union provides deliverability Inventory	$1.459			
Customer provides deliverability Inventory (4)	$1.186			
c) Incremental Firm Injection Right: Applied to the contracted Maximum Incremental Firm Injection Right	$1.186			
d) Annual Interruptible Withdrawal Right: Applied to the contracted Maximum Annual Interruptible Withdrawal Right	$1.186			
e) Withdrawal Commodity Paid on all quantities withdrawn from storage up to the Maximum Daily Storage Withdrawal Quantity		$0.022	0.406%	$0.008
f) Injection Commodity Paid on all quantities injected into storage up to the Maximum Daily Storage Injection Quantity		$0.022	0.406%	$0.008
g) Short Term Storage / Balancing Service Maximum		$6.000		

Notes:

1. Demand charges for Annual Services are paid monthly during the term of the contract for not less than one year unless Union, in its sole discretion, accepts a term of less than one year. Demand charges apply whether Union or the customer provides the fuel.

2. Annual Firm Injection Rights are equal to 100% of their respective Annual Firm Withdrawal Rights. Injection Rights in excess of the Annual Firm Injection Rights will be charged at the Incremental Firm Injection Right.

3. Annual Firm Storage Space

   The maximum storage space available to a customer at the rates specified herein is determined by one of the following storage allocation methodologies:

   3.1 Aggregate Excess

   Aggregate excess is the difference between the customer's total 151-day winter consumption (November 1 through March 31) and the customer's average daily consumption (Daily Contract Quantity) for the contract year multiplied by 151 days of winter. This calculation will be done using two years of historical data (with 25% weighting for each year) and one year of forecast data (with 50% weighting). If a customer is new, or an existing customer is undergoing a significant change in operations, the allocation will be based on forecast consumption only, as negotiated between Union and the customer. Once sufficient historical information is available for the customer, the standard calculation will be done. At each contract renewal, the aggregate excess calculation will be performed to set the new space allocation.

   3.2 Obligated daily contract quantity multiple of 15

   Obligated daily contract quantity is the firm daily quantity of gas which the customer must deliver to Union. The 15 x obligated daily contract quantity calculation will be done using the daily contract quantity for the upcoming contract year. At each contract renewal, the 15 x obligated daily contract quantity calculation will be performed to set the new space allocation.

   Customers may contract for less than their maximum entitlement of firm storage space.

4. Annual Injection/Withdrawal Right

   The maximum level of deliverability available to a customer at the rates specified herein is determined to be the greater of obligated daily contract quantity or firm daily contract demand less obligated daily contract quantity.

   Customers may contract for less than their maximum entitlement of deliverability. A customer may contract up to this maximum entitlement with a combination of firm and interruptible deliverability as specified in Section (C) Storage Service.

5. Additional storage space or deliverability, in excess of the allocated entitlements per Notes 3 and 4, may be available at market prices.

6. Storage Space and Withdrawal Rights are not assignable to any other party without the prior written consent of Union.

7. Deliverability Inventory being defined as 20% of annual storage space.

8. Short Term Storage / Balancing Service is:
   i) a combined space and interruptible deliverability service for short-term or off-peak storage in Union's storage facilities, OR
   ii) short-term firm deliverability, OR
   iii) a component of an operational balancing service offered.

   In negotiating the rate to be charged for this service, the matters that are to be considered include:
   i) The minimum amount of storage service to which a customer is willing to commit,
   ii) Whether the customer is contracting for firm or interruptible service during Union's peak or non-peak periods,
   iii) Utilization of facilities, and
   iv) Competition.

TRANSPORTATION CHARGES:

	Demand Charge	Union Providing Compressor Fuel: Commodity Charge	For Customers Providing Their Own Compressor Fuel: Fuel Ratio	For Customers Providing Their Own Compressor Fuel: Commodity Charge
	Rate/m^3/mo	Rate/m^3		Rate/m^3
a) Annual Firm Transportation Demand Applied to the Firm Daily Contract Demand	16.7213 ¢			
b) Firm Transportation Commodity Paid on all firm quantities redelivered to the Customer's Point(s) of Redelivery		0.1564 ¢	0.380%	0.1039 ¢
Cap-and-Trade Charges (in addition to Transportation Commodity Charge)				
Cap-and-Trade Facility-Related Charge		0.0219 ¢		0.0219 ¢

Notes:

1. All demand charges are paid monthly during the term of the contract for not less than one year unless Union, in its sole discretion, accepts a term of less than one year. Demand charges apply whether Union or the customer provides the fuel.

SUPPLEMENTAL CHARGES

Rates for supplemental services are provided in Schedule "A".

Notes:

1. All demand charges are paid monthly during the term of the contract for not less than one year unless Union, in its sole discretion, accepts a term of less than one year.

OVERRUN SERVICE

1. Annual Storage Space

Authorized

Authorized Overrun is provided as Storage/Balancing Service. It is payable on all quantities on any Day in excess of the customer's contracted Maximum Storage Space. Overrun will be authorized by Union at is sole discretion.

Unauthorized

If in any month, the customer has gas in storage in excess of the contracted Maximum Storage Space, and which has not been authorized by Union or provided for under a short term supplemental storage service, such an event will constitute an occurrence of Unauthorized Overrun. The Unauthorized Overrun rate will be $6.000 per GJ applied to the greatest excess for each occurrence.

If on any Day, the gas storage balance for the account of the customer is less than zero, the Unauthorized Overrun charge will apply for each GJ of gas below a zero inventory level and this amount of gas shall be deemed not to have been withdrawn from storage. The gas shall be deemed to have been sold to the customer at the highest spot price at Dawn in the month of occurrence and the month following occurrence as identified in the Canadian Gas Price Reporter and shall not be less than Union's approved weighted average cost of gas. If the customer has contracted to provide its own deliverability inventory, the zero inventory level shall be deemed to mean twenty percent (20%) of the Annual Firm Storage Space.

2. Injection, Withdrawals and Transportation

Authorized

The following Overrun rates are applied to any quantities transported, injected or withdrawn in excess of 103% of the Contract parameters. Overrun will be authorized by Union at its sole discretion.

	Union Providing Compressor Fuel	For Customers Providing Their Own Compressor Fuel	
	Commodity Charge	Fuel Ratio	Commodity Charge
Storage Injections	\$0.086/GJ	0.861%	\$0.056/GJ
Storage Withdrawals	\$0.086/GJ	0.861%	\$0.056/GJ
Transportation	0.7061 ¢/m³	0.380%	0.6536 ¢/m³
Cap-and-Trade Charges (in addition to Transportation Charge)			
Cap-and-Trade Facility-Related Charge	0.0219 ¢/m³		0.0219 ¢/m³

Unauthorized

For all quantities on any Day in excess of 103% of the customer's contractual rights, for which authorization has not been received, the customer will be charged the identified unauthorized overrun charge, as appropriate.

Unauthorized Overrun Storage Injections and Withdrawals Charge	\$9.243	per GJ
Unauthorized Overrun Transportation Charge	36.0000	¢ per m³
Cap-and-Trade Charges (in addition to Transportation Charge)		
Cap-and-Trade Facility-Related Charge	0.0219	¢ per m³

3. Short Term Storage Services

Authorized

The following Overrun rates are applied to any quantities stored in excess of the Contract parameters. Overrun will be authorized by Union Gas at its sole discretion.

	Firm Service Rate/GJ
Space	\$6.000
Injection / Withdrawal Maximum	\$6.000

OTHER SERVICES & CHARGES

1. Monthly Charge

In addition to the rates and charges described previously for each Point of redelivery a Monthly Charge shall be applied to each specific customer as follows:

	Monthly Charge
City of Kitchener	$ 19,968.19
NRG	$ 3,065.32
Six Nations	$ 1,021.77

If a customer combines Sales Service with Contract Carriage Service, the monthly charge will be prorated such that the customer will under both services pay no more than the above monthly charge.

2. Diversion of Gas

The availability of the right to divert gas will be based on Union's ability to accommodate the diversion. The price to be charged for the right to divert shall be determined through negotiation.

3. Unless otherwise authorized by Union, customers who are delivering gas to Union under direct purchase arrangements must obligate to deliver at a point(s) specified by Union and must acquire and maintain firm transportation on all upstream pipeline systems. Customers initiating direct purchase arrangements must also accept, unless otherwise authorized by Union, an assignment from Union of transportation capacity on upstream pipeline systems.

4. Parkway Delivery Commitment Incentive ("PDCI")

For all Parkway Delivery Obligation ("PDO") volumes delivered to Union.	Rate/GJ
PDCI	$(0.155)

(D) Delayed Payment

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

uniongas

CROSS FRANCHISE TRANSPORTATION RATES

(A) Applicability

To a Shipper who enters into a Contract with Union for delivery by Shipper of gas to Union at one of Union's points listed below for redelivery by Union to Shipper at one of Union's points.

Applicable Points	(1)	(2)
	Ojibway	WDA
	St. Clair	NDA
	Dawn*	SSMDA
	Parkway	SWDA
	Kirkwall	CDA
	Bluewater	EDA

*Dawn as a receipt point: Dawn (TCPL), Dawn (Facilities), Dawn (Tecumseh), Dawn (Vector) and Dawn (TSLE).
*Dawn as a delivery point: Dawn (Facilities).

(B) Services

Transportation Service under this rate schedule is transportation on Union's pipeline facilities between any two Points as specified in Section (A), column 1.

(C) Rates

The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically.
Multi-year prices may also be negotiated, which may be higher than the identified rates.

Transportation Service (1):

	Monthly Demand Charges (applied to daily contract demand)	Fuel and Commodity Charges					
		Union Supplied Fuel		Shipper Supplied Fuel			
		Fuel and Commodity Charge		Fuel Ratio			Commodity Charge
		Apr.1-Oct.31	Nov.1-Mar.31	Apr.1-Oct.31	Nov.1-Mar.31		
	Rate/GJ	Rate/GJ	Rate/GJ	%	%	AND	Rate/GJ
a) Firm Transportation							
Between:							
St.Clair & Dawn	$1.045	$0.007	$0.009	0.207%	0.266%		
Ojibway & Dawn	$1.045	$0.016	$0.011	0.447%	0.303%		
Bluewater & Dawn	$1.045	$0.007	$0.009	0.207%	0.266%		
From:							
Parkway to Kirkwall	$0.837	$0.010	$0.006	0.293%	0.157%		
Parkway to Dawn	$0.837	$0.010	$0.006	0.293%	0.157%		
Kirkwall to Dawn	$1.475	$0.006	$0.006	0.157%	0.157%		
Dawn to Kirkwall	$2.865	$0.011	$0.027	0.318%	0.756%		
Dawn to Parkway	$3.402	$0.020	$0.036	0.571%	1.026%		
Kirkwall to Parkway	$0.537	$0.015	$0.015	0.410%	0.427%		
Cap-and-Trade Facility-Related Charges (applied to all quantities transported):							
St.Clair / Ojibway / Bluewater & Dawn		$0.006	$0.006				$0.006
Parkway to Dawn / Kirkwall		$0.006	$0.006				$0.006
Kirkwall to Dawn		$0.006	$0.006				$0.006
Dawn to Kirkwall		$0.006	$0.006				$0.006
Dawn to Parkway		$0.006	$0.006				$0.006
Kirkwall to Parkway		$0.006	$0.006				$0.006

uniongas

(C) Rates (Cont'd)

		Fuel and Commodity Charges					
		Union Supplied Fuel		Shipper Supplied Fuel			
		Fuel and Commodity Charge		Fuel Ratio			Commodity Charge
		Apr.1-Oct.31 Rate/GJ	Nov.1-Mar.31 Rate/GJ	Apr.1-Oct.31 %	Nov.1-Mar.31 %	AND	Rate/GJ
b) Firm Transportation between two points within Dawn							
Dawn to Dawn-Vector	$0.029	n/a	n/a	0.339%	0.157%		
Dawn to Dawn-TCPL	$0.138	n/a	n/a	0.157%	0.351%		
Cap-and-Trade Facility-Related Charges (applied to all quantities transported):							
Dawn to Dawn-Vector		$0.006	$0.006				$0.006
Dawn to Dawn-TCPL		$0.006	$0.006				$0.006
c) Interruptible Transportation between two points within Dawn*							
*includes Dawn (TCPL), Dawn Facilities, Dawn (Tecumseh), Dawn (Vector) and Dawn (TSLE)				0.157%	0.157%		
d) Interruptible and Short Term (1 year or less) Firm Transportation:		$75.00					

Authorized Overrun:

The following Overrun rates are applied to any quantities transported in excess of the Contract parameters. Overrun will be authorized at Union's sole discretion.

	Union Supplied Fuel		Shipper Supplied Fuel			
	Fuel and Commodity Charge		Fuel Ratio			Commodity Charge
	Apr.1-Oct.31 Rate/GJ	Nov.1-Mar.31 Rate/GJ	Apr.1-Oct.31 %	Nov.1-Mar.31 %	AND	Rate/GJ
a) Firm Transportation						
Between:						
St.Clair & Dawn	$0.042	$0.044	0.207%	0.266%		$0.034
Ojibway & Dawn	$0.050	$0.045	0.447%	0.303%		$0.034
Bluewater & Dawn	$0.042	$0.044	0.207%	0.266%		$0.034
From:						
Parkway to Kirkwall	$0.144	$0.139	0.910%	0.774%		$0.112
Parkway to Dawn	$0.144	$0.139	0.910%	0.774%		$0.112
Kirkwall to Dawn	$0.054	$0.054	0.157%	0.157%		$0.049
Dawn to Kirkwall	$0.127	$0.143	0.935%	1.373%		$0.094
Dawn to Parkway	$0.154	$0.170	1.188%	1.643%		$0.112
Kirkwall to Parkway	$0.054	$0.055	1.027%	1.044%		$0.018
Cap-and-Trade Facility-Related Charges (applied to all quantities transported):						
St.Clair / Ojibway / Bluewater & Dawn	$0.006	$0.006				$0.006
Parkway to Dawn / Kirkwall	$0.006	$0.006				$0.006
Kirkwall to Dawn	$0.006	$0.006				$0.006
Dawn to Kirkwall	$0.006	$0.006				$0.006
Dawn to Parkway	$0.006	$0.000				$0.006
Kirkwall to Parkway	$0.006	$0.006				$0.006
b) Firm Transportation between two points within Dawn						
Dawn to Dawn-Vector	n/a	n/a	0.339%	0.157%		$0.001
Dawn to Dawn-TCPL	n/a	n/a	0.157%	0.351%		$0.005
Cap-and-Trade Facility-Related Charges (applied to all quantities transported):						
Dawn to Dawn-Vector	$0.006	$0.006				$0.006
Dawn to Dawn-TCPL	$0.006	$0.006				$0.006

(C) Rates (Cont'd)

Authorized overrun for short-term firm transportation is available at negotiated rates.

Unauthorized Overrun:

The Unauthorized Overrun rate shall be the higher of the reported daily spot price of gas at either, Dawn, Parkway, Niagara, Iroquois or Chicago in the month of or the month following the month in which the overrun occurred plus 25% for all usage on any day in excess of 102% of Union's contractual obligation.

Notes for Section (C) Rates:

(1) A demand charge of $0.070/GJ/day/month will be applicable to customers contracting for firm all day transportation service in addition to the demand charges appearing on this schedule for all firm transportation service paths.

(D) Terms of Service

The General Terms & Conditions applicable to this rate schedule shall be in accordance with the attached Schedule "A" for contracts in effect before October 1, 2010. The General Terms & Conditions applicable to this rate schedule shall be in accordance with the attached Schedule "A 2010" for contracts in effect on or after October 1, 2010.

(E) Nominations

Nominations under this rate schedule shall be in accordance with the attached Schedule "B" for contracts in effect before October 1, 2010. Nominations under this rate schedule shall be in accordance with the attached Schedule "B 2010" for contracts in effect on or after October 1, 2010.

(F) Receipt and Delivery Points and Pressures

Receipt and Delivery Points and Pressures under this rate schedule shall be in accordance with Schedule "C 2010" for contracts in effect on or after October 1, 2010.

UNION GAS LIMITED 2018 CAP-AND-TRADE COMPLIANCE PLAN

COST RECOVERY

2016 CAP-AND-TRADE DEFERRAL ACCOUNTS

The purpose of this evidence is to address the proposed allocation and disposition of Union's 2016 Cap-and-Trade related deferral account balances identified at Exhibit 6, Schedule 1.

This Tab 2 evidence is organized as follows:

1. Cap-and-Trade Related Deferral Accounts
2. Disposition of 2016 Cap-and-Trade Deferral Account Balances
3. General Service Bill Impacts

1. Cap-and-Trade Related Deferral Accounts

The Cap-and-Trade deferral accounts include Greenhouse Gas Emissions Compliance Obligation – Customer-Related Deferral Account (Account No. 179-154), Greenhouse Gas Emissions Compliance Obligation – Facility-Related Deferral Account (Account No. 179-155) and Greenhouse Gas Emissions Impact Deferral Account (Account No. 179-152).

Greenhouse Gas Emissions Compliance Obligation – Customer-Related Deferral Account

There is no 2016 balance in the Greenhouse Gas Emissions Compliance Obligation – Customer-Related deferral account.

Greenhouse Gas Emissions Compliance Obligation – Facility-Related Deferral Account

There is no 2016 balance in the Greenhouse Gas Emissions Compliance Obligation – Facility-Related deferral account.

Greenhouse Gas Emissions Impact Deferral Account ("GGEIDA")

Union is proposing to dispose of the 2016 GGEIDA balance of $2.232 million related to administration costs associated with the Cap-and-Trade program plus interest. A description of the deferral account balance is provided at Exhibit 6.

Union is proposing to allocate the GGEIDA balance to rate classes in proportion to the 2013 OEB-approved Administrative and General O&M Expense per Exhibit G3, Tab 2, Schedule 2, updated for the EB-2011-0210 OEB Decision. The allocation of the GGEIDA to rate classes is provided at Exhibit 7, Tab 2, Schedule 1.

2. Disposition of 2016 Cap-and-Trade Deferral Account Balances

Union proposes to dispose of the approved 2016 GGEIDA balance with the disposition of the 2017 non-commodity deferral account balances. Union proposes to align the disposition period to reduce the number of rate changes for customers and administrative ease. Consistent with prior years, Union anticipates disposition of the 2017 non-commodity deferral accounts to be effective October 1, 2018 following OEB approval in that proceeding.

The unit rates for disposition to Union's in-franchise rate classes and the balances to be disposed to ex-franchise rate classes are provided at Exhibit 7, Tab 2, Schedule 2.

For General Service Rate M1, Rate M2, Rate 01 and Rate 10 customers Union proposes to dispose of the 2016 Cap-and-Trade deferral account balances prospectively, over the October 1, 2018 to March 31, 2019 time period. The prospective refund / recovery approach over six months is consistent with Union's practice of disposition of deferral account balances to General Service customers.

For in-franchise Contract and ex-franchise rate classes, Union proposes to dispose of the 2016 Cap-and-Trade deferral account balances as a one-time adjustment with October 2018 bills customers receive in November 2018. This approach is consistent with Union's practice of disposition of deferral account balances to Contract customers. If necessary, Contract customers may contact their Account Manager to propose alternative payment arrangements of the one-time adjustment balance.

3. General Service Bill Impacts

General Service bill impacts are presented at Exhibit 7, Tab 2, Schedule 3. For a Rate M1 sales service or bundled direct purchase residential customer in Union South with annual consumption of 2,200 m^3, the charge for the period October 1, 2018 to March 31, 2019 is $0.83.

For a Rate 01 sales service or bundled direct purchase residential customer in Union North with annual consumption of 2,200 m^3, the charge for the period October 1, 2018 to March 31, 2019 is $1.02.

UNION GAS LIMITED
Allocation of 2016 Cap-and-Trade Deferral Accounts

Line No.	Particulars ($000's)	Total 2013 A&G ($000's)	Greenhouse Gas Emissions Impact Deferral Account 179-152 (1)	Greenhouse Gas Emissions Obligation Customer-Related Deferral Account 179-154	Greenhouse Gas Emissions Obligation Facility-Related Deferral Account 179-155
		(a)	(b)	(c)	(d)
	Union South In-Franchise				
1	Rate M1	80,159	1,128	-	-
2	Rate M2	7,513	106	-	-
3	Rate M4	2,801	39	-	-
4	Rate M5	3,131	44	-	-
5	Rate M7	787	11	-	-
6	Rate M9	108	2	-	-
7	Rate M10	25	0	-	-
8	Rate T1	2,036	29	-	-
9	Rate T2	5,624	79	-	-
10	Rate T3	627	9	-	-
11	Total South In-Franchise	102,812	1,446	-	-
	Union North In-Franchise				
12	Rate 01	31,817	448	-	-
13	Rate 10	2,759	39	-	-
14	Rate 20	2,373	33	-	-
15	Rate 25	953	13	-	-
16	Rate 100	2,089	29	-	-
17	Total North In-Franchise	39,992	563	-	-
	Ex-Franchise				
18	Rate M12	14,918	210	-	-
19	Rate M13	0	0	-	-
20	Rate M16	21	0	-	-
21	Rate C1	323	5	-	-
22	Excess Utility Storage Space	597	8	-	-
23	Total Ex-Franchise	15,859	223	-	-
24	Total In-Franchise & Ex-Franchise (2)	158,663	2,232	-	-

Notes:
(1) Allocated in proportion to column (a).
(2) Exhibit 6, Schedule 1

UNION GAS LIMITED
General Service Unit Rates for Prospective Recovery/(Refund) - Delivery
2016 Cap-and-Trade Deferral Accounts

Line No.	Particulars	Rate Class	Deferral Balance for Disposition ($000's) (1)	Forecast Volume (10^3m^3) (2)	Unit Rate for Prospective Recovery/(Refund) (cents/m^3)
			(a)	(b)	(c) = (a / b)*100
	Union North				
1	Small Volume General Service	01	448	763,829	0.0586
2	Large Volume General Service	10	39	249,771	0.0155
	Union South				
3	Small Volume General Service	M1	1,128	2,284,778	0.0494
4	Large Volume General Service	M2	106	870,022	0.0121
5	Total General Service		1,720		

Notes:
(1) Exhibit 7, Tab 2, Schedule 1, Column (b).
(2) Forecast volume for the period October 1, 2018 to March 31, 2019.

UNION GAS LIMITED
Contract Unit Rates for One-Time Adjustment - Delivery
2016 Cap-and-Trade Deferral Accounts

Line No.	Particulars	Rate Class	Deferral Balance for Disposition ($000's) (1)	2016 Actual Volume (10^3m^3)	Unit Rate (cents/m^3)
			(a)	(b)	(c) = (a / b)*100
	Union North				
1	Medium Volume Firm Service	20	33	565,469	0.0059
2	Large Volume High Load Factor	100	29	1,365,541	0.0022
3	Large Volume Interruptible	25	13	116,389	0.0115
	Union South				
4	Firm Com/Ind Contract	M4	39	472,042	0.0083
5	Interruptible Com/Ind Contract	M5	44	194,195	0.0227
6	Special Large Volume Contract	M7	11	475,225	0.0023
7	Large Wholesale	M9	2	72,275	0.0021
8	Small Wholesale	M10	0	247	0.1447
9	Contract Carriage Service	T1	29	447,213	0.0064
10	Contract Carriage Service	T2	79	4,213,980	0.0019
11	Contract Carriage- Wholesale	T3	9	250,167	0.0035
12	Total Contract Service		289		

Notes:
(1) Exhibit 7, Tab 2, Schedule 1, Column (b).

UNION GAS LIMITED
Storage and Transportation Service Amounts for Disposition
2016 Cap-and-Trade Deferral Accounts

Line No.	Particulars ($000's) (1)	Rate Class	Deferral Balance for Disposition
			(a)
1	Storage and Transportation	M12	210
2	Local Production	M13	0
3	Short-Term Cross Franchise	C1	5
4	Storage Transportation Service	M16	0

Notes:
(1) Ex-franchise M12, M13, M16 and C1 customer specific amounts determined using approved deferral account allocation methodologies.

Filed: 2017-11-09
EB-2017-0255
Exhibit 7
Tab 2
Schedule 3

UNION GAS LIMITED
General Service Bill Impacts
2016 Cap-and-Trade Deferral Accounts

Line No.	Particulars	Rate Component	Unit Rate for Prospective Recovery/(Refund) (cents/m^3) (1)	Volume (m^3) (2)	Bill Impact ($)
			(a)	(b)	(c) = (a x b) / 100
1	Rate 01	Delivery	0.0586	1,733	1.02
2		Commodity	-	1,733	-
3		Transportation	-	1,733	-
4			0.0586		1.02
5	Sales Service				1.02
6	Direct Purchase Bundled T				1.02
7	Rate 10	Delivery	0.0155	66,961	10.38
8		Commodity	-	66,961	-
9		Transportation	-	66,961	-
10			0.0155		10.38
11	Sales Service				10.38
12	Direct Purchase Bundled T				10.38
13	Rate M1	Delivery	0.0494	1,679	0.83
14		Commodity	-	1,679	-
15			0.0494		0.83
16	Sales Service				0.83
17	Direct Purchase				0.83
18	Rate M2	Delivery	0.0121	55,772	6.75
19		Commodity	-	55,772	-
20			0.0121		6.75
21	Sales Service				6.75
22	Direct Purchase				6.75

Notes:
(1) Exhibit 7, Tab 2, Schedule 2, p.1, Column (c).
(2) Average consumption, per customer, for the period October 1, 2018 to March 31, 2019.
Rate 01 volume based on annual consumption of 2,200 m^3.
Rate 10 volume based on annual consumption of 93,000 m^3.
Rate M1 volume based on annual consumption of 2,200 m^3.
Rate M2 volume based on annual consumption of 73,000 m^3.

EB-2017-0255
Rate Order for 2018 Cap-and-Trade Compliance Plan
<u>Index of Appendices</u>

Appendix A	Summary of Changes to Sales Rates
Appendix B	Rate Schedules
Appendix C	Summary of Average Rate and Price Adjustment Changes for Rates 25, M4, M5A, M7, T1 and T2 Interruptible Contract Services
Appendix D	Customer Notices - To be filed with January 2018 QRAM
Appendix E	Miscellaneous Non-Energy Charges

UNION GAS LIMITED
Union North
Summary of Changes to Sales Rates
Rate 01A - Small Volume General Firm Service

Line No.	Particulars (cents/m³)	EB-2016-0296 Implemented January 1, 2018 Rate (a)	Rate Change (b)	EB-2017-0255 Approved January 1, 2018 Rate (c)
1	Monthly Charge - All Zones	$21.00		$21.00
	Monthly Delivery Charge - All Zones			
2	First 100 m³	9.1028		9.1028
3	Next 200 m³	8.8698		8.8698
4	Next 200 m³	8.5021		8.5021
5	Next 500 m³	8.1646		8.1646
6	Over 1,000 m³	7.8858		7.8858
7	Delivery - Price Adjustment (All Volumes)	1.2219 (1)		1.2219 (1)
	Cap-and-Trade Charges			
8	Cap-and-Trade Customer-Related Charge	3.3181	0.2418	3.5599
9	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219
	Gas Transportation Service			
10	Union North West Zone	6.8585		6.8585
11	Union North East Zone	3.0002		3.0002
12	Transportation - Price Adjustment (Union North West)	0.6565 (2)		0.6565 (2)
13	Transportation - Price Adjustment (Union North East)	0.6881 (2)		0.6881 (2)
	Storage Service			
14	Union North West Zone	2.0547		2.0547
15	Union North East Zone	6.6690		6.6690
16	Storage - Price Adjustment (All Zones)	-		-
	Commodity Cost of Gas and Fuel			
17	Union North West Zone	10.3795		10.3795
18	Union North East Zone	14.0136		14.0136
19	Commodity and Fuel - Price Adjustment (Union North West)	1.1618 (3)		1.1618 (3)
20	Commodity and Fuel - Price Adjustment (Union North East)	0.9915 (3)		0.9915 (3)
21	System Expansion Surcharge (if applicable)	23.0000		23.0000

Notes:
(1) Includes a temporary charge of 1.2219 cents/m³ expiring March 31, 2018.
(2) Prospective Recovery of gas supply deferral accounts, and a temporary charge of 0.7678 cents/m³ expiring March 31, 2018.
(3) Prospective Recovery of gas supply deferral accounts.

UNION GAS LIMITED
Union North
Summary of Changes to Sales Rates
Rate 10 - Large Volume General Firm Service

Line No.	Particulars (cents/m³)	EB-2016-0296 Implemented January 1, 2018 Rate (a)	Rate Change (b)	EB-2017-0255 Approved January 1, 2018 Rate (c)
1	Monthly Charge - All Zones	$70.00		$70.00
	Monthly Delivery Charge - All Zones			
2	First 1,000 m³	7.6310		7.6310
3	Next 9,000 m³	6.1985		6.1985
4	Next 20,000 m³	5.5269		5.5269
5	Next 70,000 m³	4.9901		4.9901
6	Over 100,000 m³	2.9564		2.9564
7	Delivery - Price Adjustment (All Volumes)	1.0857 (1)		1.0857 (1)
	Cap-and-Trade Charges			
8	Cap-and-Trade Customer-Related Charge	3.3181	0.2418	3.5599
9	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219
	Gas Transportation Service			
10	Union North West Zone	6.0054		6.0054
11	Union North East Zone	2.7620		2.7620
12	Transportation - Price Adjustment (Union North West)	0.7330 (2)		0.7330 (2)
13	Transportation - Price Adjustment (Union North East)	0.7646 (2)		0.7646 (2)
	Storage Service			
14	Union North West Zone	1.5437		1.5437
15	Union North East Zone	4.7078		4.7078
16	Storage - Price Adjustment (All Zones)	-		-
	Commodity Cost of Gas and Fuel			
17	Union North West Zone	10.3795		10.3795
18	Union North East Zone	14.0136		14.0136
19	Commodity and Fuel - Price Adjustment (Union North West)	1.1618 (3)		1.1618 (3)
20	Commodity and Fuel - Price Adjustment (Union North East)	0.9915 (3)		0.9915 (3)
21	System Expansion Surcharge (if applicable)	23.0000		23.0000

Notes:
(1) Includes a temporary charge of 1.0857 cents/m³ expiring March 31, 2018.
(2) Prospective Recovery of gas supply deferral accounts, and a temporary charge of 0.8439 cents/m³ expiring March 31, 2018.
(3) Prospective Recovery of gas supply deferral accounts.

UNION GAS LIMITED
Union North
Summary of Changes to Sales Rates
Rate 20 - Medium Volume Firm Service

Line No.	Particulars (cents/m³)	EB-2016-0296 Implemented January 1, 2018 Rate (a)	Rate Change (b)	EB-2017-0255 Approved January 1, 2018 Rate (c)
1	Monthly Charge	$884.46		$884.46
	Delivery Demand Charge			
2	First 70,000 m³	28.6326		28.6326
3	All over 70,000 m³	16.8374		16.8374
	Delivery Commodity Charge			
4	First 852,000 m³	0.5413		0.5413
5	All over 852,000 m³	0.3870		0.3870
	Cap-and-Trade Charges			
6	Cap-and-Trade Customer-Related Charge	3.3181	0.2418	3.5599
7	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219
	Monthly Gas Supply Demand Charge			
8	Union North West Zone	56.4242		56.4242
9	Union North East Zone	50.1792		50.1792
10	Gas Supply Demand - Price Adjustment (All Zones)	-		-
	Commodity Transportation 1			
11	Union North West Zone	3.6200		3.6200
12	Union North East Zone	2.6498		2.6498
13	Transportation 1 - Price Adjustment (Union North West)	(0.0966) (1)		(0.0966) (1)
14	Transportation 1 - Price Adjustment (Union North East)	(0.0650) (1)		(0.0650) (1)
	Commodity Transportation 2			
15	Union North West Zone	-		-
16	Union North East Zone	-		-
	Commodity Cost of Gas and Fuel			
17	Union North West Zone	10.1022		10.1022
18	Union North East Zone	13.6374		13.6374
19	Commodity and Fuel - Price Adjustment (Union North West)	1.1618 (1)		1.1618 (1)
20	Commodity and Fuel - Price Adjustment (Union North East)	0.9915 (1)		0.9915 (1)
	Bundled Storage Service ($/GJ)			
21	Monthly Demand Charge	20.238		20.238
22	Commodity Charge	0.204		0.204
23	Storage Demand - Price Adjustment	-		-

Notes:
(1) Prospective Recovery of gas supply deferral accounts.

UNION GAS LIMITED
Union North
Summary of Changes to Sales Rates
Rate 100 - Large Volume High Load Factor Firm Service

Line No.	Particulars (cents/m³)	EB-2016-0296 Implemented January 1, 2018 Rate (a)	Rate Change (b)	EB-2017-0255 Approved January 1, 2018 Rate (c)
1	Monthly Charge	$1,372.75		$1,372.75
	Delivery Demand Charge			
2	All Zones	15.1083		15.1083
	Delivery Commodity Charge			
3	All Zones	0.2201		0.2201
	Cap-and-Trade Charges			
4	Cap-and-Trade Customer-Related Charge	3.3181	0.2418	3.5599
5	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219
	Monthly Gas Supply Demand Charge			
6	Union North West Zone	114.2215		114.2215
7	Union North East Zone	161.5404		161.5404
8	Gas Supply Demand - Price Adjustment (All Zones)	-		-
	Commodity Transportation 1			
9	Union North West Zone	6.4075		6.4075
10	Union North East Zone	9.2385		9.2385
11	Transportation 1 - Price Adjustment (Union North West)	-		-
12	Transportation 1 - Price Adjustment (Union North East)	-		-
	Commodity Transportation 2			
13	Union North West Zone	-		-
14	Union North East Zone	-		-
	Commodity Cost of Gas and Fuel			
15	Union North West Zone	10.1022		10.1022
16	Union North East Zone	13.6374		13.6374
17	Commodity and Fuel - Price Adjustment (Union North West)	1.1618 (1)		1.1618 (1)
18	Commodity and Fuel - Price Adjustment (Union North East)	0.9915 (1)		0.9915 (1)
	Bundled Storage Service ($/GJ)			
19	Monthly Demand Charge	20.238		20.238
20	Commodity Charge	0.204		0.204
21	Storage Demand - Price Adjustment	-		-

Notes:
(1) Prospective Recovery of gas supply deferral accounts.

UNION GAS LIMITED
Union North
Summary of Changes to Sales Rates

Line No.	Particulars (cents/m³)	EB-2016-0296 Implemented January 1, 2018 Rate	Rate Change	EB-2017-0255 Approved January 1, 2018 Rate
		(a)	(b)	(c)
	Rate 25 - Large Volume Interruptible Service			
1	Monthly Charge	$306.75		$306.75
	Delivery Charge - All Zones (1)			
2	Maximum	5.0569		5.0569
	Cap-and-Trade Charges			
3	Cap-and-Trade Customer-Related Charge	3.3181	0.2418	3.5599
4	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219
	Gas Supply Charges - All Zones			
5	Minimum	1.4848		1.4848
6	Maximum	675.9484		675.9484

Notes:
(1) Refer to Appendix C.

UNION GAS LIMITED
Union South
Summary of Changes to Sales Rates

Line No.	Particulars (cents/m³)	EB-2016-0296 Implemented January 1, 2018 Rate	Rate Change	EB-2017-0255 Approved January 1, 2018 Rate
		(a)	(b)	(c)
	Utility Sales			
1	Commodity and Fuel	13.7312		13.7312
2	Commodity and Fuel - Price Adjustment	3.4547 (1)		3.4547 (1)
3	Transportation	-		-
4	Total Gas Supply Commodity Charge	17.1859	-	17.1859
	M4 Firm Commercial/Industrial			
5	Minimum annual gas supply commodity charge	0.1902		0.1902
	M4 / M5A Interruptible Commercial/Industrial			
6	Minimum annual gas supply commodity charge	0.1902		0.1902
	Storage and Transportation Supplemental Services - Rate T1, Rate T2 & Rate T3	$/GJ		$/GJ
	Monthly demand charges: ($/GJ)			
7	Firm gas supply service	60.300		60.300
8	Firm backstop gas	1.530		1.530
	Commodity charges:			
9	Gas supply	3.549		3.549
10	Backstop gas	3.961		3.961
11	Reasonable Efforts Backstop Gas	4.914	(0.003)	4.911
12	Supplemental Inventory	Note (2)		Note (2)
13	Supplemental Gas Sales Service (cents/m³)	16.6785	0.0014	16.6799
14	Failure to Deliver	2.717	(0.004)	2.713
15	Discretionary Gas Supply Service (DGSS)	Note (3)		Note (3)

Notes:
(1) Prospective Recovery of gas supply deferral accounts, and a temporary charge of 0.2371 cents/m³ expiring March 31, 2018.
(2) The charge for banked gas purchases shall be the higher of the daily spot gas cost at Dawn in the month of or the month following the month in which gas is sold under this rate and shall not be less than Union's approved weighted average cost of gas.
(3) Reflects the "back to back" price plus gas supply administration charge.

UNION GAS LIMITED
Union South
Summary of Changes to Sales Rates

Line No.	Particulars (cents/m³)	EB-2016-0296 Implemented January 1, 2018 Rate (a)	Rate Change (b)	EB-2017-0255 Approved January 1, 2018 Rate (c)
	Rate M1 - Small Volume General Service Rate			
1	Monthly Charge	$21.00		$21.00
2	First 100 m³	4.6608		4.6608
3	Next 150 m³	4.4199		4.4199
4	All over 250 m³	3.7975		3.7975
5	Delivery - Price Adjustment (All Volumes)	0.5143 (1)		0.5143 (1)
	Cap-and-Trade Charges			
6	Cap-and-Trade Customer-Related Charge	3.3181	0.2418	3.5599
7	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219
8	Storage Service	0.7153		0.7153
9	Storage - Price Adjustment	-		-
10	System Expansion Surcharge (if applicable)	23.0000		23.0000
	Rate M2 - Large Volume General Service Rate			
11	Monthly Charge	$70.00		$70.00
12	First 1,000 m³	4.6446		4.6446
13	Next 6,000 m³	4.5569		4.5569
14	Next 13,000 m³	4.3702		4.3702
15	All over 20,000 m³	4.0511		4.0511
16	Delivery - Price Adjustment (All Volumes)	0.3363 (2)		0.3363 (2)
	Cap-and-Trade Charges			
17	Cap-and-Trade Customer-Related Charge	3.3181	0.2418	3.5599
18	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219
19	Storage Service	0.6252		0.6252
20	Storage - Price Adjustment	-		-
21	System Expansion Surcharge (if applicable)	23.0000		23.0000

Notes:
(1) Includes a temporary charge of 0.5143 cents/m³ expiring March 31, 2018.
(2) Includes a temporary charge of 0.3363 cents/m³ expiring March 31, 2018.

UNION GAS LIMITED
Union South
Summary of Changes to Sales Rates

Line No.	Particulars (cents/m³)	EB-2016-0296 Implemented January 1, 2018 Rate (a)	Rate Change (b)	EB-2017-0255 Approved January 1, 2018 Rate (c)
	Rate M4 - Firm comm/ind contract rate			
	Monthly demand charge:			
1	First 8,450 m³	56.9291		56.9291
2	Next 19,700 m³	25.5256		25.5256
3	All over 28,150 m³	21.4450		21.4450
	Monthly delivery commodity charge:			
4	First block	1.3501		1.3501
5	All remaining use	0.5297		0.5297
6	Delivery - Price Adjustment (All Volumes)	-		-
	Cap-and-Trade Charges			
7	Cap-and-Trade Customer-Related Charge	3.3181	0.2418	3.5599
8	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219
9	Minimum annual firm delivery commodity charge	1.5403		1.5403
	Interruptible contracts (1)			
10	Monthly Charge	$654.15		$654.15
	Daily delivery commodity charge:			
11	2,400 m³ to 17,000 m³	2.9624		2.9624
12	17,000 m³ to 30,000 m³	2.8325		2.8325
13	30,000 m³ to 50,000 m³	2.7642		2.7642
14	50,000 m³ to 60,000 m³	2.7163		2.7163
15	Delivery - Price Adjustment (All Volumes)	-		-
	Cap-and-Trade Charges			
16	Cap-and-Trade Customer-Related Charge	3.3181	0.2418	3.5599
17	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219
18	Minimum annual interruptible delivery commodity charge	3.1526		3.1526
	Rate M5A - interruptible comm/ind contract			
	Firm contracts (1)			
19	Monthly demand charge	31.7959		31.7959
20	Monthly delivery commodity charge	2.3034		2.3034
22	Delivery - Price Adjustment (All Volumes)	-		-
	Cap-and-Trade Charges			
23	Cap-and-Trade Customer-Related Charge	3.3181	0.2418	3.5599
24	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219
	Interruptible contracts (1)			
25	Monthly Charge	$654.15		$654.15
	Daily delivery commodity charge:			
26	2,400 m³ to 17,000 m³	2.9624		2.9624
27	17,000 m³ to 30,000 m³	2.8325		2.8325
28	30,000 m³ to 50,000 m³	2.7642		2.7642
29	50,000 m³ to 60,000 m³	2.7163		2.7163
30	Delivery - Price Adjustment (All Volumes)	-		-
	Cap-and-Trade Charges			
31	Cap-and-Trade Customer-Related Charge	3.3181	0.2418	3.5599
32	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219
33	Minimum annual interruptible delivery commodity charge	3.1526		3.1526

Notes:
(1) Price changes to individual interruptible and seasonal contract rates are provided in Appendix C.

UNION GAS LIMITED
Union South
Summary of Changes to Sales Rates

Line No.	Particulars (cents/m³)	EB-2016-0296 Implemented January 1, 2018 Rate (a)	Rate Change (b)	EB-2017-0255 Approved January 1, 2018 Rate (c)
	Rate M7 - Special large volume contract			
	Firm			
1	Monthly demand charge	30.8246		30.8246
2	Monthly delivery commodity charge	0.3809		0.3809
3	Delivery - Price Adjustment	-		-
	Interruptible (1)			
	Monthly delivery commodity charge:			
4	Maximum	5.5611		5.5611
5	Delivery - Price Adjustment	-		-
	Seasonal (1)			
	Monthly delivery commodity charge:			
6	Maximum	5.3170		5.3170
7	Delivery - Price Adjustment	-		-
	Cap-and-Trade Charges			
8	Cap-and-Trade Customer-Related Charge	3.3181	0.2418	3.5599
9	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219
	Rate M9 - Large wholesale service			
10	Monthly demand charge	22.3154		22.3154
11	Monthly delivery commodity charge	0.2112		0.2112
12	Delivery - Price Adjustment	-		-
	Cap-and-Trade Charges			
13	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219
	Rate M10 - Small wholesale service			
14	Monthly delivery commodity charge	6.7224		6.7224
	Cap-and-Trade Charges			
15	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219

Notes:
(1) Price changes to individual interruptible and seasonal contract rates are provided in Appendix C.

UNION GAS LIMITED
Union South
Summary of Changes to Contract Carriage Rates

Line No.	Particulars (cents/m³)	EB-2016-0296 Implemented January 1, 2018 Rate (a)	Rate Change (b)	EB-2017-0255 Approved January 1, 2018 Rate (c)
	Contract Carriage Service			
	Rate T1 - Storage and Transportation			
	Storage ($ / GJ)			
	Monthly demand charges:			
1	Firm space	0.011		0.011
	Firm Injection/Withdrawal Right			
2	Union provides deliverability inventory	1.459		1.459
3	Customer provides deliverability inventory	1.186		1.186
4	Firm incremental injection	1.186		1.186
5	Interruptible withdrawal	1.186		1.186
	Commodity charges:			
6	Withdrawal	0.022		0.022
7	Customer provides compressor fuel	0.008		0.008
8	Injection	0.022		0.022
9	Customer provides compressor fuel	0.008		0.008
10	Storage fuel ratio - customer provides fuel	0.406%		0.406%
	Transportation (cents / m³)			
11	Monthly demand charge first 28,150 m³	35.4376		35.4376
12	Monthly demand charge next 112,720 m³	24.4833		24.4833
	Firm commodity charges:			
13	Union provides compressor fuel - All volumes	0.1744		0.1744
14	Customer provides compressor fuel - All volumes	0.1322		0.1322
	Interruptible commodity charges: (1)			
15	Maximum - Union provides compressor fuel	5.5611		5.5611
16	Maximum - customer provides compressor fuel	5.5189		5.5189
	Cap-and-Trade Charges			
17	Cap-and-Trade Customer-Related Charge	3.3181	0.2418	3.5599
18	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219
19	Transportation fuel ratio - customer provides fuel	0.305%		0.305%
	Authorized overrun services			
	Storage ($ / GJ)			
	Commodity charges			
20	Injection / Withdrawals	0.086		0.086
21	Customer provides compressor fuel	0.056		0.056
22	Transportation commodity charge (cents/m³)	1.3395		1.3395
23	Customer provides compressor fuel	1.2973		1.2973
24	Monthly Charge	$1,905.94		$1,905.94

Notes:
(1) Price changes to individual interruptible contract rates are provided in Appendix C.

UNION GAS LIMITED
Union South
Summary of Changes to Contract Carriage Rates

Line No.	Particulars (cents/m³)	EB-2016-0296 Implemented January 1, 2018 Rate (a)	Rate Change (b)	EB-2017-0255 Approved January 1, 2018 Rate (c)
	Contract Carriage Service			
	Rate T2 - Storage and Transportation			
	Storage ($ / GJ)			
	Monthly demand charges:			
1	Firm space	0.011		0.011
	Firm Injection/Withdrawal Right			
2	Union provides deliverability inventory	1.459		1.459
3	Customer provides deliverability inventory	1.186		1.186
4	Firm incremental injection	1.186		1.186
5	Interruptible withdrawal	1.186		1.186
	Commodity charges:			
6	Withdrawal	0.022		0.022
7	Customer provides compressor fuel	0.008		0.008
8	Injection	0.022		0.022
9	Customer provides compressor fuel	0.008		0.008
10	Storage fuel ratio - customer provides fuel	0.406%		0.406%
	Transportation (cents / m³)			
11	Monthly demand charge first 140,870 m³	26.4455		26.4455
12	Monthly demand charge all over 140,870 m³	13.9884		13.9884
	Firm commodity charges:			
13	Union provides compressor fuel - All volumes	0.0776		0.0776
14	Customer provides compressor fuel - All volumes	0.0385		0.0385
	Interruptible commodity charges: (1)			
15	Maximum - Union provides compressor fuel	5.5611		5.5611
16	Maximum - customer provides compressor fuel	5.5220		5.5220
	Cap-and-Trade Charges			
17	Cap-and-Trade Customer-Related Charge	3.3181	0.2418	3.5599
18	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219
19	Transportation fuel ratio - customer provides fuel	0.283%		0.283%
	Authorized overrun services			
	Storage ($ / GJ)			
	Commodity charges			
20	Injection / Withdrawals	0.086		0.086
21	Customer provides compressor fuel	0.056		0.056
22	Transportation commodity charge (cents/m³)	0.9470		0.9470
23	Customer provides compressor fuel	0.9079		0.9079
24	Monthly Charge	$5,513.81		$5,513.81

Notes:
(1) Price changes to individual interruptible contract rates are provided in Appendix C.

UNION GAS LIMITED
Union South
Summary of Changes to Contract Carriage Rates

Line No.	Particulars (cents/m³)	EB-2016-0296 Implemented January 1, 2018 Rate	Rate Change	EB-2017-0255 Approved January 1, 2018 Rate
		(a)	(b)	(c)
	Rate T3 - Storage and Transportation			
	Storage ($ / GJ)			
	Monthly demand charges:			
1	Firm space	0.011		0.011
	Firm Injection/Withdrawal Right			
2	Union provides deliverability inventory	1.459		1.459
3	Customer provides deliverability inventory	1.186		1.186
4	Firm incremental injection	1.186		1.186
5	Interruptible withdrawal	1.186		1.186
	Commodity charges:			
6	Withdrawal	0.022		0.022
7	Customer provides compressor fuel	0.008		0.008
8	Injection	0.022		0.022
9	Customer provides compressor fuel	0.008		0.008
10	Storage fuel ratio - Customer provides fuel	0.406%		0.406%
	Transportation (cents / m³)			
11	Monthly demand charge	16.7213		16.7213
12	Union provides compressor fuel - All volumes	0.1564		0.1564
13	Customer provides compressor fuel - All volumes	0.1039		0.1039
	Cap-and-Trade Charges			
14	Cap-and-Trade Facility-Related Charge	0.0240	(0.0021)	0.0219
15	Transportation fuel ratio - Customer provides fuel	0.380%		0.380%
	Authorized overrun services			
	Storage ($ / GJ)			
	Commodity charges			
16	Injection / Withdrawals	0.086		0.086
17	Customer provides compressor fuel	0.056		0.056
18	Transportation commodity charge (cents/m³)	0.7061		0.7061
19	Customer provides compressor fuel	0.6536		0.6536
	Monthly Charge			
20	City of Kitchener	$19,968.19		$19,968.19
21	Natural Resource Gas	$3,065.32		$3,065.32
22	Six Nations	$1,021.77		$1,021.77

UNION GAS LIMITED
Union South
Summary of Changes to Unbundled Rates

Line No.	Particulars (cents/m³)	EB-2016-0296 Implemented January 1, 2018 Rate (a)	Rate Change (b)	EB-2017-0255 Approved January 1, 2018 Rate (c)
	U2 Unbundled Service			
	Storage ($ / GJ)			
	Monthly demand charges:			
	Standard Storage Service (SSS)			
1	Combined Firm Space & Deliverability	0.023		0.023
	Standard Peaking Service (SPS)			
2	Combined Firm Space & Deliverability	0.114		0.114
3	Incremental firm injection right	1.030		1.030
4	Incremental firm withdrawal right	1.030		1.030
	Commodity charges:			
5	Injection customer provides compressor fuel	0.026		0.026
6	Withdrawal customer provides compressor fuel	0.026		0.026
7	Storage fuel ratio - Customer provides fuel	0.406%		0.406%
	Authorized overrun services			
	Storage ($ / GJ)			
	Commodity charges:			
8	Injection customer provides compressor fuel	0.060		0.060
9	Withdrawal customer provides compressor fuel	0.060		0.060

UNION GAS LIMITED
Summary of Changes to Storage and Transportation Rates

Line No.	Particulars ($/GJ)	EB-2016-0296 Implemented January 1, 2018 Rate (a)		Rate Change (b)	EB-2017-0255 Approved January 1, 2018 Rate (c)
	M12 Transportation Service				
	Firm transportation				
	Monthly demand charges:				
1	Dawn to Kirkwall	2.865			2.865
2	Dawn to Parkway	3.402			3.402
3	Kirkwall to Parkway	0.537			0.537
4	F24-T	0.070			0.070
	M12-X Firm Transportation				
5	Between Dawn, Kirkwall and Parkway	4.239			4.239
	Commodity charges:				
6	Easterly	Note (1)			Note (1)
7	Westerly	Note (1)			Note (1)
8	Parkway (TCPL / EGT) to Parkway (Cons) / Lisgar	Note (1)			Note (1)
	Cap-and-Trade Facility-Related Charges:				
9	Dawn to Kirkwall / Parkway (Cons) / Lisgar	0.006			0.006
10	Dawn to Parkway (TCPL / EGT)	0.006			0.006
11	Kirkwall to Parkway (Cons) / Lisgar	0.006			0.006
12	Kirkwall to Parkway (TCPL / EGT)	0.006			0.006
13	Parkway to Dawn / Kirkwall	0.006			0.006
14	Kirkwall to Dawn	0.006			0.006
15	Parkway (TCPL / EGT) to Parkway (Cons) / Lisgar	0.006			0.006
	Limited Firm/Interruptible				
	Monthly demand charges:				
16	Maximum	8.165			8.165
	Commodity charges :				
17	Others	Note (1)			Note (1)
	Authorized Overrun				
	Transportation commodity charges:				
	Easterly:				
18	Dawn to Kirkwall - Union supplied fuel	Note (1)			Note (1)
19	Dawn to Parkway - Union supplied fuel	Note (1)			Note (1)
20	Kirkwall to Parkway - Union supplied fuel	Note (1)			Note (1)
21	Dawn to Kirkwall - Shipper supplied fuel	0.094	(1)		0.094 (1)
22	Dawn to Parkway - Shipper supplied fuel	0.112	(1)		0.112 (1)
23	Kirkwall to Parkway - Shipper supplied fuel	0.018	(1)		0.018 (1)
	M12-X Firm Transportation				
24	Between Dawn, Kirkwall and Parkway - Union supplied fuel	Note (1)			Note (1)
25	Between Dawn, Kirkwall and Parkway - Shipper supplied fuel:	0.139	(1)		0.139 (1)
	M13 Transportation of Locally Produced Gas				
26	Monthly fixed charge per customer station	$952.72			$952.72
27	Transmission commodity charge to Dawn	0.035			0.035
28	Commodity charge - Union supplied fuel	0.006			0.006
29	Commodity charge - Shipper supplied fuel	Note (2)			Note (2)
30	Cap-and-Trade Facility-Related Charge	0.006			0.006
31	Authorized Overrun - Union supplied fuel	0.074			0.074
32	Authorized Overrun - Shipper supplied fuel	0.069	(2)		0.069 (2)

Notes:
(1) Monthly fuel rates and fuel ratios per Schedule "C".
(2) Plus shipper supplied fuel per rate schedule.

UNION GAS LIMITED
Summary of Changes to Storage and Transportation Rates

Line No.	Particulars ($/GJ)	EB-2016-0296 Implemented January 1, 2018 Rate		Rate Change	EB-2017-0255 Approved January 1, 2018 Rate
		(a)		(b)	(c)
	M16 Storage Transportation Service				
1	Monthly fixed charge per customer station	$1,515.67			$1,515.67
	Monthly demand charges:				
2	East of Dawn	0.770			0.770
3	West of Dawn	1.045			1.045
4	Transmission commodity charge to Dawn	0.035			0.035
	Transportation Fuel Charges to Dawn:				
5	East of Dawn - Union supplied fuel	0.006			0.006
6	West of Dawn - Union supplied fuel	0.006			0.006
7	East of Dawn - Shipper supplied fuel	Note (1)			Note (1)
8	West of Dawn - Shipper supplied fuel	Note (1)			Note (1)
	Transportation Fuel Charges to Pools:				
9	East of Dawn - Union supplied fuel	0.007			0.007
10	West of Dawn - Union supplied fuel	0.016			0.016
11	East of Dawn - Shipper supplied fuel	Note (1)			Note (1)
12	West of Dawn - Shipper supplied fuel	Note (1)			Note (1)
	Cap-and-Trade Facility-Related Charges to Dawn:				
13	East of Dawn - All Shippers	0.006			0.006
14	West of Dawn - All Shippers	0.006			0.006
	Cap-and-Trade Facility-Related Charges to Pool:				
15	East of Dawn - All Shippers	0.006			0.006
16	West of Dawn - All Shippers	0.006			0.006
	Authorized Overrun				
	Transportation Fuel Charges to Dawn:				
17	East of Dawn - Union supplied fuel	0.065			0.065
18	West of Dawn - Union supplied fuel	0.074			0.074
19	East of Dawn - Shipper supplied fuel	0.060	(1)		0.060 (1)
20	West of Dawn - Shipper supplied fuel	0.069	(1)		0.069 (1)
	Transportation Fuel Charges to Pools:				
21	East of Dawn - Union supplied fuel	0.032			0.032
22	West of Dawn - Union supplied fuel	0.050			0.050
23	East of Dawn - Shipper supplied fuel	0.025	(1)		0.025 (1)
24	West of Dawn - Shipper supplied fuel	0.034	(1)		0.034 (1)
	C1 - Cross Franchise Transportation Service				
	Transportation service				
	Monthly demand charges:				
25	St. Clair / Bluewater & Dawn	1.045			1.045
26	Ojibway & Dawn	1.045			1.045
27	Parkway to Dawn	0.837			0.837
28	Parkway to Kirkwall	0.837			0.837
29	Kirkwall to Dawn	1.475			1.475
30	Dawn to Kirkwall	2.865			2.865
31	Dawn to Parkway	3.402			3.402
32	Kirkwall to Parkway	0.537			0.537
33	Dawn to Dawn-Vector	0.029			0.029
34	Dawn to Dawn-TCPL	0.138			0.138
	Commodity charges:				
35	St. Clair / Bluewater & Dawn - Union supplied fuel (Nov. 1 - Mar. 31)	0.009			0.009
36	St. Clair / Bluewater & Dawn - Union supplied fuel (Apr. 1 - Oct. 31)	0.007			0.007
37	Ojibway & Dawn - Union supplied fuel (Nov. 1 - Mar. 31)	0.011			0.011
38	Ojibway & Dawn - Union supplied fuel (Apr. 1 - Oct. 31)	0.016			0.016
39	Parkway to Kirkwall / Dawn - Union supplied fuel (Nov. 1 - Mar. 31)	0.006			0.006
40	Parkway to Kirkwall / Dawn - Union supplied fuel (Apr. 1 - Oct. 31)	0.010			0.010
41	Kirkwall to Dawn - Union supplied fuel (Nov. 1 - Mar. 31)	0.006			0.006
42	Kirkwall to Dawn - Union supplied fuel (Apr. 1 - Oct. 31)	0.006			0.006
43	Dawn to Kirkwall - Union supplied fuel (Nov. 1 - Mar. 31)	0.027			0.027
44	Dawn to Kirkwall - Union supplied fuel (Apr. 1 - Oct. 31)	0.011			0.011
45	Dawn to Parkway - Union supplied fuel (Nov. 1 - Mar. 31)	0.036			0.036
46	Dawn to Parkway - Union supplied fuel (Apr. 1 - Oct.31)	0.020			0.020
47	Kirkwall to Parkway - Union supplied fuel (Nov. 1 - Mar. 31)	0.015			0.015
48	Kirkwall to Parkway - Union supplied fuel (Apr. 1 - Oct.31)	0.015			0.015

Notes:
(1) Plus shipper supplied fuel per rate schedule.

UNION GAS LIMITED
Summary of Changes to Storage and Transportation Rates

Line No.	Particulars ($/GJ)	EB-2016-0296 Implemented January 1, 2018 Rate	Rate Change	EB-2017-0255 Approved January 1, 2018 Rate
		(a)	(b)	(c)
	C1 - Cross Franchise Transportation Service			
	Transportation service cont'd			
1	St. Clair / Bluewater & Dawn - Shipper supplied fuel (Nov. 1 - Mar. 31)	Note (1)		Note (1)
2	St. Clair / Bluewater & Dawn - Shipper supplied fuel (Apr. 1 - Oct. 31)	Note (1)		Note (1)
3	Ojibway & Dawn - Shipper supplied fuel (Nov. 1 - Mar. 31)	Note (1)		Note (1)
4	Ojibway & Dawn - Shipper supplied fuel (Apr. 1 - Oct. 31)	Note (1)		Note (1)
5	Parkway to Kirkwall / Dawn - Shipper supplied fuel (Nov. 1 - Mar. 31)	Note (1)		Note (1)
6	Parkway to Kirkwall / Dawn - Shipper supplied fuel (Apr. 1 - Oct. 31)	Note (1)		Note (1)
7	Kirkwall to Dawn - Shipper supplied fuel (Nov. 1 - Mar. 31)	Note (1)		Note (1)
8	Kirkwall to Dawn - Shipper supplied fuel (Apr. 1 - Oct. 31)	Note (1)		Note (1)
9	Dawn to Kirkwall - Shipper supplied fuel (Nov. 1 - Mar. 31)	Note (1)		Note (1)
10	Dawn to Kirkwall - Shipper supplied fuel (Apr. 1 - Oct. 31)	Note (1)		Note (1)
11	Dawn to Parkway - Shipper supplied fuel (Nov. 1 - Mar. 31)	Note (1)		Note (1)
12	Dawn to Parkway - Shipper supplied fuel (Apr. 1 - Oct.31)	Note (1)		Note (1)
13	Kirkwall to Parkway - Shipper supplied fuel (Nov. 1 - Mar. 31)	Note (1)		Note (1)
14	Kirkwall to Parkway - Shipper supplied fuel (Apr. 1 - Oct.31)	Note (1)		Note (1)
15	Dawn to Dawn-Vector - Shipper supplied fuel (Nov. 1 - Mar. 31)	Note (1)		Note (1)
16	Dawn to Dawn-Vector - Shipper supplied fuel (Apr. 1 - Oct . 31)	Note (1)		Note (1)
17	Dawn to Dawn-TCPL - Shipper supplied fuel (Nov. 1 - Mar. 31)	Note (1)		Note (1)
18	Dawn to Dawn-TCPL - Shipper supplied fuel (Apr. 1 - Oct . 31)	Note (1)		Note (1)
19	Dawn(Tecumseh), Dawn(Facilities or TCPL), Dawn (Vector) and Dawn (TSLE)	Note (1)		Note (1)
	Interruptible and Short Term (1 year or less) Firm Transportation:			
20	Maximum	75.00		75.00
	Cap-and-Trade Facility-Related Charges:			
21	St. Clair / Bluewater & Dawn	0.006		0.006
22	Ojibway & Dawn	0.006		0.006
23	Parkway to Dawn	0.006		0.006
24	Parkway to Kirkwall	0.006		0.006
25	Kirkwall to Dawn	0.006		0.006
26	Dawn to Kirkwall / Parkway (Cons) / Lisgar	0.006		0.006
27	Dawn to Parkway (TCPL)	0.006		0.006
28	Kirkwall to Parkway (Cons) / Lisgar	0.006		0.006
29	Kirkwall to Parkway (TCPL)	0.006		0.006
30	Dawn to Dawn-Vector	0.006		0.006
31	Dawn to Dawn-TCPL	0.006		0.006
	Authorized Overrun			
	Firm transportation commodity charges:			
32	St. Clair / Bluewater & Dawn - Union supplied fuel (Nov. 1 - Mar. 31)	0.044		0.044
33	St. Clair / Bluewater & Dawn - Union supplied fuel (Apr. 1 - Oct. 31)	0.042		0.042
34	Ojibway & Dawn - Union supplied fuel (Nov. 1 - Mar. 31)	0.045		0.045
35	Ojibway & Dawn - Union supplied fuel (Apr. 1 - Oct. 31)	0.050		0.050
36	Parkway to Kirkwall / Dawn - Union supplied fuel (Nov. 1 - Mar. 31)	0.139		0.139
37	Parkway to Kirkwall / Dawn - Union supplied fuel (Apr. 1 - Oct. 31)	0.144		0.144
38	Kirkwall to Dawn - Union supplied fuel (Nov. 1 - Mar. 31)	0.054		0.054
39	Kirkwall to Dawn - Union supplied fuel (Apr. 1 - Oct. 31)	0.054		0.054
40	Dawn to Kirkwall - Union supplied fuel (Nov. 1 - Mar. 31)	0.143		0.143
41	Dawn to Kirkwall - Union supplied fuel (Apr. 1 - Oct. 31)	0.127		0.127
42	Dawn to Parkway - Union supplied fuel (Nov. 1 - Mar. 31)	0.170		0.170
43	Dawn to Parkway - Union supplied fuel (Apr. 1 - Oct.31)	0.154		0.154
44	Kirkwall to Parkway - Union supplied fuel (Nov. 1 - Mar. 31)	0.055		0.055
45	Kirkwall to Parkway - Union supplied fuel (Apr. 1 - Oct.31)	0.054		0.054
46	St. Clair / Bluewater & Dawn - Shipper supplied fuel (Nov. 1 - Mar. 31)	0.034 (1)		0.034 (1)
47	St. Clair / Bluewater & Dawn - Shipper supplied fuel (Apr. 1 - Oct. 31)	0.034 (1)		0.034 (1)
48	Ojibway & Dawn - Shipper supplied fuel (Nov. 1 - Mar. 31)	0.034 (1)		0.034 (1)
49	Ojibway & Dawn - Shipper supplied fuel (Apr. 1 - Oct. 31)	0.034 (1)		0.034 (1)
50	Parkway to Kirkwall / Dawn - Shipper supplied fuel (Nov. 1 - Mar. 31)	0.112 (1)		0.112 (1)
51	Parkway to Kirkwall / Dawn - Shipper supplied fuel (Apr. 1 - Oct. 31)	0.112 (1)		0.112 (1)
52	Kirkwall to Dawn - Shipper supplied fuel (Nov. 1 - Mar. 31)	0.049 (1)		0.049 (1)
53	Kirkwall to Dawn - Shipper supplied fuel (Apr. 1 - Oct. 31)	0.049 (1)		0.049 (1)
54	Dawn to Kirkwall - Shipper supplied fuel (Nov. 1 - Mar. 31)	0.094 (1)		0.094 (1)
55	Dawn to Kirkwall - Shipper supplied fuel (Apr. 1 - Oct. 31)	0.094 (1)		0.094 (1)
56	Dawn to Parkway - Shipper supplied fuel (Nov. 1 - Mar. 31)	0.112 (1)		0.112 (1)
57	Dawn to Parkway - Shipper supplied fuel (Apr. 1 - Oct.31)	0.112 (1)		0.112 (1)
58	Kirkwall to Parkway - Shipper supplied fuel (Nov. 1 - Mar. 31)	0.018 (1)		0.018 (1)
59	Kirkwall to Parkway - Shipper supplied fuel (Apr. 1 - Oct.31)	0.018 (1)		0.018 (1)
60	Dawn to Dawn-Vector - Shipper supplied fuel (Nov. 1 - Mar. 31)	0.001 (1)		0.001 (1)
61	Dawn to Dawn-Vector - Shipper supplied fuel (Apr. 1 - Oct . 31)	0.001 (1)		0.001 (1)
62	Dawn to Dawn-TCPL - Shipper supplied fuel (Nov. 1 - Mar. 31)	0.005 (1)		0.005 (1)
63	Dawn to Dawn-TCPL - Shipper supplied fuel (Apr. 1 - Oct . 31)	0.005 (1)		0.005 (1)

Notes:
(1) Plus shipper supplied fuel per rate schedule.

RATE 01A - SMALL VOLUME GENERAL FIRM SERVICE

ELIGIBILITY

Any customer in Union's North West and North East Zones who is an end user whose total gas requirements at that location are equal to or less than 50,000 m^3 per year.

SERVICES AVAILABLE

The following services are available under this rate schedule:

(a) Sales Service

For continuous supply of natural gas by Union and associated transportation and storage services necessary to ensure deliverability in accordance with the customer's needs. For this service, the Monthly, Delivery and Gas Supply Charges shall apply.

(b) Transportation Service

For continuous delivery on Union's distribution system from the Point of Receipt on TransCanada's system to the Point of Consumption on the customer's premises of natural gas owned by the customer and transported by TransCanada under a firm transportation service tariff or equivalent National Energy Board Order. For this service, the Monthly and Delivery Charges shall apply. Unless otherwise authorized by Union, customers who initiate a movement to Transportation Service from a Sales Service or Bundled Transportation Service must accept an assignment from Union of transportation capacity on upstream pipeline systems.

Transportation Service customers in the Union North East Zone may contract with Union for transportation service from Dawn to the customer's delivery area. The charges for the transportation service will consist of the Rate C1 Dawn-Parkway firm transportation rate and applicable fuel charges, in accordance with Union's Rate C1 rate schedule, and all applicable third party (i.e. TransCanada) transportation charges on upstream pipelines from Parkway to the customer's delivery area.

(c) Bundled Transportation Service

For continuous delivery by Union of gas owned by the customer and for the associated transportation and storage services necessary to ensure deliverability in accordance with the customer's needs. For this service the Monthly, and Delivery Charges, as well as the Storage and Transportation Charges of the Gas Supply Charge shall apply.

MONTHLY RATES AND CHARGES

APPLICABLE TO ALL SERVICES	Union North West	Union North East
MONTHLY CHARGE	$21.00	$21.00
DELIVERY CHARGE	¢ per m^3	¢ per m^3
First 100 m^3 per month @	9.1028	9.1028
Next 200 m^3 per month @	8.8698	8.8698
Next 200 m^3 per month @	8.5021	8.5021
Next 500 m^3 per month @	8.1646	8.1646
Over 1,000 m^3 per month @	7.8858	7.8858
Delivery-Price Adjustment (All Volumes) (1)	1.2219	1.2219
CAP-AND-TRADE CHARGES (in addition to Delivery Charge)		
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	3.5599
Cap-and-Trade Facility-Related Charge	0.0219	0.0219

Notes:
(1) Includes a temporary charge of 1.2219 cents/m³ expiring March 31, 2018.

ADDITIONAL CHARGES FOR SALES SERVICE

GAS SUPPLY CHARGES

Gas Supply Charge (if applicable)

The gas supply charge is comprised of charges for transportation and for commodity and fuel.
The applicable rates are provided in Schedule "A".

SYSTEM EXPANSION SURCHARGE ("SES") (if applicable)

The system expansion surcharge is applied to all volumes consumed for a defined term and is applicable to customers within the following approved community expansion project areas:

Community Expansion Project	SES Rate (¢ per m^3)	SES Term Expiry
Prince Township	23.0000	December 31, 2039

MONTHLY BILL

The monthly bill will equal the sum of the monthly charges plus the rates multiplied by the applicable gas quantities delivered plus all applicable taxes. If the customer transports its own gas, the Gas Supply Charge under Sales Service will not apply.

MINIMUM MONTHLY BILL

The Minimum Monthly Bill shall be the Monthly Charge.

DELAYED PAYMENT

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

SERVICE AGREEMENT

Customers providing their own gas supply in whole or in part, for transportation by Union, must enter into a Service Agreement with Union.

TERMS AND CONDITIONS OF SERVICE

1. If multiple end-users are receiving service from a customer under this rate, for billing purposes, the Monthly Charge, the Delivery Charge and any other charge that is specific to the location of each end-user shall be used to develop a monthly bill for each end-user at each location. Upon request, possibly for a fee, Union will combine the individual bills on a single invoice or statement for administrative convenience. However, Union will not combine the quantities or demands of several end-use locations so that eligibility to a different rate class will result. Further, Union will not combine the monthly billing data of individual end-users to generate a single bill which is less than the sum of the monthly bills of the individual end-users involved at each location.

2. Customers must enter into a Service Agreement with Union prior to the commencement of service.

3. The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated, which may be higher than the identified rates.

RATE 10 - LARGE VOLUME GENERAL FIRM SERVICE

ELIGIBILITY

Any customer in Union's North West and North East Zones who is an end-user whose total firm gas requirements at one or more Company-owned meters at one location exceed 50,000 m^3 per year.

SERVICES AVAILABLE

The following services are available under this rate schedule:

(a) Sales Service

For continuous supply of natural gas by Union and associated transportation and storage services necessary to ensure deliverability in accordance with the customer's needs. For this service, the Monthly, Delivery and Gas Supply Charges shall apply.

(b) Transportation Service

For continuous delivery on Union's distribution system from the Point of Receipt on TransCanada's system to the Point of Consumption on the customer's premises of natural gas owned by the customer and transported by TransCanada under a firm transportation service tariff or equivalent National Energy Board Order. For this service, the Monthly, and Delivery Charges shall apply. Unless otherwise authorized by Union, customers who initiate a movement to Transportation Service from a Sales Service or Bundled Transportation Service must accept an assignment from Union of transportation capacity on upstream pipeline systems. Customers may reduce their assignment of transportation capacity in compliance with Union's Turnback Policy.

Transportation Service customers in the Union North East Zone may contract with Union for transportation service from Dawn to the customer's delivery area. The charges for the transportation service will consist of the Rate C1 Dawn-Parkway firm transportation rate and applicable fuel charges, in accordance with Union's Rate C1 rate schedule, and all applicable third party (i.e. TransCanada) transportation charges on upstream pipelines from Parkway to the customer's delivery area.

(c) Bundled Transportation Service

For continuous delivery by Union of gas owned by the customer and for the associated transportation and storage services necessary to ensure deliverability in accordance with the customer's needs. For this service the Monthly, and Delivery Charges, as well as the Storage and Transportation Charges of the Gas Supply Charge shall apply.

MONTHLY RATES AND CHARGES

APPLICABLE TO ALL SERVICES	Union North West	Union North East
MONTHLY CHARGE	\$70.00	\$70.00
DELIVERY CHARGE	¢ per m^3	¢ per m^3
First 1,000 m^3 per month @	7.6310	7.6310
Next 9,000 m^3 per month @	6.1985	6.1985
Next 20,000 m^3 per month @	5.5269	5.5269
Next 70,000 m^3 per month @	4.9901	4.9901
Over 100,000 m^3 per month @	2.9564	2.9564
Delivery-Price Adjustment (All Volumes) (1)	1.0857	1.0857
CAP-AND-TRADE CHARGES (in addition to Delivery Charge)		
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	3.5599
Cap-and-Trade Facility-Related Charge	0.0219	0.0219

Notes:
(1) Includes a temporary charge of 1.0857 cents/m^3 expiring March 31, 2018.

ADDITIONAL CHARGES FOR SALES SERVICE

GAS SUPPLY CHARGES

Gas Supply Charge (if applicable)

The gas supply charge is comprised of charges for transportation and for commodity and fuel.
The applicable rates are provided in Schedule “A”.

SYSTEM EXPANSION SURCHARGE ("SES") (if applicable)

The system expansion surcharge is applied to all volumes consumed for a defined term and is applicable to customers within the following approved community expansion project areas:

Community Expansion Project	SES Rate (¢ per m^3)	SES Term Expiry
Prince Township	23.0000	December 31, 2039

MONTHLY BILL

The monthly bill will equal the sum of the monthly charges plus the rates multiplied by the applicable gas quantities delivered plus all applicable taxes. If the customer transports its own gas, the Gas Supply Charge under Sales Service will not apply.

MINIMUM MONTHLY BILL

The Minimum Monthly Bill shall be the Monthly Charge.

DELAYED PAYMENT

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

SERVICE AGREEMENT

Customers providing their own gas supply in whole or in part, for transportation by Union and customers purchasing gas from Union with maximum daily requirements in excess of 3,000 m^3 per day must enter into a Service Agreement with Union.

TERMS AND CONDITIONS OF SERVICE

1. Service shall be for a minimum term of one year.

2. If multiple end-users are receiving service from a customer under this rate, for billing purposes, the Monthly Charge, the Delivery Charge and any other charge that is specific to the location of each end-user shall be used to develop a monthly bill for each end-user at each location. Upon request, possibly for a fee, Union will combine the individual bills on a single invoice or statement for administrative convenience. However, Union will not combine the quantities or demands of several end-use locations so that eligibility to a different rate class will result. Further, Union will not combine the monthly billing data of individual end-users to generate a single bill which is less than the sum of the monthly bills of the individual end-users involved at each location.

3. Customers must enter into a Service Agreement with Union prior to the commencement of service.

4. For the purposes of qualifying for a rate class, the total quantities of gas consumed or expected to be consumed on the customer’s contiguous property will be used, irrespective of the number of meters installed.

5. The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated, which may be higher than the identified rates.

RATE 20 - MEDIUM VOLUME FIRM SERVICE

ELIGIBILITY

Any customer in Union's North West and North East Zones who is an end-user or who is authorized to serve an end-user of gas through one or more Company-owned meters at one location, and whose total maximum daily requirements for firm or combined firm and interruptible service is 14,000 m^3 or more.

SERVICES AVAILABLE

The following services are available under this rate schedule:

(a) Sales Service

For continuous supply of natural gas by Union and associated transportation and storage services necessary to ensure deliverability in accordance with the customer's needs. For this service, the Monthly, Delivery and Gas Supply Charges shall apply.

(b) Transportation Service

For continuous delivery on Union's distribution system from the Point of Receipt on TransCanada's system to the Point of Consumption on the customer's premises of natural gas owned by the customer. The customer is responsible for obtaining the requisite regulatory approvals for the supply and transmission of such gas to Union's distribution system. For this service, the Monthly, Delivery, Transportation Account and Diversion Transaction Charges shall apply. Unless otherwise authorized by Union, customers who initiate a movement to Transportation Service from a Sales Service or Bundled Transportation Service must accept an assignment from Union of transportation capacity on upstream pipeline systems. Customers may reduce their assignment of transportation capacity in compliance with Union's Turnback Policy.

Transportation Service customers in the Union North East Zone may contract with Union for transportation service from Dawn to the customer's delivery area. The charges for the transportation service will consist of the Rate C1 Dawn-Parkway firm transportation rate and applicable fuel charges, in accordance with Union's Rate C1 rate schedule, and all applicable third party (i.e. TransCanada) transportation charges on upstream pipelines from Parkway to the customer's delivery area.

(c) Bundled Transportation Service

For continuous delivery by Union of gas owned by the customer and for the associated transportation and storage services necessary to ensure deliverability in accordance with the customer's needs. For this service the Monthly, Delivery, Gas Supply Demand and Commodity Transportation Charges shall apply.

(d) Storage Service

For load balancing purposes for customers using Transportation Service on this rate schedule. If at the sole discretion of Union, adequate supplies exist, bundled and unbundled storage and delivery/redelivery services will be provided.

The charge for Bundled Storage Service will consist of the charges for Transportation Service plus the charges for Bundled Storage Service.

Note: Union has a short-term intermittent gas supply service under Rate 30 of which customers may avail themselves, if they qualify for use of the service.

MONTHLY RATES AND CHARGES

APPLICABLE TO ALL SERVICES – ALL ZONES (1)

MONTHLY CHARGE	$884.46
DELIVERY CHARGES (cents per month per m^3)	
Monthly Demand Charge for first 70,000 m^3 of Contracted Daily Demand	28.6326
Monthly Demand Charge for all units over 70,000 m^3 of Contracted Daily Demand	16.8374
Commodity Charge for first 852,000 m^3 of gas volumes delivered	0.5413
Commodity Charge for all units over 852,000 m^3 of gas volumes delivered	0.3870
CAP-AND-TRADE CHARGES (in addition to Delivery Charges)	
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599
Cap-and-Trade Facility-Related Charge	0.0219

Notes:
(1) Either the utility or a customer, or potential customer, may apply to the Ontario Energy Board to fix rates, charges and terms and conditions applicable thereto, different from the rates, charges and terms and conditions specified herein if changed rates, charges and terms and conditions are considered by either party to be necessary, desirable and in the public interest.

ADDITIONAL CHARGES FOR SALES SERVICE

Gas Supply Charge

The gas supply charge is comprised of charges for transportation and for commodity and fuel.
The applicable rates are provided in Schedule "A".

Commodity Transportation

Charge 1 applies for all gas volumes delivered in the billing month up to the volume represented by the Contract Demand multiplied by the number of days in the billing month multiplied by 0.4.

Charge 2 applies for all additional gas volumes delivered in the billing month.

HEAT CONTENT ADJUSTMENT

The gas supply commodity charges hereunder will be adjusted upwards or downwards as described below if the average total heating value of the gas per cubic metre (m^3) determined in accordance with Union's Terms and Conditions in any month falls above or below 37.89 MJ per m^3, respectively.

The adjustment shall be determined by multiplying the amount otherwise payable by a fraction, where the numerator is the monthly weighted average total heating value per cubic meter and the denominator 37.89.

COMMISSIONING AND DECOMMISSIONING RATE

The contract may provide that the Monthly Demand Charges specified above shall not apply on all or part of the daily contracted demand used by the customer either during the testing, commissioning and phasing in of gas using equipment or, alternatively, in the decommissioning and phasing out of gas using equipment being displaced by other gas using equipment, for a period not to exceed one year ("the transition period"). To be eligible the new or displaced gas using equipment must be separately meterable. In such event, the contract will provide the following rates that such volume during the transitional period will be charged.

	Union North West	Union North East
MONTHLY CHARGE	$884.46	$884.46
DELIVERY CHARGES	cents per m^3	cents per m^3
Commodity Charge for each unit of gas volumes delivered	2.4240	2.4240
CAP-AND-TRADE CHARGES (in addition to Delivery Charges)		
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	3.5599
Cap-and-Trade Facility-Related Charge	0.0219	0.0219

GAS SUPPLY CHARGES

The gas supply charge is comprised of charges for transportation and for commodity and fuel.
The applicable rates are provided in Schedule "A".

ADDITIONAL CHARGES FOR TRANSPORTATION AND STORAGE SERVICES – ALL ZONES

MONTHLY TRANSPORTATION ACCOUNT CHARGE	
For customers that currently have installed or will require installing telemetering equipment	$220.55
BUNDLED (T-SERVICE) STORAGE SERVICE CHARGES	
Monthly Demand Charge for each unit of Contracted Daily Storage Withdrawal Entitlement ($/GJ/Month)	$20.238
Monthly Storage Demand- Price Adjustment for each unit of Contracted Daily Storage Withdrawal Entitlement: ($/GJ/Month)	-
Commodity Charge for each unit of gas withdrawn from storage ($/GJ)	$0.204
Authorized Overrun Commodity Charge on each additional unit of gas Union authorizes for withdrawal from storage ($/GJ)	$0.869

The Authorized Overrun Commodity Charge is payable on all quantities on any Day in excess of the customer's contractual rights, for which authorization has been received. Overrun will be authorized by Union at its sole discretion.

DIVERSION TRANSACTION CHARGE

Charge to a customer Receiving Delivery of diverted gas each time such customer requests a diversion and Union provides the service:	$10.00

THE BILL

The bill will equal the sum of the charges for all services selected plus the rates multiplied by the applicable gas quantities delivered or withdrawn for each service chosen plus all applicable taxes. If the customer transports its own gas, the Gas Supply Charge under Sales Service will not apply. If the customer selects Union's Sales Service which includes the Gas Supply Charge, no additional charges for Transportation and Storage Services will apply.

MINIMUM BILL

The minimum bill shall be the Monthly Charge, the Transportation Account Charge and the Demand Charges, as applicable.

DELAYED PAYMENT

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

SERVICE AGREEMENT

All customers must enter into a Service Agreement with Union before receiving service under this rate schedule.

TERMS AND CONDITIONS OF SERVICE

1. Service shall be for a minimum term of one year.

2. If multiple end-users are receiving service from a customer under this rate, for billing purposes, the Monthly Charge, the Delivery Charge, the Transportation Account Charge and any other charge that is specific to the location of each end-user shall be used to develop a monthly bill for each end-user at each location. Upon request, possibly for a fee, Union will combine the individual bills on a single invoice or statement for administrative convenience. However, Union will not combine the quantities or demands of several end-use locations so that eligibility to a different rate class will result. Further, Union will not combine the billing data of individual end-users to generate a single bill which is less than the sum of the bills of the individual end-users involved at each location.

3. Customers must enter into a Service Agreement with Union prior to the commencement of service.

4. For the purposes of qualifying for a rate class, the total quantities of gas consumed or expected to be consumed on the customer's contiguous property will be used, irrespective of the number of meters installed.

5. The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated, which may be higher than the identified rates.

RATE 25 - LARGE VOLUME INTERRUPTIBLE SERVICE

ELIGIBILITY

Any customer in Union's North West and North East Zones who is an end-user or who is authorized to serve an end-user of gas through one or more Company-owned meters at one location, and whose total maximum daily interruptible requirement is 3,000 m^3 or more or the interruptible portion of a maximum daily requirement for combined firm and interruptible service is 14,000 m^3 or more and whose operations, in the judgement of Union, can readily accept interruption and restoration of gas service.

SERVICES AVAILABLE

The following services are available under this rate schedule:

(a) Sales Service

For interruptible supply of natural gas by Union and associated transportation services necessary to ensure its delivery in accordance with customer's needs. For this service, the Monthly, Delivery and Gas Supply Charges shall apply.

(b) Transportation Service

For delivery of natural gas owned by the customer on Union's distribution system from the Point of Receipt from TransCanada's system to the Point of Consumption on the customer's or end-user's premises, providing that, in the judgement of Union, acting reasonably, the customer-owned gas does not displace service from Union under a Rate 20 or Rate 100 contract specific to that location. The customer is responsible for obtaining the requisite regulatory approvals for the supply and transmission of such gas to Union's distribution system. For this service, the Monthly, Delivery, Transportation Account and Diversion Transaction Charges shall apply.

Transportation Service customers in the Union North East Zone may contract with Union for transportation service from Dawn to the customer's delivery area. The charges for the transportation service will consist of the Rate C1 Dawn-Parkway firm transportation rate and applicable fuel charges, in accordance with Union's Rate C1 rate schedule, and all applicable third party (i.e. TransCanada) transportation charges on upstream pipelines from Parkway to the customer's delivery area.

NOTE: Union has a short-term intermittent gas supply service under Rate 30 which customers may avail themselves of, if they qualify for use of the service.

MONTHLY RATES AND CHARGES

APPLICABLE TO ALL SERVICES – ALL ZONES (1)

MONTHLY CHARGE	$306.75
DELIVERY CHARGES	cents per m^3
A Delivery Price for all volumes delivered to the customer to be negotiated between Union and the customer and the average price during the period in which these rates remain in effect shall not exceed:	5.0569
CAP-AND-TRADE CHARGES (in addition to Delivery Charges)	
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599
Cap-and-Trade Facility-Related Charge	0.0219
UNAUTHORIZED OVERRUN NON - COMPLIANCE RATE	cents per m^3
Unauthorized overrun gas taken any month during a period when a notice of interruption is in effect.	233.7000

Notes:

(1) Either the utility or a customer, or potential customer, may apply to the Ontario Energy Board to fix rates, charges and terms and conditions applicable thereto, different from the rates, charges and terms and conditions specified herein if changed rates, charges and terms and conditions are considered by either party to be necessary, desirable and in the public interest.

ADDITIONAL CHARGES FOR SALES SERVICE

Gas Supply Charge
As per applicable rate provided in Schedule "A".

Interruptible Service
Applicable all year at a price agreed upon between Union and the customer and the average price during the period in which these rates remain in effect.

HEAT CONTENT ADJUSTMENT

The gas supply commodity charges hereunder will be adjusted upwards or downwards as described below if the average total heating value of the gas per cubic metre (m^3) determined in accordance with Union's Terms and Conditions in any month falls above or below 37.89 MJ per m^3, respectively.

The adjustment shall be determined by multiplying the amount otherwise payable by a fraction, where the numerator is the monthly weighted average total heating value per cubic meter and the denominator 37.89.

ADDITIONAL CHARGES FOR TRANSPORTATION – ALL ZONES

MONTHLY TRANSPORTATION ACCOUNT CHARGE:

For customers that currently have installed or will require installing telemetering equipment.	$220.55

THE BILL

The bill will equal the sum of the monthly charges for all services selected plus the rates multiplied by the applicable gas volumes delivered or withdrawn for each service chosen plus all applicable taxes. If the customer transports its own gas, the Gas Supply Charge under Sales Service will not apply. If the customer selects Union's Sales Service which includes the Gas Supply Charge, no additional charges for Transportation will apply.

MINIMUM BILL

The minimum bill shall be the Monthly Charge and the Transportation Account Charge, if applicable.

DELAYED PAYMENT

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

SERVICE AGREEMENT

All customers must enter into a Service Agreement with Union before receiving service under this rate schedule.

TERMS AND CONDITIONS OF SERVICE

1. Service shall be for a minimum term of one year.

2. If multiple end-users are receiving service from a customer under this rate, for billing purposes, the Monthly Charge, the Delivery Charge, the Transportation Account Charge and any other charge that is specific to the location of each end-user shall be used to develop a monthly bill for each end-user at each location. Upon request, Union will combine the individual bills on a single invoice or statement for administrative convenience. However, Union will not combine the volumes or demands of several end-use locations so that eligibility to a different rate class will result. Further, Union will not combine the monthly billing data of individual end-users to generate a single bill which is less than the sum of the monthly bills of the individual end-users involved at each location.

3. Customers must enter into a Service Agreement with Union prior to the commencement of service.

4. For the purposes of qualifying for a rate class, the total volumes of gas consumed or expected to be consumed on the customer's contiguous property will be used, irrespective of the number of meters installed.

5. The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated, which may be higher than the identified rates.

RATE 30 - INTERMITTENT GAS SUPPLY SERVICE AND SHORT TERM STORAGE / BALANCING SERVICE

ELIGIBILITY

Any customer in Union's North West and North East Zones already connected to Union's gas distribution system who is an end-user or is authorized to serve an end-user.

SERVICE AVAILABLE

For intermittent, short-term gas supply which will be a substitute for energy forms other than Company owned gas sold under other rate schedules. This may include situations where customer-owned gas supplies are inadequate and short-term backstopping service is requested or during a situation of curtailment on the basis of price when the purchase price of Spot gas is outside the interruptible service price range. The gas supply service available hereunder is offered only in conjunction with service to the customer under an applicable firm or interruptible service rate schedule of Union. The service is for intermittent gas supply and short term storage / balancing service and will be billed in combination with Monthly, Delivery, and other applicable charges for such services under the applicable rate schedule. Gas supply under this rate will be provided when, at the sole discretion of Union, adequate supplies are available.

GAS SUPPLY CHARGE

The gas supply charge shall be \$5.00 per 10^3m^3 plus the greater of the incremental cost of gas for Union and the customer's gas supply charge.

SHORT TERM STORAGE / BALANCING SERVICE

Short Term Storage / Balancing Service is:
i) a combined space and interruptible deliverability service for short-term or off-peak storage in Union's storage facilities, OR
ii) short-term firm deliverability, OR
iii) a component of an operational balancing service offered.

In negotiating the rate to be charged for service, the matters that are to be considered include:
i) the minimum amount of storage service to which a customer is willing to commit,
ii) whether the customer is contracting for firm or interruptible service during Union's peak or non-peak periods,
iii) utilization of facilities, and
iv) competition.

A commodity charge to be negotiated between Union and the customer not to exceed \$6.000/GJ.

THE BILL

The bill for gas supply and/or short term supplemental services under this rate shall be rendered in conjunction with the billing for delivery and other services under the customer's applicable rate for such services.

SERVICE AGREEMENT

All customers must enter into a Service Agreement with Union for this service and must agree therein to curtail or interrupt use of gas under this rate schedule whenever requested to do so by Union.

TERMS AND CONDITIONS OF SERVICE

1. Failure of the customer to interrupt or curtail use of gas on this rate as requested by Union shall be subject to the Unauthorized Overrun Gas Penalty as provided in Union's Terms and Conditions. Anytime the customer has such failure, Union reserves the right to cancel service under this rate.
2. The Terms and Conditions of the applicable rate schedule for delivery of the gas sold hereunder shall also apply.
3. The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated, which may be higher than the identified rates.

RATE 100 – LARGE VOLUME HIGH LOAD FACTOR FIRM SERVICE

ELIGIBILITY

Any customer in Union's North West and North East Zones who is an end-user or who is authorized to serve an end-user of gas through one or more Company-owned meters at one location, and whose maximum daily requirement for firm service is 100,000 m^3 or more, and whose annual requirement for firm service is equal to or greater than its maximum daily requirement multiplied by 256.

SERVICES AVAILABLE

The following services are available under this rate schedule:

(a) Sales Service

For continuous supply of natural gas by Union and associated transportation and storage services necessary to ensure deliverability in accordance with the customer's needs. For this service, the Monthly, Delivery and Gas Supply Charges shall apply.

(b) Transportation Service

For continuous delivery on Union's distribution system from the Point of Receipt on TransCanada's system to the Point of Consumption on the customer's premises of natural gas owned by the customer. The customer is responsible for obtaining the requisite regulatory approvals for the supply and transmission of such gas to Union's distribution system. For this service, the Monthly, Delivery, Transportation Account and Diversion Transaction Charges shall apply. Unless otherwise authorized by Union, customers who initiate a movement to Transportation Service from a Sales Service or Bundled Transportation Service must accept an assignment from Union of transportation capacity on upstream pipeline systems. Customers may reduce their assignment of transportation capacity in compliance with Union's Turnback Policy.

Transportation Service customers in the Union North East Zone may contract with Union for transportation service from Dawn to the customer's delivery area. The charges for the transportation service will consist of the Rate C1 Dawn-Parkway firm transportation rate and applicable fuel charges, in accordance with Union's Rate C1 rate schedule, and all applicable third party (i.e. TransCanada) transportation charges on upstream pipelines from Parkway to the customer's delivery area.

(c) Bundled Transportation Service

For continuous delivery by Union of gas owned by the customer and for the associated transportation and storage services necessary to ensure deliverability in accordance with the customer's needs. For this service the Monthly, Delivery, Gas Supply Demand and Commodity Transportation Charges shall apply.

(d) Storage Service

For load balancing purposes for customers using Transportation Service on this rate schedule. If at the sole discretion of Union, adequate supplies exist, bundled and unbundled storage and delivery/redelivery services will be provided.

The charge for Bundled Storage Service will consist of the charges for Transportation Service plus the charges for Bundled Storage Service.

NOTE: Union has a short-term intermittent gas supply service under Rate 30 which customers may avail themselves of, if they qualify for use of the service.

MONTHLY RATES AND CHARGES

APPLICABLE TO ALL SERVICES – ALL ZONES (1)

MONTHLY CHARGE	$1,372.75
DELIVERY CHARGES (cents per Month per m^3 of Daily Contract Demand)	
Monthly Demand Charge for each unit of Contracted Daily Demand	15.1083
Commodity Charge for each unit of gas volumes delivered (cents/m^3)	0.2201
CAP-AND-TRADE CHARGES (in addition to Delivery Charges)	
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599
Cap-and-Trade Facility-Related Charge	0.0219

Notes:
(1) Either the utility or a customer, or potential customer, may apply to the Ontario Energy Board to fix rates, charges and terms and conditions applicable thereto, different from the rates, charges and terms and conditions specified herein if changed rates, charges and terms and conditions are considered by either party to be necessary, desirable and in the public interest.

ADDITIONAL CHARGES FOR SALES SERVICE

Gas Supply Charges

The gas supply charge is comprised of charges for transportation and for commodity and fuel.
The applicable rates are provided in Schedule "A".

Commodity Transportation

Charge 1 applies for all gas volumes delivered in the billing month up to the volume represented by the Contract Demand multiplied by the number of days in the billing month multiplied by 0.3.

Charge 2 applies for all additional gas volumes delivered in the billing month.

HEAT CONTENT ADJUSTMENT

The gas supply commodity charges hereunder will be adjusted upwards or downwards as described below if the average total heating value of the gas per cubic metre (m^3) determined in accordance with Union's Terms and Conditions in any month falls above or below 37.89 MJ per m^3, respectively.

The adjustment shall be determined by multiplying the amount otherwise payable by a fraction, where the numerator is the monthly weighted average total heating value per cubic meter and the denominator 37.89.

COMMISSIONING AND DECOMMISSIONING RATE

The contract may provide that the Monthly Demand Charges specified above shall not apply on all or part of the daily contracted demand used by the customer either during the testing, commissioning and phasing in of gas using equipment or, alternatively, in the decommissioning and phasing out of gas using equipment being displaced by other gas using equipment, for a period not to exceed one year ("the transitional period"). To be eligible the new or displaced gas using equipment must be separately meterable. In such event, the contract will provide the following rates that such volume during the transitional period will be charged.

	Union North West	Union North East
MONTHLY CHARGE	\$1,372.75	\$1,372.75
DELIVERY CHARGES (cents per m^3)		
Commodity Charge for each unit of gas volumes delivered	0.9297	0.9297
CAP-AND-TRADE CHARGES (in addition to Delivery Charges)		
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	3.5599
Cap-and-Trade Facility-Related Charge	0.0219	0.0219

GAS SUPPLY CHARGES
The gas supply charge is comprised of charges for transportation and for commodity and fuel.
The applicable rates are provided in Schedule "A".

ADDITIONAL CHARGES FOR TRANSPORTATION AND STORAGE SERVICES – ALL ZONES

MONTHLY TRANSPORTATION ACCOUNT CHARGE	
For customers that currently have installed or will require installing telemetering equipment	\$220.55
BUNDLED (T-SERVICE) STORAGE SERVICE CHARGES	
Monthly Demand Charge for each unit of Contracted Daily Storage Withdrawal Entitlement (\$/GJ/Month)	\$20.238
Monthly Storage Demand- Price Adjustment for each unit of Contracted Daily Storage Withdrawal Entitlement: (\$/GJ/Month)	-
Commodity Charge for each unit of gas withdrawn from storage (\$/GJ)	\$0.204
Authorized Overrun Commodity Charge on each additional unit of gas Union authorizes for withdrawal from storage (\$/GJ)	\$0.869

The Authorized Overrun Commodity Charge is payable on all quantities on any Day in excess of the customer's contractual rights, for which authorization has been received. Overrun will be authorized by Union at its sole discretion.

DIVERSION TRANSACTION CHARGE	
Charge to a customer Receiving Delivery of diverted gas each time such customer requests a diversion and Union provides the servic	\$10.00

THE BILL

The bill will equal the sum of the charges for all services selected plus the rates multiplied by the applicable gas quantities delivered or withdrawn for each service chosen plus all applicable taxes. If the customer transports its own gas, the Gas Supply Charge under Sales Service will not apply. If the customer selects Union's Sales Service which includes the Gas Supply Charge, no additional charges for Transportation and Storage Services will apply.

MINIMUM BILL

The minimum bill shall be the Monthly Charge, the Transportation Account Charge and the Demand Charges, as applicable.

DELAYED PAYMENT

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

SERVICE AGREEMENT

All customers must enter into a Service Agreement with Union before receiving service under this rate schedule.

TERMS AND CONDITIONS OF SERVICE

1. Service shall be for a minimum term of one year.

2. If multiple end-users are receiving service from a customer under this rate, for billing purposes, the Monthly Charge, the Delivery Charge, the Transportation Account Charge and any other charge that is specific to the location of each end-user shall be used to develop a monthly bill for each end-user at each location. Upon request, possibly for a fee, Union will combine the individual bills on a single invoice or statement for administrative convenience. However, Union will not combine the quantities or demands of several end-use locations so that eligibility to a different rate class will result. Further, Union will not combine the billing data of individual end-users to generate a single bill which is less than the sum of the bills of the individual end-users involved at each location.

3. Customers must enter into a Service Agreement with Union prior to the commencement of service.

4. For the purposes of qualifying for a rate class, the total quantities of gas consumed or expected to be consumed on the customer's contiguous property will be used, irrespective of the number of meters installed.

5. The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated, which may be higher than the identified rates.

Union Gas Limited
Union North
Gas Supply Charges

(A) Availability

Available to customers in Union's North West and North East Delivery Zones.

(B) Applicability:

To all sales customers served under Rate 01A, Rate 10, Rate 20, Rate 100 and Rate 25.

(C) Rates

Utility Sales	Union North West	Union North East
Rate 01A (cents / m³)		
Storage	2.0547	6.6690
Storage - Price Adjustment	-	-
Commodity and Fuel (1)	10.3795	14.0136
Commodity and Fuel - Price Adjustment	1.1618	0.9915
Transportation	6.8585	3.0002
Transportation - Price Adjustment	0.6565	0.6881
Total Gas Supply Charge	21.111	25.3624
Rate 10 (cents / m³)		
Storage	1.5437	4.7078
Storage - Price Adjustment	-	-
Commodity and Fuel (1)	10.3795	14.0136
Commodity and Fuel - Price Adjustment	1.1618	0.9915
Transportation	6.0054	2.7620
Transportation - Price Adjustment	0.7330	0.7646
Total Gas Supply Charge	19.8234	23.2395

Notes:
(1) The Commodity and Fuel rate includes a gas supply administration charge of 0.1902 cents/m³.

Union Gas Limited
Union North
Gas Supply Charges

Utility Sales

Rate 20 (cents / m³)	Union North West	Union North East
Commodity and Fuel (1)	10.1022	13.6374
Commodity and Fuel - Price Adjustment	1.1618	0.9915
Commodity Transportation - Charge 1	3.6200	2.6498
Transportation 1 - Price Adjustment	(0.0966)	(0.0650)
Commodity Transportation - Charge 2	-	-
Monthly Gas Supply Demand	56.4242	50.1792
Gas Supply Demand - Price Adjustment	-	-
Commissioning and Decommissioning Rate	6.6061	5.4193

Rate 100 (cents / m³)		
Commodity and Fuel (1)	10.1022	13.6374
Commodity and Fuel - Price Adjustment	1.1618	0.9915
Commodity Transportation - Charge 1	6.4075	9.2385
Commodity Transportation - Charge 2	-	-
Monthly Gas Supply Demand	114.2215	161.5404
Commissioning and Decommissioning Rate	8.1107	11.5464

Rate 25 (cents / m³)		
Gas Supply Charge:		
Interruptible Service		
Minimum	1.4848	1.4848
Maximum	675.9484	675.9484

Natural Gas Liquefaction Service ($ / GJ) (2)		
Gas Supply Charge:		
Interruptible Service		
Minimum		0.3919
Maximum		178.3976

Notes:
(1) The Commodity and Fuel rate includes a gas supply administration charge of 0.1902 cents/m³.
(2) Billing in energy ($/GJ) will only apply to the Natural Gas Liquefaction Service.

Effective January 1, 2018 Chatham, Ontario
O.E.B. Order # EB-2017-0255

Supersedes EB-2016-0296 Rate Schedule implemented January 1, 2018.

SMALL VOLUME GENERAL SERVICE RATE

(A) Availability

Available to customers in Union's Southern Delivery Zone.

(B) Applicability

To general service customers whose total consumption is equal to or less than 50,000 m^3 per year.

(C) Rates

The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated which may be higher than the identified rates.

a) Monthly Charge		$21.00	
b) Delivery Charge			
First	100 m³	4.6608	¢ per m³
Next	150 m³	4.4199	¢ per m³
All Over	250 m³	3.7975	¢ per m³
Delivery - Price Adjustment (All Volumes) (1)		0.5143	¢ per m³
Cap-and-Trade Charges (in addition to Delivery Charge)			
Cap-and-Trade Customer-Related Charge (if applicable)		3.5599	¢ per m³
Cap-and-Trade Facility-Related Charge		0.0219	¢ per m³
c) Storage Charge (if applicable)		0.7153	¢ per m³
Storage - Price Adjustment (All Volumes)		-	¢ per m³

Applicable to all bundled customers (sales and bundled transportation service).

d) Gas Supply Charge (if applicable)

The gas supply charge is comprised of charges for transportation and for commodity and fuel.
The applicable rates are provided in Schedule "A".

e) System Expansion Surcharge ("SES") (if applicable)

The system expansion surcharge is applied to all volumes consumed for a defined term and is applicable to customers within the following approved community expansion project areas:

Community Expansion Project	SES Rate (¢ per m^3)	SES Term Expiry
Kettle and Stony Point First Nation and Lambton Shores	23.0000	December 31, 2029
Milverton, Rostock and Wartburg	23.0000	December 31, 2032
Delaware Nation of Moraviantown First Nation	23.0000	December 31, 2057

During any month in which a customer terminates service or begins service, the fixed charge for the month will be prorated to such customer.

Notes:
(1) Includes a temporary charge of 0.5143 cents/m³ expiring March 31, 2018.

(D) Supplemental Service to Commercial and Industrial Customers Under Group Meters

Combination of readings from several meters may be authorized by the Company and the Company will not reasonably withhold authorization in cases where meters are located on contiguous pieces of property of the same owner not divided by a public right-of-way.

(E) Delayed Payment

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

(F) Direct Purchase

Unless otherwise authorized by Union, customers who are delivering gas to Union under direct purchase arrangements must obligate to deliver at a point(s) specified by Union, and must acquire and maintain firm transportation on all upstream pipeline systems. Customers initiating direct purchase arrangements, who previously received Gas Supply service, must also accept, unless otherwise authorized by Union, an assignment from Union of transportation capacity on upstream pipeline systems.

(G) Overrun Charge

In the event that a direct purchase customer fails to deliver its contracted volumes to Union, and Union has the capability to continue to supply the customer, Union will do so. The customer may pay for the identified delivery charge and the total gas supply charge for utility sales provided in Schedule “A” per m³, plus 7¢ per m³.

Overrun Delivery Charge	5.3761	¢ per m³
Cap-and-Trade Charges (in addition to Delivery Charge)		
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	¢ per m³
Cap-and-Trade Facility-Related Charge	0.0219	¢ per m³

(H) Bundled Direct Purchase Delivery

Where a customer elects transportation service under this rate schedule, the customer must enter into a Bundled T Gas Contract with Union for delivery of gas to Union. Bundled T Gas Contract Rates and Gas Purchase Contract Rates are described in rate schedule R1.

(I) Company Policy Relating to Terms of Service

a. Customers who temporarily discontinue service during any twelve consecutive months without payment of the monthly fixed charge for the months in which the gas is temporarily disconnected shall pay for disconnection and reconnection.

b. When gas is delivered at an absolute pressure in excess of 101.325 kilopascals, then for purposes of measurement, hereunder, such volume of gas shall be corrected to an absolute pressure of 101.325 kilopascals. Atmospheric pressure is assumed to be the levels shown below in kilopascals (absolute) regardless of the actual atmospheric pressure at which the gas is measured and delivered.

Zone	Assumed Atmospheric Pressure kPa	Zone	Assumed Atmospheric Pressure kPa
1	100.148	7	97.582
2	99.494	8	97.065
3	98.874	9	96.721
4	98.564	10	100.561
5	98.185	11	99.321
6	97.754	12	98.883

LARGE VOLUME GENERAL SERVICE RATE

(A) Availability

Available to customers in Union's Southern Delivery Zone.

(B) Applicability

To general service customers whose total consumption is greater than 50,000 m^3 per year.

(C) Rates

The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated which may be higher than the identified rates.

a) Monthly Charge $70.00

b) Delivery Charge

First	1 000 m^3	4.6446	¢ per m^3
Next	6 000 m^3	4.5569	¢ per m^3
Next	13 000 m^3	4.3702	¢ per m^3
All Over	20 000 m^3	4.0511	¢ per m^3

Delivery – Price Adjustment (All Volumes) (1)	0.3363	¢ per m^3
Cap-and-Trade Charges (in addition to Delivery Charge)		
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	¢ per m^3
Cap-and-Trade Facility-Related Charge	0.0219	¢ per m^3
c) Storage Charge (if applicable)	0.6252	¢ per m^3
Storage - Price Adjustment (All Volumes)	-	¢ per m^3

Applicable to all bundled customers (sales and bundled transportation service).

d) Gas Supply Charge (if applicable)

The gas supply charge is comprised of charges for transportation and for commodity and fuel.
The applicable rates are provided in Schedule "A".

e) System Expansion Surcharge ("SES") (if applicable)

The system expansion surcharge is applied to all volumes consumed for a defined term and is applicable to customers within the following approved community expansion project areas:

Community Expansion Project	SES Rate (¢ per m^3)	SES Term Expiry
Kettle and Stony Point First Nation and Lambton Shores	23.0000	December 31, 2029
Milverton, Rostock and Wartburg	23.0000	December 31, 2032
Delaware Nation of Moraviantown First Nation	23.0000	December 31, 2057

During any month in which a customer terminates service or begins service, the fixed charge for the month will be prorated to such customer.

Notes:
(1) Includes a temporary charge of 0.3363 cents/m^3 expiring March 31, 2018.

(D) Supplemental Service to Commercial and Industrial Customers Under Group Meters

Combination of readings from several meters may be authorized by the Company and the Company will not reasonably withhold authorization in cases where meters are located on contiguous pieces of property of the same owner not divided by a public right-of-way.

(E) Delayed Payment

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

(F) Direct Purchase

Unless otherwise authorized by Union, customers who are delivering gas to Union under direct purchase arrangements must obligate to deliver at a point(s) specified by Union, and must acquire and maintain firm transportation on all upstream pipeline systems. Customers initiating direct purchase arrangements, who previously received Gas Supply service, must also accept, unless otherwise authorized by Union, an assignment from Union of transportation capacity on upstream pipeline systems.

(G) Overrun Charge

In the event that a direct purchase customer fails to deliver its contracted volumes to Union, and Union has the capability to continue to supply the customer, Union will do so. The customer may pay for the identified delivery charge and the total gas supply charge for utility sales provided in Schedule "A" per m³, plus 7¢ per m³.

Overrun Delivery Charge	5.2698	¢ per m³
Cap-and-Trade Charges (in addition to Delivery Charge)		
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	¢ per m³
Cap-and-Trade Facility-Related Charge	0.0219	¢ per m³

(H) Bundled Direct Purchase Delivery

Where a customer elects transportation service under this rate schedule, the customer must enter into a Bundled T Gas Contract with Union for delivery of gas to Union. Bundled T Gas Contract Rates and Gas Purchase Contract Rates are described in rate schedule R1.

(I) Company Policy Relating to Terms of Service

a. Customers who temporarily discontinue service during any twelve consecutive months without payment of the monthly fixed charge for the months in which the gas is temporarily disconnected shall pay for disconnection and reconnection.

b. When gas is delivered at an absolute pressure in excess of 101.325 kilopascals, then for purposes of measurement, hereunder, such volume of gas shall be corrected to an absolute pressure of 101.325 kilopascals. Atmospheric pressure is assumed to be the levels shown below in kilopascals (absolute) regardless of the actual atmospheric pressure at which the gas is measured and delivered.

Zone	Assumed Atmospheric Pressure kPa	Zone	Assumed Atmospheric Pressure kPa
1	100.148	7	97.582
2	99.494	8	97.065
3	98.874	9	96.721
4	98.564	10	100.561
5	98.185	11	99.321
6	97.754	12	98.883

Effective January 1, 2018 Chatham, Ontario
O.E.B. Order # EB-2017-0255

Supersedes EB-2016-0296 Rate Schedule implemented January 1, 2018.

FIRM INDUSTRIAL AND COMMERCIAL CONTRACT RATE

(A) Availability

Available to customers in Union's Southern Delivery Zone.

(B) Applicability

To a customer who enters into a contract for the purchase or transportation of gas for a minimum term of one year that specifies a daily contracted demand between 2 400 m³ and 60 000 m³.

(C) Rates

The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated which may be higher than the identified rates.

1. Bills will be rendered monthly and shall be the total of:

(i) A Monthly Demand Charge

First	8 450 m³ of daily contracted demand	56.9291	¢ per m³
Next	19 700 m³ of daily contracted demand	25.5256	¢ per m³
All Over	28 150 m³ of daily contracted demand	21.4450	¢ per m³

(ii) A Monthly Delivery Commodity Charge

First 422 250 m³ delivered per month	1.3501	¢ per m³
Next volume equal to 15 days use of daily contracted demand	1.3501	¢ per m³
For remainder of volumes delivered in the month	0.5297	¢ per m³
Delivery - Price Adjustment (All Volumes)	-	¢ per m³
<u>Cap-and-Trade Charges (in addition to Delivery Commodity Charge)</u>		
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	¢ per m³
Cap-and-Trade Facility-Related Charge	0.0219	¢ per m³

(iii) Gas Supply Charge (if applicable)

The gas supply charge is comprised of charges for transportation and for commodity and fuel.
The applicable rates are provided in Schedule "A".

2. Overrun Charge

Authorized overrun gas is available provided that it is authorized by Union in advance. Union will not unreasonably withhold authorization. Overrun means gas taken on any day in excess of 103% of contracted daily demand. Authorized overrun will be available April 1 through October 31 at the identified authorized overrun delivery charge and, if applicable, the total gas supply charge for utility sales provided in Schedule "A" per m³ for all volumes purchased.

Unauthorized overrun gas taken in any month shall be paid for at the identified unauthorized overrun delivery charge for the delivery and the total gas supply charge for utility sales provided in Schedule "A" per m³ for all gas supply volumes purchased.

Authorized Overrun Delivery Charge	3.2217	¢ per m³
Unauthorized Overrun Delivery Charge	5.3761	¢ per m³
<u>Cap-and-Trade Charges (in addition to Delivery Charge)</u>		
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	¢ per m³
Cap-and-Trade Facility-Related Charge	0.0219	¢ per m³

3. Firm Minimum Annual Charge

In each contract year, the customer shall purchase from Union or pay for a minimum volume of gas or transportation services equivalent to 146 days use of firm contracted demand. Overrun gas volumes will not contribute to the minimum volume. In the event that the customer shall not take such minimum volume the customer shall pay an amount equal to the deficiency from the minimum volume times the identified firm minimum annual delivery charge and, if applicable a gas supply commodity charge provided in Schedule "A".

Firm Minimum Annual Delivery Charge	1.5403	¢ per m³

In the event that the contract period exceeds one year the annual minimum volume will be prorated for any part year.

4. Interruptible Service

Union may agree, in its sole discretion, to combine a firm service with an interruptible service provided that the amount of interruptible volume to be delivered and agreed upon by Union and the customer shall be no less than 350,000 m^3 per year.

The price of all gas delivered by Union pursuant to any contract, contract amendment, or contract renewal shall be determined on the basis of the following schedules:

a) (i) Monthly Delivery Commodity Charge

Daily Contracted Demand Level (CD)		
2 400 m³ ≤ CD < 17 000 m³	2.9624	¢ per m³
17 000 m³ ≤ CD < 30 000 m³	2.8325	¢ per m³
30 000 m³ ≤ CD < 50 000 m³	2.7642	¢ per m³
50 000 m³ ≤ CD ≤ 60 000 m³	2.7163	¢ per m³
Delivery - Price Adjustment (All Volumes)	-	¢ per m³
Cap-and-Trade Charges (in addition to Delivery Commodity Charge)		
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	¢ per m³
Cap-and-Trade Facility-Related Charge	0.0219	¢ per m³

(ii) Days Use of Interruptible Contract Demand

The price determined under Paragraph 4(a) of "Rates" will be reduced by the amount based on the number of Days Use of Contracted Demand as scheduled below:

For 75 days use of contracted demand	0.0530	¢ per m³
For each additional days use of contracted demand up to a maximum of 275 days, an additional discount of	0.00212	¢ per m³

(iii) Gas Supply Charge (if applicable)

The gas supply charge is comprised of charges for transportation and for commodity and fuel.
The applicable rates are provided in Schedule "A".

(iv) Monthly Charge	$654.15	per month

b) In each contract year, the customer shall take delivery from Union, or in any event pay for, if available and not accepted by the customer, a minimum volume of gas or transportation services as specified in the contract between the parties and which will not be less than 350 000 m^3 per annum. Overrun volumes will not contribute to the minimum volume. In the event that the customer shall not take such minimum volume, the customer shall pay an amount equal to the deficiency from the minimum volume times the identified interruptible minimum annual delivery charge, and if applicable, a gas supply charge provided in Schedule "A".

In the event that the contract period exceeds one year, the annual minimum volume will be prorated for any part year.

Interruptible Minimum Annual Delivery Charge	3.1526	¢ per m^3

c) Overrun gas is available without penalty provided that it is authorized by Union in advance. Union will not unreasonably withhold authorization. Overrun means gas taken on any day in excess of 105% of contracted daily demand.

Unauthorized overrun gas taken in any month shall be paid for at the identified unauthorized overrun delivery charge and the total gas supply charge for utility sales provided in Schedule "A" per m^3 for all gas supply volumes purchased.

Unauthorized Overrun Delivery Charge	5.3761	¢ per m^3
<u>Cap-and-Trade Charges (in addition to Delivery Charge)</u>		
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	¢ per m^3
Cap-and-Trade Facility-Related Charge	0.0219	¢ per m^3

<u>Unauthorized Overrun Non-Compliance Rate:</u>
Unauthorized overrun gas taken any month during a period when a notice of interruption is in effect shall be paid for at the rate of 233.7000 ¢ per m^3 ($60 per GJ) for the delivery.

(D) Delayed Payment

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

(E) Direct Purchase

Unless otherwise authorized by Union, customers who are delivering gas to Union under direct purchase arrangements must obligate to deliver at a point(s) specified by Union, and must acquire and maintain firm transportation on all upstream pipeline systems for all volumes. Customers initiating direct purchase arrangements, who previously received Gas Supply service, must also accept, unless otherwise authorized by Union, an assignment from Union of transportation capacity on upstream pipeline systems.

(F) Bundled Direct Purchase Delivery

Where a customer elects transportation service under this rate schedule the customer must enter into a Bundled T Gas Contract with Union for delivery of gas to Union.

Bundled T Gas Contract Rates and Gas Purchase Contract Rates are described in rate schedule R1.

INTERRUPTIBLE INDUSTRIAL AND COMMERCIAL CONTRACT RATE

(A) Availability

Available to customers in Union's Southern Delivery Zone.

(B) Applicability

To a customer who enters into a contract for the purchase or transportation of gas for a minimum term of one year that specifies a daily contracted demand between 2 400 m³ and 60 000 m³ inclusive.

(C) Rates

The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated which may be higher than the identified rates.

1. Interruptible Service

The price of all gas delivered by Union pursuant to any contract, contract amendment, or contract renewal shall be determined on the basis of the following schedules:

(i) Monthly Delivery Commodity Charge

Daily Contracted Demand Level (CD)		
2 400 m³ ≤ CD < 17 000 m³	2.9624	¢ per m³
17 000 m³ ≤ CD < 30 000 m³	2.8325	¢ per m³
30 000 m³ ≤ CD < 50 000 m³	2.7642	¢ per m³
50 000 m³ ≤ CD ≤ 60 000 m³	2.7163	¢ per m³
Delivery - Price Adjustment (All Volumes)	-	¢ per m³
Cap-and-Trade Charges (in addition to Delivery Commodity Charge)		
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	¢ per m³
Cap-and-Trade Facility-Related Charge	0.0219	¢ per m³

(ii) Days Use of Interruptible Contract Demand

The price determined under Paragraph 1(a) of "Rates" will be reduced by the amount based on the number of Days Use of Contracted Demand as scheduled below:

For 75 days use of contracted demand	0.0530	¢ per m³
For each additional days use of contracted demand up to a maximum of 275 days, an additional discount of	0.0021	¢ per m³

(iii) Gas Supply Charge (if applicable)

The gas supply charge is comprised of charges for transportation and for commodity and fuel.
The applicable rates are provided in Schedule "A".

(iv) Monthly Charge $654.15 per month

2. In each contract year, the customer shall take delivery from Union, or in any event pay for, if available and not accepted by the customer, a minimum volume of gas or transportation services as specified in the contract between the parties and which will not be less than 350 000 m³ per annum. Overrun volumes will not contribute to the minimum volume. In the event that the customer shall not take such minimum volume, the customer shall pay an amount equal to the deficiency from the minimum volume times the identified interruptible minimum annual delivery charge, and if applicable, a gas supply charge provided in Schedule "A".

In the event that the contract period exceeds one year, the annual minimum volume will be prorated for any part year.

Interruptible Minimum Annual Delivery Charge	3.1526	¢ per m³

3. Overrun gas is available without penalty provided that it is authorized by Union in advance. Union will not unreasonably withhold authorization. Overrun means gas taken on any day in excess of 105% of contracted daily demand.

   Unauthorized overrun gas taken in any month shall be paid for at the identified unauthorized overrun delivery charge and the total gas supply charge for utility sales provided in Schedule "A" per m³ for all gas supply volumes purchased.

Unauthorized Overrun Delivery Charge	5.3761	¢ per m³
Cap-and-Trade Charges (in addition to Delivery Charge)		
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	¢ per m³
Cap-and-Trade Facility-Related Charge	0.0219	¢ per m³

   Unauthorized Overrun Non-Compliance Rate:

   Unauthorized overrun gas taken any month during a period when a notice of interruption is in effect shall be paid for at the rate of 233.7000 ¢ per m³ ($60 per GJ) for the delivery.

4. Non-Interruptible Service

   Union may agree, in its sole discretion, to combine an interruptible service with a firm service in which case the amount of firm daily demand to be delivered shall be agreed upon by Union and the customer.

   a) The monthly demand charge for firm daily deliveries will be 31.7959 ¢ per m³.

   b) The commodity charge for firm service shall be the rate for firm service at Union's firm rates net of a monthly demand charge of 31.7959 ¢ per m³ of daily contracted demand. The commodity charge includes cap-and-trade facility-related charges related to the firm service.

   c) The interruptible commodity charge will be established under Clause 1 of this schedule.

(D) Delayed Payment

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

(E) Direct Purchase

Unless otherwise authorized by Union, customers who are delivering gas to Union under direct purchase arrangements must obligate to deliver at a point(s) specified by Union, and must acquire and maintain firm transportation on all upstream pipeline systems. Customers initiating direct purchase arrangements, who previously received Gas Supply service, must also accept, unless otherwise authorized by Union, an assignment from Union of transportation capacity on upstream pipeline systems.

(F) Bundled Direct Purchase Delivery

Where a customer elects transportation service under this rate schedule the customer must enter into a Bundled T Gas Contract with Union for delivery of gas to Union.

Bundled T Gas Contract Rates and Gas Purchase Contract Rates are described in rate schedule R1.

SPECIAL LARGE VOLUME INDUSTRIAL AND COMMERCIAL CONTRACT RATE

(A) Availability

Available to customers in Union's Southern Delivery Zone.

(B) Applicability

To a Customer

a) who enters into a contract for the purchase or transportation of gas for a minimum term of one year that specifies a combined maximum daily requirement for firm, interruptible and seasonal service of at least 60 000 m³; and

b) who has site specific energy measuring equipment that will be used in determining energy balances.

(C) Rates

The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated which may be higher than the identified rates.

1. Bills will be rendered monthly and shall be the total of:

(i) A Monthly Demand Charge

A negotiated Monthly Demand Charge for each m³ of daily contracted firm demand up to	30.8246	¢ per m³

(ii) A Monthly Delivery Commodity Charge

(1) A Monthly Firm Delivery Commodity Charge for all firm volumes of	0.3809	¢ per m³
and a Delivery - Price Adjustment of	-	¢ per m³
(2) A Monthly Interruptible Delivery Commodity Charge for all interruptible volumes to be negotiated between Union and the customer not to exceed an annual average of	5.5611	¢ per m³
and a Delivery - Price Adjustment of	-	¢ per m³
(3) A Monthly Seasonal Delivery Commodity Charge for all seasonal volumes to be negotiated between Union and the customer not to exceed an annual average of	5.3170	¢ per m³
and a Delivery - Price Adjustment of	-	¢ per m³

Cap-and-Trade Charges (in addition to Delivery Commodity Charge)

Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	¢ per m³
Cap-and-Trade Facility-Related Charge	0.0219	¢ per m³

(iii) Gas Supply Charge (if applicable)

The gas supply charge is comprised of charges for transportation and for commodity and fuel.
The applicable rates are provided in Schedule "A".

(iv) Overrun Gas

Overrun gas is available without penalty provided that it is authorized by Union in advance. Union will not unreasonably withhold authorization.

Unauthorized overrun gas taken in any month shall be paid for at the M1 rate in effect at the time the overrun occurs, plus, if applicable, the total gas supply charge for utility sales provided in Schedule "A" per m³ for all the gas supply volumes purchased.

Cap-and-Trade Charges (in addition to Delivery Charge)

Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	¢ per m³
Cap-and-Trade Facility-Related Charge	0.0219	¢ per m³

Unauthorized Overrun Non-Compliance Rate:
Unauthorized overrun gas taken any month during a period when a notice of interruption is in effect shall be paid for at the rate of 233.7000 ¢ per m³ ($60 per GJ) for the delivery.

2. In negotiating the Monthly Interruptible and Seasonal Commodity Charges, the matters to be considered include:

   (a) The volume of gas for which the customer is willing to contract,

   (b) The load factor of the customer's anticipated gas consumption, the pattern of annual use, and the minimum annual quantity of gas which the customer is willing to contract to take or in any event pay for,

   (c) Interruptible or curtailment provisions, and

   (d) Competition.

3. In each contract year, the customer shall take delivery from Union, or in any event, pay for if available and not accepted by the customer, a minimum volume of gas as specified in the contract between the parties. Overrun gas volumes will not contribute to the minimum volume.

4. The contract may provide that the Monthly Demand Charge specified in Rate Section 1 above shall not apply on all or part of the daily contracted firm demand used by the customer during the testing, commissioning, phasing in, decommissioning and phasing out of gas-using equipment for a period not to exceed one year (the "transition period"). In such event, the contract will provide for a Monthly Delivery Commodity Charge to be applied on such volume during the transition at the identified commissioning and decommissioning rate and the total gas supply charge for utility sales provided in Schedule "A" per m³, if applicable.

Commissioning and Decommissioning Rate	4.0071	¢ per m³
Cap-and-Trade Charges (in addition to Commissioning and Decommissioning Rate)		
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	¢ per m³
Cap-and-Trade Facility-Related Charge	0.0219	¢ per m³

5. Either the utility or a customer, or potential customer, may apply to the Ontario Energy Board to fix rates and other charges different from the rates and other charges specified herein if the changed rates and other charges are considered by either party to be necessary, desirable and in the public interest.

(D) Delayed Payment

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

(E) Direct Purchase

Unless otherwise authorized by Union, customers who are delivering gas to Union under direct purchase arrangements must obligate to deliver at a point(s) specified by Union, and must acquire and maintain firm transportation on all upstream pipeline systems. Customers initiating direct purchase arrangements, who previously received Gas Supply service, must also accept, unless otherwise authorized by Union, an assignment from Union of transportation capacity on upstream pipeline systems.

(F) Bundled Direct Purchase Delivery and Short Term Supplemental Services

Where a customer elects transportation service and/or a short term supplemental service under this rate schedule, the customer must enter into a Contract under rate schedule R1.

LARGE WHOLESALE SERVICE RATE

(A) Availability

Available to customers in Union's Southern Delivery Zone.

(B) Applicability

To a distributor who enters into a contract to purchase and/or receive delivery of a firm supply of gas for distribution to its customers and who agrees to take or pay for an annual quantity of at least two million cubic metres.

(C) Rates

The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated which may be higher than the identified rates.

(i)	A Monthly Demand Charge of established daily demand determined in accordance with the service contract, such demand charge to be computed on a calendar month basis and a pro-rata charge to be made for the fraction of a calendar month which will occur if the day of first regular delivery does not fall on the first day of a month.	22.3154 ¢ per m³
(ii)	A Delivery Commodity Charge for gas delivered of	0.2112 ¢ per m³
	and a Delivery - Price Adjustment of	- ¢ per m³
	Cap-and-Trade Charges (in addition to Delivery Commodity Charge)	
	Cap-and-Trade Facility-Related Charge	0.0219 ¢ per m³

(iii) Gas Supply Charge (if applicable)

The gas supply charge is comprised of charges for transportation and for commodity and fuel.
The applicable rates are provided in Schedule "A".

(D) Delayed Payment

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

(E) Direct Purchase

Unless otherwise authorized by Union, customers who are delivering gas to Union under direct purchase arrangements must obligate to deliver at a point(s) specified by Union, and must acquire and maintain firm transportation on all upstream pipeline systems. Customers initiating direct purchase arrangements, who previously received Gas Supply service, must also accept, unless otherwise authorized by Union, an assignment from Union of transportation capacity on upstream pipeline systems.

(F) Overrun Charge

Authorized:

For all quantities on any day in excess of 103% of the customer's contractual rights, for which authorization has been received, the customer will be charged at the identified authorized overrun delivery charge. Overrun will be authorized by Union at its sole discretion.

Unauthorized:

For all quantities on any day in excess of 103% of the customer's contractual rights, for which authorization has not been received, the customer will be charged at the identified unaurthorized overrun delivery charge.

Authorized Overrun Delivery Charge	0.9449 ¢ per m³
Unauthorized Overrun Delivery Charge	36.0000 ¢ per m³
Cap-and-Trade Charges (in addition to Delivery Charge)	
Cap-and-Trade Facility-Related Charge	0.0219 ¢ per m³

(G) Bundled Direct Purchase Delivery

Where a customer elects transportation service under this rate schedule the customer must enter into a Bundled T Gas Contract with Union for delivery of gas to Union.

Bundled T Gas Contract Rates and Gas Purchase Contract Rates are described in rate schedule R1.

SMALL WHOLESALE SERVICE RATE

(A) Availability

Available to customers in Union's Southern Delivery Zone.

(B) Applicability

To a non-contract distributor who purchases and/or receives delivery of a firm supply of gas for distribution only to its own customers.

(C) Rates

The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated which may be higher than the identified rates.

1. A Delivery Commodity Charge of	6.7224 ¢ per m³
Cap-and-Trade Charges (in addition to Delivery Commodity Charge)	
Cap-and-Trade Facility-Related Charge	0.0219 ¢ per m³

2. Gas Supply Charge (if applicable)

The gas supply charge is comprised of charges for transportation and for commodity and fuel.
The applicable rates are provided in Schedule "A".

(D) Delayed Payment

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

(E) Direct Purchase

Unless otherwise authorized by Union, customers who are delivering gas to Union under direct purchase arrangements must obligate to deliver at a point(s) specified by Union, and must acquire and maintain firm transportation on all upstream pipeline systems. Customers initiating direct purchase arrangements must also accept, unless otherwise authorized by Union, an assignment from Union of transportation capacity on upstream pipeline systems.

(F) Overrun Charge

In the event that a direct purchase customer fails to deliver its contracted volumes to Union, and Union has the capability to continue to supply the customer, Union will do so. This gas shall be paid for at the identified unauthorized overrun delivery charge and, if applicable, the total gas supply charge for utility sales provided in Schedule "A" per m³, plus 7¢ per m³ for all gas supply volumes purchased.

Unauthorized Overrun Delivery Charge	5.3761 ¢ per m³
Cap-and-Trade Charges (in addition to Delivery Charge)	
Cap-and-Trade Facility-Related Charge	0.0219 ¢ per m³

(G) Bundled Direct Purchase Delivery

Where a customer elects transportation service under this rate schedule, the customer must enter into a Bundled T Gas Contract with Union for delivery of gas to Union.

Bundled T Gas Contract Rates and Gas Purchase Contract Rates are described in rate schedule R1.

Effective January 1, 2018 Chatham, Ontario
O.E.B. Order # EB-2017-0255

Supersedes EB-2016-0296 Rate Schedule implemented January 1, 2018.

BUNDLED DIRECT PURCHASE CONTRACT RATE

(A) Availability

Available to customers in Union's Southern Delivery Zone.

(B) Applicability

To a customer who enters into a Receipt Contract or Gas Purchase Contract for delivery and/or sale of gas to Union.

(C) Rates

	Demand Charge Rate/GJ/month	Commodity Charges/Credits Rate/GJ
a) Transportation by Union For gas delivered to Union at any point other than the Ontario Point(s) of Receipt, Union will charge a customer all approved tolls and charges, incurred by Union to transport the gas to the		
b) Firm Backstop Gas Applied to the contracted Firm Backstop Gas Supply Service	$1.530	
Backstop Gas Commodity Charge On all quantities supplied by Union to the Ontario Point(s) of Receipt		$3.961
c) Reasonable Efforts Backstop Gas Paid on all quantities of gas supplied by Union to the customer's Point(s) of Consumption		$4.911
d) Banked Gas Purchase		
T-service		Note (1)
e) Failure to Deliver Applied to all quantities not delivered to Union in the event the customer's supply fails		$2.713
f) Short Term Storage / Balancing Service (2)		
Maximum		$6.000
g) Discretionary Gas Supply Service ("DGSS")		Note (3)
h) Parkway Delivery Commitment Incentive ("PDCI")		$(0.155)

Notes:

(1) The charge for banked gas purchases shall be the higher of the daily spot cost at Dawn in the month of or the month following the month in which gas is sold under this rate and shall not be less than Union's approved weighted average cost of gas.

(2) Short Term Storage / Balancing Service is:

i) a combined space and interruptible deliverability service for short-term or off-peak storage in Union's storage facilities, OR
ii) short-term firm deliverability, OR
iii) a component of an operational balancing service offered.

In negotiating the rate to be charged for short term storage services, the matters that are to be considered include:

i) The minimum amount of storage service to which a customer is willing to commit,
ii) Whether the customer is contracting for firm or interruptible service during Union's peak or non-peak periods,
iii) Utilization of facilities, and
iv) Competition.

(3) Discretionary Gas Supply Service price reflects the "back-to-back" price plus gas supply administration charge.

STORAGE AND TRANSPORTATION RATES FOR CONTRACT CARRIAGE CUSTOMERS

(A) Availability

Available to customers in Union's Southern Delivery Zone.

(B) Applicability

To a customer:

a) whose qualifying annual transportation volume for combined firm and interruptible service is at least 2 500 000 m^3 or greater and has a daily firm contracted demand up to 140,870 m^3; and

b) who enters into a Carriage Service Contract with Union for the transportation or the storage and transportation of Gas for use at facilities located within Union's gas franchise area; and

c) who has meters with electronic recording at each Point of Consumption; and

d) who has site specific energy measuring equipment that will be used in determining energy balances; and

e) for whom Union has determined transportation and/or storage capacity is available.

For the purposes of qualifying for a rate class, the total quantities of gas consumed or expected to be consumed on the customer's contiguous property will be used, irrespective of the number of meters installed.

(C) Rates

The following rates shall be charged for all quantities contracted or handled as appropriate. The identified rates represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated, which may be higher than the identified rates.

STORAGE SERVICE:

			For Customers Providing Their Own Compressor Fuel	
	Demand Charge Rate/GJ/mo	Commodity Charge Rate/GJ	Fuel Ratio	Commodity Charge Rate/GJ
a) Annual Firm Storage Space Applied to contracted Maximum Annual Storage Space	$0.011			
b) Annual Firm Injection/Withdrawal Right: Applied to the contracted Maximum Annual Firm Injection/Withdrawal Right				
Union provides deliverability Inventory	$1.459			
Customer provides deliverability Inventory (4)	$1.186			
c) Incremental Firm Injection Right: Applied to the contracted Maximum Incremental Firm Injection Right	$1.186			
d) Annual Interruptible Withdrawal Right: Applied to the contracted Maximum Annual Interruptible Withdrawal Right	$1.186			

		Demand Charge Rate/GJ/mo	Commodity Charge Rate/GJ	For Customers Providing Their Own Compressor Fuel: Fuel Ratio	For Customers Providing Their Own Compressor Fuel: Commodity Charge Rate/GJ
e)	Withdrawal Commodity Paid on all quantities withdrawn from storage up to the Maximum Daily Storage Withdrawal Quantity		$0.022	0.406%	$0.008
f)	Injection Commodity Paid on all quantities injected into storage up to the Maximum Daily Storage Injection Quantity		$0.022	0.406%	$0.008
g)	Short Term Storage / Balancing Service Maximum		$6.000		

Notes:

1. Demand charges for Annual Services are paid monthly during the term of the contract for not less than one year unless Union, in its sole discretion, accepts a term of less than one year. Demand charges apply whether Union or the customer provides the fuel.

2. Annual Firm Injection Rights are equal to 100% of their respective Annual Firm Withdrawal Rights. Injection Rights in excess of the Annual Firm Injection Rights will be charged at the Incremental Firm Injection Right.

3. Annual Firm Storage Space

   The maximum storage space available to a customer at the rates specified herein is determined by one of the following storage allocation methodologies:

   3.1 Aggregate Excess

   Aggregate excess is the difference between the customer's total 151-day winter consumption (November 1 through March 31) and the customer's average daily consumption (Daily Contract Quantity) for the contract year multiplied by 151 days of winter. This calculation will be done using two years of historical data (with 25% weighting for each year) and one year of forecast data (with 50% weighting). If a customer is new, or an existing customer is undergoing a significant change in operations, the allocation will be based on forecast consumption only, as negotiated between Union and the customer. Once sufficient historical information is available for the customer, the standard calculation will be done. At each contract renewal, the aggregate excess calculation will be performed to set the new space allocation.

   3.2 Obligated daily contract quantity multiple of 15

   Obligated daily contract quantity is the firm daily quantity of gas which the customer must deliver to Union. The 15 x obligated daily contract quantity calculation will be done using the daily contract quantity for the upcoming contract year. At each contract renewal, the 15 x obligated daily contract quantity calculation will be performed to set the new space allocation.

   Customers may contract for less than their maximum entitlement of firm storage space.

4. Annual Injection/Withdrawal Right

   The maximum level of deliverability available to a customer at the rates specified herein is determined by one of the following methodologies:

   4.1 The greater of obligated daily contract quantity or firm daily contract demand less obligated daily contract quantity.

   Customers may contract for less than their maximum entitlement of deliverability. A customer may contract up to this maximum entitlement with a combination of firm and interruptible deliverability as specified in Section (C) Storage Service.

5. Additional storage space or deliverability, in excess of the allocated entitlements per Notes 3 and 4, may be available at market prices.

6. Storage Space and Withdrawal Rights are not assignable to any other party without the prior written consent of Union.

7. Deliverability Inventory being defined as 20% of annual storage space.

8. Short Term Storage / Balancing Service is:
   i) a combined space and interruptible deliverability service for short-term or off-peak storage in Union's storage facilities, or
   ii) short-term firm deliverability, or
   iii) a component of an operational balancing service offered.

   In negotiating the rate to be charged for service, the matters that are to be considered include:
   i) The minimum amount of storage service to which a customer is willing to commit,
   ii) Whether the customer is contracting for firm or interruptible service during Union's peak or non-peak periods,
   iii) Utilization of facilities, and
   iv) Competition.

TRANSPORTATION CHARGES:

	Demand Charge	Union Providing Compressor Fuel: Commodity Charge	For Customers Providing Their Own Compressor Fuel: Fuel Ratio (5)	For Customers Providing Their Own Compressor Fuel: Commodity Charge
	Rate/m^3/mo	Rate/m^3		Rate/m^3
a) Annual Firm Transportation				
Applied to the Firm Daily Contract Demand				
First 28,150 m^3 per month	35.4376 ¢			
Next 112,720 m^3 per month	24.4833 ¢			
b) Firm Transportation Commodity				
Paid on all firm quantities redelivered to the customer's Point(s) of Consumption				
Commodity Charge (All volumes)		0.1744 ¢	0.305%	0.1322 ¢
c) Interruptible Transportation Commodity				
Paid on all interruptible quantities redelivered to the customer's Point(s) of Consumption				
Maximum		5.5611 ¢	0.305%	5.5189 ¢
Cap-and-Trade Charges (in addition to Transportation Commodity Charge)				
Cap-and-Trade Customer-Related Charge (if applicable)		3.5599 ¢		3.5599 ¢
Cap-and-Trade Facility-Related Charge		0.0219 ¢		0.0219 ¢

Notes:

1. All demand charges are paid monthly during the term of the contract for not less than one year unless Union, at its sole discretion, accepts a term of less than one year. Demand charges apply whether Union or the customer provides the fuel.

2. In negotiating the rate to be charged for the transportation of gas under Interruptible Transportation, the matters that are to be considered include:
   a) The amount of the interruptible transportation for which customer is willing to contract,
   b) The anticipated load factor for the interruptible transportation quantities,
   c) Interruptible or curtailment provisions, and
   d) Competition.

3. In each contract year, the customer shall pay for a Minimum Interruptible Transportation Activity level as specified in the Contract. Overrun activity will not contribute to the minimum activity level.

4. Transportation fuel ratios do not apply to customers served from dedicated facilities directly connected to third party transmission systems with custody transfer metering at the interconnect.

5. Either Union or a customer, or potential customer, may apply to the Ontario Energy Board to fix rates and other charges different from the rates and other charges specified herein if the changed rates and other charges are considered by either party to be necessary, desirable and in the public interest.

SUPPLEMENTAL CHARGES:

Rates for supplemental services are provided in Schedule “A”.

Notes:
1. All demand charges are paid monthly during the term of the contract for not less than one year unless Union, in its sole discretion, accepts a term of less than one year.

OVERRUN SERVICE:

1. Annual Storage Space

Authorized

Authorized Overrun is provided as Storage/Balancing Service. It is payable on all quantities on any Day in excess of the customer’s contracted Maximum Storage Space. Overrun will be authorized by Union at is sole discretion. Storage Space Overrun equal to the customer’s firm deliveries from TCPL: less the customer’s Firm Daily Contract Demand, all multiplied by the Days of Interruption called during the period of November 1 to March 31, will be automatically authorized until the following July 1.

Unauthorized

If in any month, the customer has gas in storage in excess of the contracted Maximum Storage Space, and which has not been authorized by Union or provided for under a short term supplemental storage service, such an event will constitute an occurrence of Unauthorized Overrun. The Unauthorized Overrun rate will be $6.000 per GJ applied to the greatest excess for each occurrence.

If on any Day the gas storage balance for the account of the customer is less than zero, the Unauthorized Overrun charge will apply for each GJ of gas below a zero inventory level and this amount of gas shall be deemed not to have been withdrawn from storage. The gas shall be deemed to have been sold to the customer at the highest spot price at Dawn in the month of occurrence and the month following occurrence as identified in the Canadian Gas Price Reporter and shall not be less than Union’s approved weighted average cost of gas If the customer has contracted to provide its own deliverability inventory, the zero inventory level shall be deemed to mean twenty percent (20%) of the Annual Firm Storage Space.

2. Injection, Withdrawals and Transportation

Authorized

The following Overrun rates are applied to any quantities transported, injected or withdrawn in excess of 103% of the Contract parameters. Overrun will be authorized by Union at its sole discretion.

Automatic authorization of Injection Overrun will be given during all Days a customer has been interrupted.

	Firm or Interruptible Service		
	Union Providing Compressor Fuel	For Customers Providing Their Own Compressor Fuel	
	Commodity Charge	Fuel Ratio	Commodity Charge
Storage Injections	$0.086/GJ	0.861%	$0.056/GJ
Storage Withdrawals	$0.086/GJ	0.861%	$0.056/GJ
Transportation	1.3395 ¢/m³	0.305%	1.2973 ¢/m³
Cap-and-Trade Charges (in addition to Transportation Charge)			
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599 ¢/m³		3.5599 ¢/m³
Cap-and-Trade Facility-Related Charge	0.0219 ¢/m³		0.0219 ¢/m³

Unauthorized

For all quantities on any Day in excess of 103% of the customer's contractual rights, for which authorization has not been received, the customer will be charged the identified unauthorized overrun charge, as appropriate.

Unauthorized Overrun Storage Injections and Withdrawals Charge	$1.380	per GJ
Unauthorized Overrun Transportation Charge	5.3761	¢ per m³
Cap-and-Trade Charges (in addition to Transportation Charge)		
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	¢ per m³
Cap-and-Trade Facility-Related Charge	0.0219	¢ per m³

Unauthorized Overrun Non-Compliance Rate:

Unauthorized overrun gas taken any month during a period when a notice of interruption is in effect shall be paid for at the rate of 233.7000 ¢ per m³ ($60 per GJ) for the delivery.

3. Storage / Balancing Service

Authorized

The following Overrun rates are applied to any quantities stored in excess of the Contract parameters. Overrun will be authorized by Union Gas at its sole discretion.

	Firm Service Rate/GJ
Space	$6.000
Injection / Withdrawal Maximum	$6.000

OTHER SERVICES & CHARGES:

1. Monthly Charge

In addition to the rates and charges described previously for each Point of Consumption, a Monthly Charge shall be applied as follows:

Monthly Charge	$1,905.94

2. Diversion of Gas

The availability of the right to divert gas will be based on Union's ability to accommodate the diversion. The price to be charged for the right to divert shall be determined through negotiation.

3. Delivery Obligations

Unless otherwise authorized by Union, all other customers who are delivering gas to Union under direct purchase arrangements must obligate to deliver at a point(s) specified by Union and must acquire and maintain firm transportation on all upstream pipeline systems. Customers initiating direct purchase arrangements, who previously received Gas Supply service, must also accept, unless otherwise authorized by Union, an assignment from Union of transportation capacity on upstream pipeline systems.

4. Additional Service Information

Additional information on Union's T1 service offering can be found at:
www.uniongas.com/business/account-services/unionline/contracts-rates/T1-service-features

The additional information consists of, but is not limited to, the following:

i. Storage space and deliverability entitlement;
ii. The determination of gas supply receipt points and delivery obligations;
iii. The nomination schedule;
iv. The management of multiple redelivery points by a common fuel manager; and
v. The availability of supplemental transactional services including title transfers.

5. Parkway Delivery Commitment Incentive ("PDCI")

For all Parkway Delivery Obligation ("PDO") volumes delivered to Union.	Rate/GJ
PDCI	$(0.155)

(D) Delayed Payment

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

STORAGE AND TRANSPORTATION RATES FOR CONTRACT CARRIAGE CUSTOMERS

(A) Availability

Available to customers in Union's Southern Delivery Zone.

(B) Applicability

To a customer:

a) who has a daily firm contracted demand of at least 140 870 m^3. Firm and/or interruptible daily contracted demand of less than 140,870 m^3 cannot be combined for the purposes of qualifying for this rate class; and

b) who enters into a Carriage Service Contract with Union for the transportation or the storage and transportation of Gas for use at facilities located within Union's gas franchise area; and

c) who has meters with electronic recording at each Point of Consumption; and

d) who has site specific energy measuring equipment that will be used in determining energy balances; and

e) for whom Union has determined transportation and/or storage capacity is available.

For the purposes of qualifying for a rate class, the total quantities of gas consumed or expected to be consumed on the customer's contiguous property will be used, irrespective of the number of meters installed.

(C) Rates

The following rates shall be charged for all quantities contracted or handled as appropriate. The identified rates represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated, which may be higher than the identified rates.

STORAGE SERVICE:

	Demand Charge Rate/GJ/mo	Commodity Charge Rate/GJ	For Customers Providing Their Own Compressor Fuel: Fuel Ratio	For Customers Providing Their Own Compressor Fuel: Commodity Charge Rate/GJ
a) Annual Firm Storage Space Applied to contracted Maximum Annual Storage Space	$0.011			
b) Annual Firm Injection/Withdrawal Right: Applied to the contracted Maximum Annual Firm Injection/Withdrawal Right				
Union provides deliverability Inventory	$1.459			
Customer provides deliverability Inventory (4)	$1.186			
c) Incremental Firm Injection Right: Applied to the contracted Maximum Incremental Firm Injection Right	$1.186			
d) Annual Interruptible Withdrawal Right: Applied to the contracted Maximum Annual Interruptible Withdrawal Right	$1.186			

	Demand Charge Rate/GJ/mo	Commodity Charge Rate/GJ	For Customers Providing Their Own Compressor Fuel: Fuel Ratio	For Customers Providing Their Own Compressor Fuel: Commodity Charge Rate/GJ
e) Withdrawal Commodity Paid on all quantities withdrawn from storage up to the Maximum Daily Storage Withdrawal Quantity		$0.022	0.406%	$0.008
f) Injection Commodity Paid on all quantities injected into storage up to the Maximum Daily Storage Injection Quantity		$0.022	0.406%	$0.008
g) Short Term Storage / Balancing Service Maximum		$6.000		
h) Daily Variance Account Interruptible Injections/Withdrawals Paid on all quantities withdrawn from and injected into the Daily Variance Account up to the Maximum Injection/Withdrawal Quantity		$0.086	0.861%	$0.056

Notes:

1. Demand charges for Annual Services are paid monthly during the term of the contract for not less than one year unless Union, in its sole discretion, accepts a term of less than one year. Demand charges apply whether Union or the customer provides the fuel.

2. Annual Firm Injection Rights are equal to 100% of their respective Annual Firm Withdrawal Rights. Injection Rights in excess of the Annual Firm Injection Rights will be charged at the Incremental Firm Injection Right.

3. Annual Firm Storage Space

   The maximum storage space available to a customer at the rates specified herein is determined by one of the following storage allocation methodologies:

   3.1 Aggregate Excess

   Aggregate excess is the difference between the customer's total 151-day winter consumption (November 1 through March 31) and the customer's average daily consumption (Daily Contract Quantity) for the contract year multiplied by 151 days of winter. This calculation will be done using two years of historical data (with 25% weighting for each year) and one year of forecast data (with 50% weighting). If a customer is new, or an existing customer is undergoing a significant change in operations, the allocation will be based on forecast consumption only, as negotiated between Union and the customer. Once sufficient historical information is available for the customer, the standard calculation will be done. At each contract renewal, the aggregate excess calculation will be performed to set the new space allocation.

   3.2 Obligated daily contract quantity multiple of 15

   Obligated daily contract quantity is the firm daily quantity of gas which the customer must deliver to Union. The 15 x obligated daily contract quantity calculation will be done using the daily contract quantity for the upcoming contract year. At each contract renewal, the 15 x obligated daily contract quantity calculation will be performed to set the new space allocation.

   3.3 For new, large (daily firm transportation demand requirements in excess of 1,200,000 m^3/day) gas fired power generation customers, storage space is determined by peak hourly consumption x 24 x 4 days. Should the customer elect firm deliverability less than their maximum entitlement (see Note 4.2), the maximum storage space available at the rates specified herein is 10 x firm storage deliverability contracted, not to exceed peak hourly consumption x 24 x 4 days.

   3.4 Contract Demand mulitple of 10

   For customers with non-obligated supply and who are not eligible for Section 3.3 above, the maximum storage space is determined as 9 x firm daily Contract Demand and the Daily Variance Account maximum storage space is determined as 1 x firm daily Contract Demand.

   Customers may contract for less than their maximum entitlement of firm storage space.

4. Annual Injection/Withdrawal Right

The maximum level of deliverability available to a customer at the rates specified herein is determined by one of the following methodologies:

4.1 The greater of obligated daily contract quantity or firm daily contract demand less obligated daily contract quantity.

4.2 For new, large (daily firm transportation demand requirements in excess of 1,200,000 m^3/day) gas fired power generation customers, the maximum entitlement of firm storage deliverability is 24 times the customer's peak hourly consumption, with 1.2% firm deliverability available at the rates specified herein.

4.3 For customers with non-obligated supply and are not eligible for Section 4.2 above, the firm storage deliverability is determined as 1.2% of firm storage space, excluding the firm storage space associated with the Daily Variance Account. For the Daily Variance Account, the storage deliverability is available on an interruptible basis up to the customer's firm contracted demand.

Customers may contract for less than their maximum entitlement of deliverability. A customer may contract up to this maximum entitlement with a combination of firm and interruptible deliverability as specified in Section (C) Storage Service.

5. Additional storage space or deliverability, in excess of the allocated entitlements per Notes 3 and 4, may be available at market prices.

6. Storage Space and Withdrawal Rights are not assignable to any other party without the prior written consent of Union.

7. Deliverability Inventory being defined as 20% of annual storage space.

8. Short Term Storage / Balancing Service is:
   i) a combined space and interruptible deliverability service for short-term or off-peak storage in Union's storage facilities, or
   ii) short-term firm deliverability, or
   iii) a component of an operational balancing service offered.

   In negotiating the rate to be charged for service, the matters that are to be considered include:
   i) The minimum amount of storage service to which a customer is willing to commit,
   ii) Whether the customer is contracting for firm or interruptible service during Union's peak or non-peak periods,
   iii) Utilization of facilities, and
   iv) Competition.

TRANSPORTATION CHARGES:

	Demand Charge	Union Providing Compressor Fuel: Commodity Charge	For Customers Providing Their Own Compressor Fuel: Fuel Ratio (5)	For Customers Providing Their Own Compressor Fuel: Commodity Charge
	Rate/m^3/mo	Rate/m^3		Rate/m^3
a) Annual Firm Transportation Demand Applied to the Firm Daily Contract Demand				
First 140,870 m^3 per month	26.4455 ¢			
All over 140,870 m^3 per month	13.9884 ¢			
b) Firm Transportation Commodity Paid on all firm quantities redelivered to the customer's Point(s) of Consumption				
Commodity Charge (All volumes)		0.0776 ¢	0.283%	0.0385 ¢
c) Interruptible Transportation Commodity Paid on all interruptible quantities redelivered to the customer's Point(s) of Consumption				
Maximum		5.5611 ¢	0.283%	5.5220 ¢
Cap-and-Trade Charges (in addition to Transportation Commodity Charge)				
Cap-and-Trade Customer-Related Charge (if applicable)		3.5599 ¢		3.5599 ¢
Cap-and-Trade Facility-Related Charge		0.0219 ¢		0.0219 ¢

Notes:

1. All demand charges are paid monthly during the term of the contract for not less than one year unless Union, at its sole discretion, accepts a term of less than one year. Demand charges apply whether Union or the customer provides the fuel.

2. Effective January 1, 2007, new customers and existing customers with incremental daily firm demand requirements in excess of 1,200,000 m^3/day and who are directly connected to i) the Dawn-Trafalgar transmission system in close proximity to Parkway or ii) a third party pipeline, have the option to pay for service using a Billing Contract Demand. The Billing Contract Demand shall be determined by Union such that the annual revenues over the term of the contract will recover the invested capital, return on capital and operating and maintenance costs associated with the dedicated service in accordance with Union's system expansion policy. The firm transportation demand charge will be applied to the Billing Contract Demand. For customers choosing the Billing Contract Demand option, the authorized transportation overrun rate will apply to all volumes in excess of the Billing Contract Demand but less than the daily firm demand requirement.

3. In negotiating the rate to be charged for the transportation of gas under Interruptible Transportation, the matters that are to be considered include:

   a) The amount of the interruptible transportation for which customer is willing to contract,
   b) The anticipated load factor for the interruptible transportation quantities,
   c) Interruptible or curtailment provisions, and
   d) Competition.

4. In each contract year, the customer shall pay for a Minimum Interruptible Transportation Activity level as specified in the Contract. Overrun activity will not contribute to the minimum activity level.

5. Transportation fuel ratios do not apply to customers served from dedicated facilities directly connected to third party transmission systems with custody transfer metering at the interconnect.

6. Firm transportation fuel ratio does not apply to new customers or existing customers with incremental daily firm demand requirements in excess of 1,200,000 m^3/day that contract for M12 Dawn to Parkway transportation service equivalent to 100% of their daily firm demand requirement. If a customer with a daily firm demand requirement in excess of 1,200,000 m^3/day contracts for M12 Dawn to Parkway transportation service at less than 100% of their firm daily demand requirement, the firm transportation fuel ratio will be applicable to daily volumes not transported under the M12 transportation contract.

7. Either Union or a customer, or potential customer, may apply to the Ontario Energy Board to fix rates and other charges different from the rates and other charges specified herein if the changed rates and other charges are considered by either party to be necessary, desirable and in the public interest.

SUPPLEMENTAL CHARGES:

Rates for supplemental services are provided in Schedule "A".

Notes:

1. All demand charges are paid monthly during the term of the contract for not less than one year unless Union, in its sole discretion, accepts a term of less than one year.

OVERRUN SERVICE:

1. Annual Storage Space

   Authorized

   Authorized Overrun is provided as Storage/Balancing Service. It is payable on all quantities on any Day in excess of the customer's contracted Maximum Storage Space. Overrun will be authorized by Union at is sole discretion. Storage Space Overrun equal to the customer's firm deliveries from TCPL: less the customer's Firm Daily Contract Demand, all multiplied by the Days of Interruption called during the period of November 1 to March 31, will be automatically authorized until the following July 1. Authorized Overrun is not applicable to the Daily Variance Account.

Unauthorized

If in any month, the customer has gas in storage in excess of the contracted Maximum Storage Space, and which has not been authorized by Union or provided for under a short term supplemental storage service, such an event will constitute an occurrence of Unauthorized Overrun. The Unauthorized Overrun rate will be $6.000 per GJ applied to the greatest excess for each occurrence.

If on any Day the gas storage balance for the account of the customer is less than zero, the Unauthorized Overrun charge will apply for each GJ of gas below a zero inventory level and this amount of gas shall be deemed not to have been withdrawn from storage. The gas shall be deemed to have been sold to the customer at the highest spot price at Dawn in the month of occurrence and the month following occurrence as identified in the Canadian Gas Price Reporter and shall not be less than Union's approved weighted average cost of gas If the customer has contracted to provide its own deliverability inventory, the zero inventory level shall be deemed to mean twenty percent (20%) of the Annual Firm Storage Space.

2. Injection, Withdrawals and Transportation

Authorized

The following Overrun rates are applied to any quantities transported, injected or withdrawn in excess of 103% of the Contract parameters. Overrun will be authorized by Union at its sole discretion. The Authorized Overrun rates are not applicable to the Daily Variance Account.

Automatic authorization of Injection Overrun will be given during all Days a customer has been interrupted.

	Union Providing Compressor Fuel	For Customers Providing Their Own Compressor Fuel	
	Commodity Charge	Fuel Ratio	Commodity Charge
Storage Injections	$0.086/GJ	0.861%	$0.056/GJ
Storage Withdrawals	$0.086/GJ	0.861%	$0.056/GJ
Transportation	0.9470 ¢/m³	0.283%	0.9079 ¢/m³
Cap-and-Trade Charges (in addition to Transportation Charge)			
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599 ¢/m³		3.5599 ¢/m³
Cap-and-Trade Facility-Related Charge	0.0219 ¢/m³		0.0219 ¢/m³

Unauthorized

For all quantities on any Day in excess of 103% of the customer's contractual rights, for which authorization has not been received, the customer will be charged the identified unauthorized overrun charge, as appropriate. For the Daily Variance Account, this unauthorized storage overrun rate will be charged on all quantities in excess of the Daily Variance Account maximum injection/withdrawal quantity.

Unauthorized Overrun Storage Injections and Withdrawals Charge	$1.380	per GJ
Unauthorized Overrun Transportation Charge	5.3761	¢ per m³
Cap-and-Trade Charges (in addition to Transportation Charge)		
Cap-and-Trade Customer-Related Charge (if applicable)	3.5599	¢ per m³
Cap-and-Trade Facility-Related Charge	0.0219	¢ per m³

Unauthorized Overrun Non-Compliance Rate:
Unauthorized overrun gas taken any month during a period when a notice of interruption is in effect shall be paid for at the rate of 233.7000 ¢ per m³ ($60 per GJ) for the delivery.

3. Storage / Balancing Service

Authorized

The following Overrun rates are applied to any quantities stored in excess of the Contract parameters. Overrun will be authorized by Union Gas at its sole discretion.

	Firm Service Rate/GJ
Space	$6.000
Injection / Withdrawal	
Maximum	$6.000

OTHER SERVICES & CHARGES:

1. Monthly Charge

In addition to the rates and charges described previously for each Point of Consumption, a Monthly Charge shall be applied as follows:

Monthly Charge	$5,513.81

2. Diversion of Gas

The availability of the right to divert gas will be based on Union's ability to accommodate the diversion. The price to be charged for the right to divert shall be determined through negotiation.

3. Delivery Obligations

The delivery options available to customers are detailed at:
www.uniongas.com/business/account-services/unionline/contracts-rates/T1-service-features

Unless otherwise authorized by Union, all other customers who are delivering gas to Union under direct purchase arrangements must obligate to deliver at a point(s) specified by Union and must acquire and maintain firm transportation on all upstream pipeline systems. Customers initiating direct purchase arrangements, who previously received Gas Supply service, must also accept, unless otherwise authorized by Union, an assignment from Union of transportation capacity on upstream pipeline systems.

4. Nominations

Effective January 1, 2007, new customers and existing customers with incremental daily firm demand requirements in excess of 1,200,000 m^3/day who have non obligated deliveries may contract to use Union's 5 additional nomination windows (13 in total) for the purposes of delivering gas to Union. These windows are in addition to the standard NAESB and TCPL STS nomination windows. Customers taking the additional nomination window service will pay an additional monthly demand charge of $0.070/GJ/day/month multiplied by the non-obligated daily contract quantity.

5. Additional Service Information

Additional information on Union's T2 service offering can be found at:
www.uniongas.com/business/account-services/unionline/contracts-rates/T1-service-features

The additional information consists of, but is not limited to, the following:
i. Storage space and deliverability entitlement;
ii. The determination of gas supply receipt points and delivery obligations;
iii. The nomination schedule;
iv. The management of multiple redelivery points by a common fuel manager; and
v. The availability of supplemental transactional services including title transfers.

6. Parkway Delivery Commitment Incentive ("PDCI")

For all Parkway Delivery Obligation ("PDO") volumes delivered to Union.	Rate/GJ
PDCI	$(0.155)

(D) Delayed Payment

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

unionpas

STORAGE AND TRANSPORTATION RATES FOR CONTRACT CARRIAGE CUSTOMERS

(A) Availability

Available to customers in Union's Southern Delivery Zone.

(B) Applicability

To a Distributor:

a) whose minimum annual transportation of natural gas is 700 000 m^3 or greater; and

b) who enters into a Carriage Service Contract with Union for the transportation or the storage and transportation of Gas for distribution to its customers; and

c) who has meters with electronic recording at each Point of Redelivery; and

d) for whom Union has determined transportation and/or storage capacity is available.

(C) Rates

The following rates shall be charged for all quantities contracted or handled as appropriate. The identified rates represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated, which may be higher than the identified rates.

STORAGE SERVICE:

	Demand Charge Rate/GJ/mo	Commodity Charge Rate/GJ	For Customers Providing Their Own Compressor Fuel: Fuel Ratio	For Customers Providing Their Own Compressor Fuel: Commodity Charge Rate/GJ
a) Annual Firm Storage Space Applied to contracted Maximum Annual Storage Space	$0.011			
b) Annual Firm Injection/Withdrawal Right: Applied to the contracted Maximum Annual Firm Injection/Withdrawal Right				
Union provides deliverability Inventory	$1.459			
Customer provides deliverability Inventory (4)	$1.186			
c) Incremental Firm Injection Right: Applied to the contracted Maximum Incremental Firm Injection Right	$1.186			
d) Annual Interruptible Withdrawal Right: Applied to the contracted Maximum Annual Interruptible Withdrawal Right	$1.186			
e) Withdrawal Commodity Paid on all quantities withdrawn from storage up to the Maximum Daily Storage Withdrawal Quantity		$0.022	0.406%	$0.008
f) Injection Commodity Paid on all quantities injected into storage up to the Maximum Daily Storage Injection Quantity		$0.022	0.406%	$0.008
g) Short Term Storage / Balancing Service Maximum		$6.000		

Notes:

1. Demand charges for Annual Services are paid monthly during the term of the contract for not less than one year unless Union, in its sole discretion, accepts a term of less than one year. Demand charges apply whether Union or the customer provides the fuel.

2. Annual Firm Injection Rights are equal to 100% of their respective Annual Firm Withdrawal Rights. Injection Rights in excess of the Annual Firm Injection Rights will be charged at the Incremental Firm Injection Right.

3. Annual Firm Storage Space

   The maximum storage space available to a customer at the rates specified herein is determined by one of the following storage allocation methodologies:

   3.1 Aggregate Excess

   Aggregate excess is the difference between the customer's total 151-day winter consumption (November 1 through March 31) and the customer's average daily consumption (Daily Contract Quantity) for the contract year multiplied by 151 days of winter. This calculation will be done using two years of historical data (with 25% weighting for each year) and one year of forecast data (with 50% weighting). If a customer is new, or an existing customer is undergoing a significant change in operations, the allocation will be based on forecast consumption only, as negotiated between Union and the customer. Once sufficient historical information is available for the customer, the standard calculation will be done. At each contract renewal, the aggregate excess calculation will be performed to set the new space allocation.

   3.2 Obligated daily contract quantity multiple of 15

   Obligated daily contract quantity is the firm daily quantity of gas which the customer must deliver to Union. The 15 x obligated daily contract quantity calculation will be done using the daily contract quantity for the upcoming contract year. At each contract renewal, the 15 x obligated daily contract quantity calculation will be performed to set the new space allocation.

   Customers may contract for less than their maximum entitlement of firm storage space.

4. Annual Injection/Withdrawal Right

   The maximum level of deliverability available to a customer at the rates specified herein is determined to be the greater of obligated daily contract quantity or firm daily contract demand less obligated daily contract quantity.

   Customers may contract for less than their maximum entitlement of deliverability. A customer may contract up to this maximum entitlement with a combination of firm and interruptible deliverability as specified in Section (C) Storage Service.

5. Additional storage space or deliverability, in excess of the allocated entitlements per Notes 3 and 4, may be available at market prices.

6. Storage Space and Withdrawal Rights are not assignable to any other party without the prior written consent of Union.

7. Deliverability Inventory being defined as 20% of annual storage space.

8. Short Term Storage / Balancing Service is:
   i) a combined space and interruptible deliverability service for short-term or off-peak storage in Union's storage facilities, OR
   ii) short-term firm deliverability, OR
   iii) a component of an operational balancing service offered.

   In negotiating the rate to be charged for this service, the matters that are to be considered include:
   i) The minimum amount of storage service to which a customer is willing to commit,
   ii) Whether the customer is contracting for firm or interruptible service during Union's peak or non-peak periods,
   iii) Utilization of facilities, and
   iv) Competition.

TRANSPORTATION CHARGES:

	Demand Charge	Union Providing Compressor Fuel Commodity Charge	For Customers Providing Their Own Compressor Fuel Fuel Ratio	For Customers Providing Their Own Compressor Fuel Commodity Charge
	Rate/m³/mo	Rate/m³		Rate/m³
a) Annual Firm Transportation Demand Applied to the Firm Daily Contract Demand	16.7213 ¢			
b) Firm Transportation Commodity Paid on all firm quantities redelivered to the Customer's Point(s) of Redelivery		0.1564 ¢	0.380%	0.1039 ¢
Cap-and-Trade Charges (in addition to Transportation Commodity Charge)				
Cap-and-Trade Facility-Related Charge		0.0219 ¢		0.0219 ¢

Notes:

1. All demand charges are paid monthly during the term of the contract for not less than one year unless Union, in its sole discretion, accepts a term of less than one year. Demand charges apply whether Union or the customer provides the fuel.

SUPPLEMENTAL CHARGES

Rates for supplemental services are provided in Schedule "A".

Notes:

1. All demand charges are paid monthly during the term of the contract for not less than one year unless Union, in its sole discretion, accepts a term of less than one year.

OVERRUN SERVICE

1. Annual Storage Space

Authorized

Authorized Overrun is provided as Storage/Balancing Service. It is payable on all quantities on any Day in excess of the customer's contracted Maximum Storage Space. Overrun will be authorized by Union at is sole discretion.

Unauthorized

If in any month, the customer has gas in storage in excess of the contracted Maximum Storage Space, and which has not been authorized by Union or provided for under a short term supplemental storage service, such an event will constitute an occurrence of Unauthorized Overrun. The Unauthorized Overrun rate will be $6.000 per GJ applied to the greatest excess for each occurrence.

If on any Day, the gas storage balance for the account of the customer is less than zero, the Unauthorized Overrun charge will apply for each GJ of gas below a zero inventory level and this amount of gas shall be deemed not to have been withdrawn from storage. The gas shall be deemed to have been sold to the customer at the highest spot price at Dawn in the month of occurrence and the month following occurrence as identified in the Canadian Gas Price Reporter and shall not be less than Union's approved weighted average cost of gas. If the customer has contracted to provide its own deliverability inventory, the zero inventory level shall be deemed to mean twenty percent (20%) of the Annual Firm Storage Space.

2. Injection, Withdrawals and Transportation

Authorized

The following Overrun rates are applied to any quantities transported, injected or withdrawn in excess of 103% of the Contract parameters. Overrun will be authorized by Union at its sole discretion.

	Union Providing Compressor Fuel	For Customers Providing Their Own Compressor Fuel	
	Commodity Charge	Fuel Ratio	Commodity Charge
Storage Injections	\$0.086/GJ	0.861%	\$0.056/GJ
Storage Withdrawals	\$0.086/GJ	0.861%	\$0.056/GJ
Transportation	0.7061 ¢/m³	0.380%	0.6536 ¢/m³
Cap-and-Trade Charges (in addition to Transportation Charge)			
Cap-and-Trade Facility-Related Charge	0.0219 ¢/m³		0.0219 ¢/m³

Unauthorized

For all quantities on any Day in excess of 103% of the customer's contractual rights, for which authorization has not been received, the customer will be charged the identified unauthorized overrun charge, as appropriate.

Unauthorized Overrun Storage Injections and Withdrawals Charge	\$9.243	per GJ
Unauthorized Overrun Transportation Charge	36.0000	¢ per m³
Cap-and-Trade Charges (in addition to Transportation Charge)		
Cap-and-Trade Facility-Related Charge	0.0219	¢ per m³

3. Short Term Storage Services

Authorized

The following Overrun rates are applied to any quantities stored in excess of the Contract parameters. Overrun will be authorized by Union Gas at its sole discretion.

	Firm Service Rate/GJ
Space	\$6.000
Injection / Withdrawal Maximum	\$6.000

OTHER SERVICES & CHARGES

1. Monthly Charge

In addition to the rates and charges described previously for each Point of redelivery a Monthly Charge shall be applied to each specific customer as follows:

	Monthly Charge
City of Kitchener	$ 19,968.19
NRG	$ 3,065.32
Six Nations	$ 1,021.77

If a customer combines Sales Service with Contract Carriage Service, the monthly charge will be prorated such that the customer will under both services pay no more than the above monthly charge.

2. Diversion of Gas

The availability of the right to divert gas will be based on Union's ability to accommodate the diversion. The price to be charged for the right to divert shall be determined through negotiation.

3. Unless otherwise authorized by Union, customers who are delivering gas to Union under direct purchase arrangements must obligate to deliver at a point(s) specified by Union and must acquire and maintain firm transportation on all upstream pipeline systems. Customers initiating direct purchase arrangements must also accept, unless otherwise authorized by Union, an assignment from Union of transportation capacity on upstream pipeline systems.

4. Parkway Delivery Commitment Incentive ("PDCI")

For all Parkway Delivery Obligation ("PDO") volumes delivered to Union.	Rate/GJ
PDCI	$(0.155)

(D) Delayed Payment

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

Effective
2018-01-01
Schedule "A"

Gas Supply Charges

(A) Availability:

Available to customers in Union's Southern Delivery Zone.

(B) Applicability:

To all sales customers served under Rate M1, Rate M2, Rate M4, Rate M5A, Rate M7, Rate M9, Rate M10 and storage and transportation customers taking supplemental services under Rate T1, Rate T2 and Rate T3.

(C) Rates:

	cents / m^3
Utility Sales	
Commodity and Fuel	13.7312 (1)
Commodity and Fuel - Price Adjustment	3.4547
Transportation	-
Total Gas Supply Commodity Charge	17.1859
Minimum Annual Gas Supply Commodity Charge	
Rate M4 Firm and Rate M5A Interruptible Contract	0.1902
Storage and Transportation Supplemental Services - Rate T1, Rate T2 & Rate T3	$/GJ
Monthly demand charges:	
Firm gas supply service	60.300
Firm backstop gas	1.530
Commodity charges:	
Gas supply	3.549
Backstop gas	3.961
Reasonable Efforts Backstop Gas	4.911
Supplemental Inventory	Note (2)
Supplemental Gas Sales Service (cents / m^3)	16.6799
Failure to Deliver: Applied to quantities not delivered to Union in the event the customer's supply fails	2.713
Discretionary Gas Supply Service (DGSS)	Note (3)

Notes:
(1) The Commodity and Fuel rate includes a gas supply administration charge of 0.1902 cents/m^3.
(2) The charge for banked gas purchases shall be the higher of the daily spot gas cost at Dawn in the month of or the month following the month in which gas is sold under this rate and shall not be less than Union's approved weighted average cost of gas.
(3) Reflects the "back to back" price plus a gas supply administration charge.

Effective January 1, 2018 Chatham, Ontario
O.E.B. Order # EB-2017-0255

Supersedes EB-2016-0296 Rate Schedule implemented January 1, 2018.

STORAGE RATES FOR UNBUNDLED CUSTOMERS

(A) Availability

Available to customers in Union's Southern Delivery Zone.

(B) Applicability

To a customer, or an agent, who is authorized to service residential and non-contract commercial and industrial end-users paying for the Monthly Fixed Charge and Delivery charge under Rate M1 or Rate M2:

a) who enters into an Unbundled Service Contract with Union for the storage of Gas for use at facilities located within Union's gas franchise area;

b) who contracts for Standard Peaking Service (SPS) with Union unless the customer can demonstrate that it has a replacement to the deliverability available in the SPS physically tied into Union's system and an OEB approved rate to provide the SPS replacement service;

c) who accepts daily estimates of consumption at Points of Consumption as prepared by Union so that they may nominate an equivalent amount from storage, upstream transportation, or Ontario Producers authorized to sell to third parties;

d) who nominates injections and withdrawals from storage and deliveries on upstream pipeline systems daily or Ontario Producers authorized to sell to third parties;

e) for whom Union has determined storage capacity is available; and

f) who accepts a monthly bill as prepared by Union.

(C) Rates

The following rates shall be charged for all volumes contracted or handled as appropriate. The identified rates represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated, which may be higher than the identified rates.

STORAGE SERVICE

	Demand Charge Rate/GJ/mo	Fuel Ratio	Commodity Charge Rate/GJ
i) Standard Storage Service (SSS)			
a) Combined Storage Space & Deliverability Applied to contracted Maximum Storage Space	$0.023		
b) Injection Commodity		0.406%	$0.026
c) Withdrawal Commodity		0.406%	$0.026
ii) Standard Peaking Service (SPS)			
a) Combined Storage Space & Deliverability Applied to contracted Maximum Storage Space	$0.114		
b) Injection Commodity		0.406%	$0.026
c) Withdrawal Commodity		0.861%	$0.026
iii) Supplemental Service			
a) Incremental Firm Injection Right: (5) Applied to the contracted Maximum Incremental Firm Injection Right	$1.030		

	Demand Charge Rate/GJ/mo	Fuel Ratio	Commodity Charge Rate/GJ
b) Incremental Firm Withdrawal Right: (5) Applied to the contracted Maximum Incremental Firm Withdrawal Right	$1.030		
c) Short Term Storage / Balancing Service - Maximum			$6.000

Notes:

1. Demand charges for Annual Services are paid monthly during the term of the Contract, which shall not be less than one year, unless Union, in its sole discretion, accepts a term of less than one year.

2. Daily Firm Injection and Withdrawal Rights shall be pursuant to the Storage Contract.

3. Storage Space, Withdrawal Rights, and Injection Rights are not assignable to any other party without the prior written consent of Union and where necessary, approval from the Ontario Energy Board.

4. Short Term Storage / Balancing service (less than 2 years) is:
   i) a combined space and interruptible deliverability service for short-term or off-peak storage in Union's storage facilities, OR
   ii) short-term incremental firm deliverability, OR
   iii) a component of an operational balancing service offered.

   In negotiating the rate to be charged for service, the matters that are to be considered include:
   i) The minimum amount of storage service to which a customer is willing to commit,
   ii) Whether the customer is contracting for firm or interruptible service during Union's peak or non-peak periods,
   iii) Utilization of facilities,
   iv) Competition, and
   v) Term.

5. Union's ability to offer incremental injection and withdrawal rights is subject to annual asset availability.

OVERRUN SERVICE

1. Injection and Withdrawal

Authorized	Fuel Ratio	Commodity Charge Rate/GJ
Injection	0.861%	$0.060
Withdrawal	0.861%	$0.060

Unauthorized

If in any month, the customer has gas in storage in excess of the contracted Maximum Storage Space or the gas storage balance for the account of the customer is less than zero or the customer has injected or withdrawn volumes from storage which exceeds their contractual rights, and which has not been authorized by Union or provided for under a short term storage/balancing service, such an event will constitute an occurrence of Unauthorized Overrun. The Unauthorized Overrun rate during the November 1 to April 15 period will be $60.00 per GJ. The Unauthorized Overrun rate during the April 16 to October 31 period will be $6.000 per GJ.

OTHER SERVICES & CHARGES

1. Unless otherwise authorized by Union, customers who are delivering gas to Union under direct purchase arrangements must commit to provide a call at Parkway, throughout the winter period, for a specified number of days. Customers initiating direct purchase arrangements, who previously received Gas Supply service, must also accept, unless otherwise authorized by Union, an assignment from Union of transportation capacity on upstream pipeline systems.

2. Parkway Delivery Commitment Incentive ("PDCI")

For all Parkway Delivery Obligation ("PDO") volumes delivered to Union.	Rate/GJ
PDCI	$(0.155)

(D) Delayed Payment

The monthly late payment charge equal to 1.5% per month or 18% per annum (for an approximate effective rate of 19.56% per annum) multiplied by the total of all unpaid charges will be added to the bill if full payment is not received by the late payment effective date, which is 20 days after the bill has been issued.

TRANSPORTATION RATES

(A) Applicability

The charges under this schedule shall be applicable to a Shipper who enters into a Transportation Service Contract with Union.

Applicable Points
Dawn as a receipt point: Dawn (TCPL), Dawn (Facilities), Dawn (Tecumseh), Dawn (Vector) and Dawn (TSLE).
Dawn as a delivery point: Dawn (Facilities).

(B) Services

Transportation Service under this rate schedule shall be for transportation on Union's Dawn - Parkway facilities.

(C) Rates

The identified rates represent maximum prices for service. These rates may change periodically.
Multi-year prices may also be negotiated, which may be higher than the identified rates.

	Monthly Demand Charges (applied to daily contract demand)	Fuel and Commodity Charges		
		Union Supplied Fuel	Shipper Supplied Fuel	
	Rate/GJ	Fuel and Commodity Charge Rate/GJ	Fuel Ratio % AND	Commodity Charge Rate/GJ
Firm Transportation (1), (5)				
Dawn to Parkway	$3.402	Monthly fuel and commodity rates shall be in accordance with schedule "C".	Monthly fuel ratios shall be in accordance with schedule "C".	
Dawn to Kirkwall	$2.865			
Kirkwall to Parkway	$0.537			
M12-X Firm Transportation				
Between Dawn, Kirkwall and Parkway	$4.239	Monthly fuel and commodity rates shall be in accordance with schedule "C".	Monthly fuel ratios shall be in accordance with schedule "C".	
Limited Firm/Interruptible Transportation (1)				
Dawn to Parkway – Maximum	$8.165	Monthly fuel and commodity rates shall be in accordance with schedule "C".	Monthly fuel ratios shall be in accordance with schedule "C".	
Dawn to Kirkwall – Maximum	$8.165			
Parkway (TCPL / EGT) to Parkway (Cons) / Lisgar (2)	n/a	n/a	0.157%	
Cap-and-Trade Facility-Related Charges (applied to all quantities transported)				
Dawn to Kirkwall / Lisgar		$0.006		$0.006
Dawn to Parkway		$0.006		$0.006
Kirkwall to Parkway / Lisgar		$0.006		$0.006
Parkway to Dawn / Kirkwall		$0.006		$0.006
Kirkwall to Dawn		$0.006		$0.006
Parkway (TCPL / EGT) to Parkway (Cons) / Lisgar (2)		$0.006		$0.006

(C) Rates (Cont'd)

Authorized Overrun (3)

Authorized overrun rates will be payable on all quantities in excess of Union's obligation on any day. The overrun charges payable will be calculated at the following rates. Overrun will be authorized at Union's sole discretion.

	Fuel and Commodity Charges		
	Union Supplied Fuel	Shipper Supplied Fuel	
	Fuel and Commodity Charge Rate/GJ	Fuel Ratio % AND	Commodity Charge Rate/GJ
Transportation Overrun			
Dawn to Parkway	Monthly fuel and commodity rates shall be in accordance with schedule "C".	Monthly fuel ratios shall be in accordance with schedule "C".	$0.112
Dawn to Kirkwall			$0.094
Kirkwall to Parkway			$0.018
Parkway (TCPL) Overrun (4)	n/a	0.704%	n/a
M12-X Firm Transportation			
Between Dawn, Kirkwall and Parkway	Monthly fuel and commodity rates shall be in accordance with schedule "C".	Monthly fuel ratios shall be in accordance with schedule "C".	$0.139
Cap-and-Trade Facility-Related Charges (applied to all quantities transported)			
Dawn to Kirkwall / Lisgar	$0.006		$0.006
Dawn to Parkway	$0.006		$0.006
Kirkwall to Parkway / Lisgar	$0.006		$0.006
Parkway to Dawn / Kirkwall	$0.006		$0.006
Kirkwall to Dawn	$0.006		$0.006
Parkway (TCPL / EGT) to Parkway (Cons) / Lisgar (2)	$0.006		$0.006

Unauthorized Overrun

Authorized Overrun rates will be payable on all quantities up to 2% in excess of Union's contractual obligation.

The Unauthorized Overrun shall be the higher of the reported daily spot price of gas at either Dawn, Parkway, Niagara or Iroquois in the month of or the month following the month in which the overrun occurred plus 25% for all usage on any day in excess of 102% of Union's contractual obligation.

Nomination Variances

Where Union and the shipper have entered into a Limited Balancing Agreement ("LBA"), the rate for unauthorized parking or drafting which results from nomination variances shall equal the "Balancing Fee" rate as described under Article XXII of TransCanada PipeLines Transportation Tariff.

Notes for Section (C) Rates:

(1) The annual transportation commodity charge is calculated by application of the YCRR Formula, as per Section (D). The annual transportation fuel required is calculated by application of the YCR Formula, as per Section (D).

(2) This rate is for westerly transportation within the Parkway yard, from Parkway (TCPL) or Parkway (EGT) to Parkway (Cons) or Lisgar.

(3) For purposes of applying the YCRR Formula or YCR Formula (Section (D)) to transportation overrun quantities, the transportation commodity revenue will be deemed to be equal to the commodity charge of the applicable service as detailed in Section (B).

(4) This ratio will be applied to all gas quantities for which Union is obligated to deliver to Parkway (Cons) or Lisgar and has agreed to deliver to Parkway (TCPL) or Parkway (EGT) on an interruptible basis. This will be in addition to any rate or ratio paid for transportation easterly to Parkway (Cons) or Lisgar.

(5) A demand charge of $0.070/GJ/day/month will be applicable for customers contracting for firm all day transportation service in addition to the demand charges appearing on this schedule for firm transportation service to either Kirkwall or Parkway.

(D) Transportation Commodity

The annual fuel charge in kind or in dollars for transportation service in any contract year shall be equal to the sum of the application of the following equation applied monthly for the 12 months April through March (The “YCRR” or “YCR” Formula). An appropriate adjustment in the fuel charges will be made in May for the previous 12 months ending March 31st to obtain the annual fuel charges as calculated using the applicable “YCRR” or “YCR” Formula. At Union’s sole discretion Union may make more frequent adjustments than once per year. The YCRR and YCR adjustments must be paid/remitted to/from Shippers at Dawn within one billing cycle after invoicing.

$$YCR = \sum_{1}^{4} [(0.001570 \text{ X } (QT1 + QT3)) + (DSFx(QT1 + QT3)) + F_{ST}] \text{ For June 1 to Sept. 30}$$

plus

$$\sum_{5}^{12} [0.001570 \text{ x } (QT1 + Q3)) + (DWFxQT1) + F_{WT}] \text{ For Oct. 1 to May 31}$$

$$YCRR = \sum_{1}^{4} [(0.001570 \text{ x } (QT1 + QT3)) + (DSFx(QT1 + QT3)) + F_{ST}]xR \text{ For June 1 to Sept. 30}$$

plus

$$\sum_{5}^{12} [(0.001570 \text{ x } (QT1 + QT3)) + (DWFxQT1) + F_{WT}]xR \text{ For Oct. 1 to May 31}$$

where: DSF = 0.00000 for Dawn summer fuel requirements
DWF = 0.0020 for Dawn winter fuel requirements

in which:

YC Yearly Commodity Required

The sum of 12 separate monthly calculations of Commodity Quantities required for the period from April through March.

YCRR Yearly Commodity Revenue Required

The sum of 12 separate monthly calculations of Commodity Revenue required for the period April through March.

QT1 Monthly quantities in GJ transported easterly hereunder received at Dawn at not less than 4 850 kPa but less than 5 860 kPa (compression required at Dawn).

QT3 Monthly quantities in GJ transported westerly hereunder received at the Parkway Delivery Point.

F_{WT} The individual Shipper’s monthly share of compressor fuel used in GJ which was required at Union’s Lobo, Bright, Trafalgar and Parkway Compressor Stations ("Lobo", "Bright", "Trafalgar" and "Parkway") to transport the same Shipper’s QT1 monthly quantities easterly.

Lobo, Bright, Trafalgar and Parkway compressor fuel required by each Shipper will be calculated each month.

The monthly Lobo and Bright compressor fuel will be allocated to each Shipper in the same proportion as the Shipper’s monthly quantities transported is to the monthly transported quantity for all users including Union.

The monthly Parkway and Trafalgar compressor fuel used will be allocated to each Shipper in the same proportion as the monthly quantity transported to Parkway (TCPL) for each user is to the total monthly quantity transported for all users including Union.

(D) Transportation Commodity (Cont'd)

F_{ST} The individual Shipper's monthly share of compressor fuel used in GJ which was required at Union's Lobo, Bright, Trafalgar and Parkway compressor stations to transport the same Shipper's quantity on the Trafalgar system.

Lobo, Bright, Trafalgar and Parkway compressor fuel required by each Shipper will be calculated each month.

R Union's weighted average cost of gas in $/GJ.

Notes
(i) In the case of Easterly flow, direct deliveries by TCPL at Parkway to Union or on behalf of Union to Union's Transportation Shippers will be allocated to supply Union's markets on the Dawn-Parkway facilities starting at Parkway and proceeding westerly to successive laterals until exhausted.

(E) Provision for Compressor Fuel

For a Shipper that has elected to provide its own compressor fuel.

Transportation Fuel

On a daily basis, the Shipper will provide Union at the delivery point and delivery pressure as specified in the contract, a quantity (the "Transportation Fuel Quantity") representing the Shipper's share of compressor fuel and unaccounted for gas for transportation service on Union's system.

The Transportation Fuel Quantity will be determined on a daily basis, as follows:

Transportation Fuel Quantity = Transportation Quantity x Transportation Fuel Ratio.

In the event that the actual quantity of fuel supplied by the Shipper was different from the actual fuel quantity as calculated using the YCR formula, an adjustment will be made in May for the previous 12 months ending March 31st.

Nominations

The Shipper will be required to nominate its Transportation Fuel Quantity in addition to its normal nominations for transportation services.

(F) Terms of Service

The General Terms & Conditions applicable to this rate schedule shall be in accordance with the attached Schedule "A" for contracts in effect before October 1, 2010. The General Terms & Conditions applicable to this rate schedule shall be in accordance with the attached Schedule "A 2010" for contracts in effect on or after October 1, 2010.

(G) Nominations

Nominations under this rate schedule shall be in accordance with the attached Schedule "B" for contracts in effect before October 1, 2010. Nominations under this rate schedule shall be in accordance with the attached Schedule "B 2010" for contracts in effect on or after October 1, 2010.

(H) Monthly Fuel Rates and Ratios

Monthly fuel rates and ratios under this rate schedule shall be in accordance with Schedule "C".

(I) Receipt and Delivery Points and Pressures

Receipt and Delivery Points and Pressures under this rate schedule shall be in accordance with Schedule "D 2010" for contracts in effect on or after October 1, 2010.

SCHEDULE "A"

RATE M12
GENERAL TERMS & CONDITIONS

I. DEFINITIONS

Except where the context expressly requires or states another meaning, the following terms, when used in these General Terms & Conditions and in any contract into which these General Terms & Conditions are incorporated, shall be construed to have the following meanings:

1. "Contract" shall refer to the Contract to which these General Terms & Conditions shall apply, and into which they are incorporated;

2. "cubic metre" shall mean the volume of gas which occupies one cubic metre when such gas is at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

3. "day" shall mean a period of twenty-four (24) consecutive hours beginning at 9:00 a.m. Central Standard time. The reference date for any day shall be the calendar date upon which the twenty-four (24) hour period shall commence;

4. "delivery" shall mean any gas that is delivered by Union into Shipper's possession, or to the possession of Shipper's agent;

5. "firm" shall mean service not subject to curtailment or interruption except under Articles XI and XII of this Schedule "A";

6. "gas" shall mean gas as defined in the Ontario Energy Board Act, 1998, S.O. 1998, c.15, Sch. B, as amended, supplemented or re-enacted from time to time;

7. "gross heating value" shall mean the total heat expressed in megajoules per cubic metre (MJ/m^3) produced by the complete combustion at constant pressure of one (1) cubic metre of gas with air, with the gas free of water vapour and the temperature of the gas, air and products of combustion at standard temperature and all water formed by the combustion reaction condensed to the liquid state;

8. "interruptible service" shall mean service subject to curtailment or interruption, after notice, at any time;

9. “Interconnecting Pipeline” shall mean a pipeline that directly connects to the Union pipeline system;

10. "joule" (J) shall mean the work done when the point of application of a force of one (1) newton is displaced a distance of one (1) metre in the direction of the force. The term "megajoule" (MJ) shall mean 1,000,000 joules. The term “gigajoule” (GJ) shall mean 1,000,000,000 joules;

11. "limited interruptible service" shall mean gas service subject to interruption or curtailment on a limited number of days as specified in the Contract;

12. "m^3" shall mean cubic metre of gas and "10^3m^3" shall mean 1,000 cubic metres of gas;

13. "month" shall mean the period beginning at 9:00 a.m. Central Standard time on the first day of a calendar month and ending at 9:00 a.m. Central Standard time on the first day of the following calendar month;

14. "OEB" means the Ontario Energy Board;

15. "pascal" (Pa) shall mean the pressure produced when a force of one (1) newton is applied to an area of one (1) square metre. The term "kilopascal" (kPa) shall mean 1,000 pascals;

16. "receipt" shall mean any gas that is delivered into Union's possession, or the possession of Union’s agent;

17. "Shipper" shall have the meaning as defined in the Contract and shall also include Shipper's agent(s);

18. "TCPL" means TransCanada PipeLines Limited;

19. "cricondentherm hydrocarbon dewpoint" shall mean the highest hydrocarbon dewpoint temperature on the phase envelope;

20. "hydrocarbon dewpoint" shall mean temperature at a specific pressure where hydrocarbon vapour condensation begins;

21. "specific gravity" shall mean density of the gas divided by density of air, with both at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

22. "Wobbe Number" shall mean gross heating value of the gas divided by the square root of its specific gravity.

II. GAS QUALITY

1. Natural Gas: The minimum gross heating value of the gas delivered to/by Union hereunder, shall be thirty-six (36) megajoules per cubic metre. The maximum gross heating value of the gas delivered to/by Union hereunder shall be forty point two (40.2) megajoules per cubic metre. The gas to be delivered hereunder to Union may be a commingled supply from Shipper's gas sources of supply. The gas to be delivered by Union may be a commingled supply from Union's sources of gas supply; provided, however, that helium, natural gasoline, butane, propane and other hydrocarbons, except methane, may be removed prior to delivery to Shipper. Further, Union may subject, or permit the subjection of, the gas to compression, dehydration, cooling, cleaning and other processes.

2. Freedom from objectionable matter: The gas to be delivered to/by Union hereunder,

   a. shall be commercially free from bacteria, sand, dust, gums, crude oils, lubricating oils, liquids, chemicals or compounds used in the production, treatment, compression or dehydration of the gas or any other objectionable substance in sufficient quantity so as to render the gas toxic, unmerchantable or cause injury to or interference with the proper operation of the lines, regulators, meters or other appliances through which it flows,

   b. shall not contain more than seven (7) milligrams of hydrogen sulphide per cubic metre of gas nor more than four hundred and sixty (460) milligrams of total sulphur per cubic metre of gas,

   c. shall not contain more than five (5) milligrams of mercaptan sulphur per cubic metre of gas,

   d. shall not contain more than two point zero (2.0) molar percent by volume of carbon dioxide in the gas,

   e. shall not contain more than zero point four (0.4) molar percent by volume of oxygen in the gas,

   f. shall not contain more than zero point five (0.5) molar percent by volume of carbon monoxide in the gas,

   g. shall not contain more than four point zero (4.0) molar percent by volume of hydrogen in the gas,

   h. shall not contain more than sixty-five (65) milligrams of water vapour per cubic metre of gas,

   i. shall not have a cricondentherm hydrocarbon dewpoint exceeding minus eight (-8) degrees Celsius,

   j. shall have Wobbe Number from forty seven point fifty (47.50) megajoules per cubic metre of gas to fifty one point forty six (51.46) megajoules per cubic metre of gas, maximum of one point five (1.5) mole percent by volume of butane plus (C4+) in the gas, and maximum of four point zero (4.0) mole percent by volume of total inerts in the gas in order to be interchangeable with other Interconnecting Pipeline gas.

3. Non-conforming Gas: In addition to any other right or remedy of a party, each party shall be entitled to refuse to accept delivery of any gas which does not conform to any of the specifications set out in this Article II.

4. Quality of Gas Received: The quality of the gas to be received by Union hereunder is to be of a merchantable quality and in accordance with the quality standards as set out by Union in this Article II, but, Union will also accept gas of a quality as set out in any other Interconnecting Pipeline's general terms and conditions, provided that all Interconnecting Pipelines accept such quality of gas. In addition to any other right or remedy of a party, each party shall be entitled to refuse to accept delivery of any gas which does not conform to any of the specifications set out in Union's M12 Rate Schedule.

III. MEASUREMENTS

1. Storage, Transportation, and/or Sales Unit: The unit of the gas delivered to Union shall be a megajoule or a gigajoule. The unit of gas transported or stored by Union shall be a megajoule or a gigajoule. The unit of gas delivered by Union shall be a megajoule, a gigajoule, a cubic metre (m^3) or one thousand cubic metres (10^3m^3) at Union's discretion.

2. Determination of Volume and Energy:

   a. The volume and energy amounts determined under the Contract shall be determined in accordance with the Electricity and Gas Inspection Act (Canada), RSC 1985, c E-4- (the "**Act**") and the Electricity and Gas Inspection Regulations, SOR 86/131 (the "**Regulations**"), and any documents issued under the authority of the Act and Regulations and any amendments thereto.

   b. The supercompressibility factor shall be determined in accordance with either the "Manual for Determination of Supercompressibility Factors for Natural Gas" (PAR Project NX-19) published in 1962 or with American Gas Association Transmission Measurement Committee Report No. 8, Nov. 1992, at Union's discretion, all as amended from time to time.

   c. The volume and/or energy of the gas delivered to/by Union hereunder shall be determined by the measurement equipment designated in Article VII herein.

   d. Upon request by Union, Shipper shall obtain measurement of the total quantity of gas received by Union hereunder from the Interconnecting Pipeline. Such measurement shall be done in accordance with established practices between Union and the Interconnecting Pipeline.

IV. RECEIPT POINT AND DELIVERY POINT

1. Unless otherwise specified in the Contract, the point or points of receipt for all gas to be covered hereunder shall be on the outlet side of the measuring stations located at or near the point or points of connection specified in the Contract, where Union takes possession of the gas.

2. Unless otherwise specified in the Contract, the point or points of delivery for all gas to be covered hereunder shall be on the outlet side of the measuring stations located at or near the point or points of connection as specified in the Contract where Shipper takes possession of the gas.

V. POSSESSION OF AND RESPONSIBILITY FOR GAS

Intentionally blank

VI. FACILITIES ON SHIPPER'S PROPERTY

Except under those conditions where Union is delivering to TCPL for TCPL or Shipper at Union's Parkway Point of Delivery, or to an Interconnecting Pipeline, or where otherwise specified in the Contract, the following will apply:

1. Construction and Maintenance: Union, at its own expense may construct, maintain and operate on Shipper's property at the delivery point a measuring station properly equipped with a meter or meters and any other necessary measuring equipment for properly measuring the gas redelivered under the Contract. Shipper will grant to Union a lease and/or rights-of-way over property of Shipper as required by Union to install such facilities and to connect same to Union's pipeline.

2. Entry: Union, its servants, agents and each of them may at any reasonable time on notice (except in cases of emergency) to Shipper or his duly authorized representative enter Shipper's property for the purpose of constructing, maintaining, removing, operating and/or repairing station equipment.

3. Property: The said station and equipment will be and remain the property of Union notwithstanding it is constructed on and attached to the realty of Shipper, and Union may at its own expense remove it upon termination of the Contract and will do so if so requested by Shipper.

VII. MEASURING EQUIPMENT

1. Metering by Union: Union will install and operate meters and related equipment as required and in accordance with the Act and Regulations referenced in Article III herein.

2. Metering by Others: In the event that all or any gas delivered to/by Union hereunder is measured by a meter that is owned and operated by an Interconnecting Pipeline, then Union and Shipper agree to accept that metering for the purpose of determining the volume and energy of gas delivered to/by Union on behalf of the Shipper. The standard of measurement and tests for the gas delivered to/by Union hereunder shall be in accordance with the general terms and conditions as incorporated in that Interconnecting Pipeline company's gas tariff as approved by their regulatory body.

3. Check Measuring Equipment: Shipper may install, maintain and operate, at the redelivery point, at its own expense, such check measuring equipment as desired, provided that such equipment shall be so installed as not to interfere with the operation of Union's measuring equipment at or near the delivery point, and shall be installed, maintained and operated in conformity with the same standards and specifications applicable to Union's metering facilities.

4. Rights of Parties: The measuring equipment installed by either party, together with any building erected by it for such equipment, shall be and remain its property. However, Union and Shipper shall have the right to have representatives present at the time of any installing, reading, cleaning, changing, repairing, inspecting, testing, calibrating, or adjusting done in connection with the other's measuring equipment used in measuring or checking the measurement of deliveries of gas to/by Union under the Contract. Either party will give the other party reasonable notice of its intention to carry out the acts herein specified. The records from such measuring equipment shall remain the property of their owner, but upon request each will submit to the other its records and charts, together with calculations therefrom, for inspection and verification, subject to return within ten (10) days after receipt thereof.

5. Calibration and Test of Measuring Equipment: The accuracy of Union's measuring equipment shall be verified by Union at reasonable intervals, and if requested, in the presence of representatives of Shipper, but Union shall not be required to verify the accuracy of such equipment more frequently than once in any thirty (30) day period. In the event either party notifies the other that it desires a special test of any measuring equipment, the parties shall co-operate to secure a prompt verification of the accuracy of such equipment. The expense of any such special test, if called for by Shipper, shall be borne by Shipper if the measuring equipment tested is found to be in error by not more than two per cent (2%). If, upon test, any measuring equipment is found to be in error by not more than two per cent (2%), previous recordings of such equipment shall be considered accurate in computing redeliveries of gas, but such equipment shall be adjusted at once to record as near to absolute accuracy as possible. If the test conducted shows a percentage of inaccuracy greater than two percent (2%), the financial adjustment, if any, shall be calculated in accordance with the Act and Regulations , as may be amended from time to time and in accordance with any successor statutes and regulations.

6. Preservation of Metering Records: Union and Shipper shall each preserve for a period of at least six (6) years all test data, and other relevant records.

7. Error in Metering or Meter Failure: In the event of an error in metering or a meter failure, (such error or failure being determined through check measurement by Union or any other available method), then Shipper shall enforce its rights as Shipper with the Interconnecting Pipeline(s) to remedy such error or failure including enforcing any inspection and/or verification rights and procedures.

VIII. BILLING

1. Monthly Billing Date: Union shall render bills on or before the 10th day of each month for all services furnished during the preceding month. Such charges may be based on estimated quantities, if actual quantities are unavailable in time to prepare the billing. Union shall provide, in a succeeding month's billing, an adjustment based on any difference between actual quantities and estimated quantities, without any interest charge. If presentation of a bill to Shipper is delayed after the 10th day of the month, then the time of payment shall be extended accordingly, unless Shipper is responsible for such delay.

2. Right of Examination: Both Union and Shipper shall have the right to examine at any reasonable time the books, records and charts of the other to the extent necessary to verify the accuracy of any statement, chart or computation made under or pursuant to the provisions of the Contract.

IX. PAYMENTS

1. Monthly Payments: Shipper shall pay the invoiced amount directly into Union's bank account as directed on the invoice on or before the twentieth (20^{th}) day of each month. If the payment date is not a business day, then payment must be received in Union's account on the first business day preceding the twentieth (20th) day of the month.

2. Remedies for Non-payment: Should Shipper fail to pay all of the amount of any bill as herein provided when such amount is due,

   a. Shipper shall pay to Union interest on the unpaid portion of the bill accruing at a rate per annum equal to the minimum commercial lending rate of Union's principal banker in effect from time to time from the due date until the date of payment.

   b. If such failure to pay continues for thirty (30) days after payment is due, Union, in addition to any other remedy it may have under the Contract, may suspend service(s) until such amount is paid. Notwithstanding such suspension, all demand charges shall continue to accrue hereunder as if such suspension were not in place.

   If Shipper in good faith disputes the amount of any such bill or part thereof Shipper shall pay to Union such amounts as it concedes to be correct. At any time thereafter, within twenty (20) days of a demand made by Union, Shipper shall furnish financial assurances satisfactory to Union, guaranteeing payment to Union of the amount ultimately found due upon such bill after a final determination. Such a final determination may be reached either by agreement, arbitration decision or judgement of the courts, as may be the case. Union shall not be entitled to suspend service(s) because of such non-payment unless and until default occurs in the conditions of such financial assurances or default occurs in payment of any other amount due to Union hereunder.

   Notwithstanding the foregoing paragraph(s), Shipper is not relieved from the obligation to continue its deliveries of gas to Union under the terms of any agreement, where Shipper has contracted to deliver specified quantities of gas to Union.

3. Billing Adjustments: If it shall be found that at any time or times Shipper has been overcharged or undercharged in any form whatsoever under the provisions of the Contract and Shipper shall have actually paid the bills containing such

overcharge or undercharge, Union shall refund the amount of any such overcharge and interest shall accrue from and including the first day of such overcharge as paid to the date of refund and shall be calculated but not compounded at a rate per annum determined each day during the calculation period to be equal to the minimum commercial lending rate of Union's principal banker, and the Shipper shall pay the amount of any such undercharge, but without interest. In the event Union renders a bill to Shipper based upon measurement estimates, the required adjustment to reflect actual measurement shall be made on the bill next following the determination of such actual measurement, without any charge of interest. In the event an error is discovered in the amount billed in any statement rendered by Union, such error shall be adjusted by Union. Such overcharge, undercharge or error shall be adjusted by Union on the bill next following its determination (where the term "bill" next following shall mean a bill rendered at least fourteen (14) days after the day of its determination), provided that claim therefore shall have been made within six (6) years from the date of the incorrect billing. In the event any refund is issued with Shipper's gas bill, the aforesaid date of refund shall be deemed to be the date of the issue of bill.

X. ARBITRATION

If and when any dispute, difference or question shall arise between the parties hereto touching the Contract or anything herein contained, or the construction hereof, or the rights, duties or liabilities of the parties in relation to any matter hereunder, the matter in dispute shall be submitted and referred to arbitration within ten (10) days after written request of either party. Upon such request each party shall appoint an arbitrator, and the two so appointed shall appoint a third. A majority decision of the arbitrators shall be final and binding upon both parties. In all other respects the provisions of the Arbitration Act of the Province of Ontario, or any act passed in amendment thereof or substitution therefore, shall apply to each such submission. Operations under the Contract shall continue, without prejudice, during any such arbitration and the costs attributable to such arbitration shall be shared equally by the parties hereto.

XI. FORCE MAJEURE

1. The term "**force majeure**" as used herein shall mean acts of God, strikes, lockouts or any other industrial disturbance, acts of the public enemy, sabotage, wars, blockades, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, storms, floods, washouts, arrests and restraints of governments and people, civil disturbances, explosions, breakage or accident to machinery or lines of pipe, freezing of wells or lines of pipe, inability to obtain materials, supplies, permits or labour, any laws, orders, rules, regulations, acts or restraints of any governmental body or authority (civil or military), any act or omission that is excused by any event or occurrence of the character herein defined as constituting force majeure, any act or omission by parties not controlled by the party having the difficulty and any other similar cases not within the control of the party claiming suspension and which by the exercise of due diligence such party is unable to prevent or overcome.

2. In the event that either the Shipper or Union is rendered unable, in whole or in part, by force majeure, to perform or comply with any obligation or condition of the Contract, such party shall give notice and full particulars of such force majeure in writing delivered by hand, fax or other direct written electronic means to the other party as soon as possible after the occurrence of the cause relied on and subject to the provision of this Article.

3. Neither party shall be entitled to the benefit of the provisions of force majeure hereunder if any or all of the following circumstances prevail: the failure resulting in a condition of force majeure was caused by the negligence of the party claiming suspension; the failure was caused by the party claiming suspension where such party failed to remedy the condition by making all reasonable efforts (short of litigation, if such remedy would require litigation); the party claiming suspension failed to resume the performance of such condition obligations with reasonable dispatch; the failure was caused by lack of funds; the party claiming suspension did not, as soon as possible after determining, or within a period within which it should acting reasonably have determined, that the occurrence was in the nature of force majeure and would affect its ability to observe or perform any of its conditions or obligations under the Contract, give to the other party the notice required hereunder.

4. The party claiming suspension shall likewise give notice as soon as possible after the force majeure condition is remedied, to the extent that the same has been remedied, and that such party has resumed or is then in a position to resume the performance of the obligations and conditions of the Contract.

5. An event of force majeure on Union's system will excuse the failure to deliver gas by Union or the failure to accept gas by Union hereunder, and both parties shall be excused from performance of their obligations hereunder, except for payment obligations, to the extent of and for the duration of the force majeure.

6. Upstream or Downstream Force Majeure: An event of force majeure upstream or downstream of Union's system shall not relieve Shipper of any payment obligations.

7. Delay of Firm Transportation Services: Despite Article XI herein, if Union is prevented, by reason of an event of force majeure on Union's system from delivering gas on the Day or Days upon which Union has accepted gas from Shipper, Union shall thereafter make all reasonable efforts to deliver such quantities as soon as practicable and on such Day or Days as are agreed to by Shipper and Union. If Union accepts such gas on this basis, Shipper shall not receive any demand charge relief as contemplated under Article XI herein.

8. Demand Charge Relief for Firm Transportation Services: Despite Article XI herein, if on any Day Union fails to accept gas from Shipper by reason of an event of force majeure on Union's system and fails to deliver the quantity of gas nominated hereunder by Shipper up to the firm Contract Demand for that Contract, then for that Day the Monthly demand charge shall be reduced by an amount equal to the applicable Daily Demand Rate, as defined in this paragraph, multiplied by the difference between the quantity of gas actually delivered by Union during such Day and the quantity of gas which Shipper in good faith nominated on such Day. The term "**Daily Demand Rate**" shall mean the Monthly demand charge or equivalent pursuant to the M12 Rate Schedule divided by the number of days in the month for which such rate is being calculated.

9. If, due to the occurrence of an event of force majeure as outlined above, the capacity for gas deliveries by Union is impaired, it will be necessary for Union to curtail Shipper's gas receipts to Union hereunder, via proration based on utilization of such facilities for the Day. This prorating shall be determined by multiplying the capability of such facilities as available downstream of the impairment on the Day, by a fraction where the numerator is Shipper's nominated firm quantity and the denominator is the total of all such nominated firm quantities for nominated services and planned consumption for in-franchise customers on the Day. For the purposes of this Article XI, firm services shall mean all firm services provided by Union to in-franchise customers and ex-franchise shippers.

XII. DEFAULT AND TERMINATION

In case of the breach or non-observance or non-performance on the part of either party hereto of any covenant, proviso, condition, restriction or stipulation contained in the Contract (but not including herein failure to take or make delivery in whole or in part of the gas delivered to/by Union hereunder occasioned by any of the reasons provided for in Article XI hereof) which has not been waived by the other party, then and in every such case and as often as the same may happen, the Non-defaulting party may give written notice to the Defaulting party requiring it to remedy such default and in the event of the Defaulting party failing to remedy the same within a period of thirty (30) days from receipt of such notice, the Non-defaulting party may at its sole option declare the Contract to be terminated and thereupon the Contract shall be terminated and be null and void for all purposes other than and except as to any liability of the parties under the same incurred before and subsisting as of termination. The right hereby conferred upon each party shall be in addition to, and not in derogation of or in substitution for, any other right or remedy which the parties respectively at law or in equity shall or may possess.

XIII. MODIFICATION

Subject to Union's M12 Rate Schedule, Schedule A, Article XV and the ability of Union to amend the M12 Rate Schedule with the approval of the OEB, no amendment or modification of the Contract shall be effective unless the same shall be in writing and signed by each of the Shipper and Union.

XIV. NON-WAIVER AND FUTURE DEFAULT

Intentionally blank

XV. LAWS, REGULATIONS AND ORDERS

The Contract and the respective rights and obligations of the parties hereto are subject to all present and future valid laws, orders, rules and regulations of any competent legislative body, or duly constituted authority now or hereafter having jurisdiction and the Contract shall be varied and amended to comply with or conform to any valid order or direction of any board, tribunal or administrative agency which affects any of the provisions of the Contract.

RATE M12
GENERAL TERMS & CONDITIONS

I. DEFINITIONS

Except where the context expressly requires or states another meaning, the following terms, when used in these General Terms & Conditions and in any contract into which these General Terms & Conditions are incorporated, shall be construed to have the following meanings:

"**Authorized Overrun**" shall mean the amount by which Shipper's Authorized Quantity exceeds the Contract Demand;

"**Available Capacity**" shall mean at any time, Union's remaining available capacity to provide Transportation Services;

"**Business Day**" shall mean any day, other than Saturday, Sunday or any days on which national banks in the Province of Ontario are authorized to close;

"**Contract**" shall refer to the Contract to which these General Terms & Conditions shall apply, and into which they are incorporated;

"**Contract Year**" shall mean a period of three hundred and sixty-five (365) consecutive days; provided however, that any such period which contains a date of February 29 shall consist of three hundred and sixty-six (366) consecutive days, commencing on November 1 of each year; except for the first Contract Year which shall commence on the Commencement Date and end on the first October 31 that follows such date;

"**cricondentherm hydrocarbon dewpoint**" shall mean the highest hydrocarbon dewpoint temperature on the phase envelope;

"**cubic metre**" shall mean the volume of gas which occupies one cubic metre when such gas is at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

"**Day**" shall mean a period of twenty-four (24) consecutive hours beginning at 10:00 a.m. Eastern Clock Time. The reference date for any Day shall be the calendar date upon which the twenty-four (24) hour period shall commence;

"**delivery**" shall mean any gas that is delivered by Union into Shipper's possession, or to the possession of Shipper's agent;

"Eastern Clock Time" shall mean the local clock time in the Eastern Time Zone on any Day;

"**Expansion Facilities**" shall mean any new facilities to be constructed by Union in order to provide Transportation Services;

"**firm**" shall mean service not subject to curtailment or interruption except under Articles XI, XII and XVIII herein;

"**gas**" shall mean gas as defined in the Ontario Energy Board Act, 1998, S.O. 1998, c.15, Sch. B, as amended, supplemented or re-enacted from time to time;

"**gross heating value**" shall mean the total heat expressed in megajoules per cubic metre (MJ/m^3) produced by the complete combustion at constant pressure of one (1) cubic metre of gas with air, with the gas free of water vapour and the temperature of the gas, air and products of combustion at standard temperature and all water formed by the combustion reaction condensed to the liquid state;

"**hydrocarbon dewpoint**" shall mean temperature at a specific pressure where hydrocarbon vapour condensation begins;

"**Interruptible Service HUB Contract**" shall mean a contract between Shipper and Union under which Union provides interruptible HUB service;

"**interruptible service**" or "**Interruptible**" shall mean service subject to curtailment or interruption, after notice, at any time;

"**Interconnecting Pipeline**" shall mean a pipeline that directly connects to the Union pipeline system;

"**joule**" (J) shall mean the work done when the point of application of a force of one (1) newton is displaced a distance of one (1) metre in the direction of the force. The term "**megajoule**" (MJ) shall mean 1,000,000 joules. The term "**gigajoule**" (GJ) shall mean 1,000,000,000 joules;

"Loaned Quantities" shall mean those quantities of gas loaned to Shipper under the Facilitating Agreement;

"**m^3**" shall mean cubic metre of gas and "10^3m^3" shall mean 1,000 cubic metres of gas;

"**Month**" shall mean the period beginning at 10:00 a.m. Eastern Clock Time on the first day of a calendar month and ending at 10:00 a.m. Eastern Clock Time on the first day of the following calendar month;

"**NAESB**" shall mean North American Energy Standards Board;

"**OEB**" means the Ontario Energy Board;

"**Open Season**" or "**open season**" shall mean an open access auction or bidding process held by Union as a method of allocating capacity;

"**pascal**" (Pa) shall mean the pressure produced when a force of one (1) newton is applied to an area of one (1) square metre. The term "kilopascal" (kPa) shall mean 1,000 pascals;

"**receipt**" shall mean any gas that is delivered into Union's possession, or the possession of Union's agent;

"**Shipper**" shall have the meaning as defined in the Contract, and shall also include Shipper's agent(s);

"**specific gravity**" shall mean density of the gas divided by density of air, with both at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

"**Taxes**" shall mean any tax (other than tax on income or tax on property), duty, royalty, levy, license, fee or charge not included in the charges and rates as per the applicable rate schedule (including but not limited to charges under any form of cap and trade, carbon tax, or similar system) and that is levied, assessed or made by any governmental authority on the gas itself, or the act, right, or privilege of producing, severing, gathering, storing, transporting, handling, selling or delivering gas under the Contract;

"**TCPL**" means TransCanada PipeLines Limited;

"**Wobbe Number**" shall mean gross heating value of the gas divided by the square root of its specific gravity.

II. GAS QUALITY

1. Natural Gas: The minimum gross heating value of the gas delivered to/by Union hereunder, shall be thirty-six (36) megajoules per cubic metre. The maximum gross heating value of the gas delivered to/by Union hereunder shall be forty point two (40.2) megajoules per cubic metre. The gas to be delivered hereunder to Union may be a commingled supply from Shipper's gas sources of supply. The gas to be delivered by Union may be a commingled supply from Union's sources of gas supply; provided, however, that helium, natural gasoline, butane, propane and other hydrocarbons, except methane, may be removed prior to delivery to Shipper. Further, Union may subject, or permit the subjection of, the gas to compression, dehydration, cooling, cleaning and other processes.

2. Freedom from objectionable matter: The gas to be delivered to/by Union hereunder,

   a. shall be commercially free from bacteria, sand, dust, gums, crude oils, lubricating oils, liquids, chemicals or compounds used in the production, treatment, compression or dehydration of the gas or any other objectionable substance in sufficient quantity so as to render the gas toxic, unmerchantable or cause injury to, or interference with, the proper operation of the lines, regulators, meters or other appliances through which it flows,

b. shall not contain more than seven (7) milligrams of hydrogen sulphide per cubic metre of gas, nor more than four hundred and sixty (460) milligrams of total sulphur per cubic metre of gas,

c. shall not contain more than five (5) milligrams of mercaptan sulphur per cubic metre of gas,

d. shall not contain more than two point zero (2.0) molar percent by volume of carbon dioxide in the gas,

e. shall not contain more than zero point four (0.4) molar percent by volume of oxygen in the gas,

f. shall not contain more than zero point five (0.5) molar percent by volume of carbon monoxide in the gas,

g. shall not contain more than four point zero (4.0) molar percent by volume of hydrogen in the gas,

h. shall not contain more than sixty-five (65) milligrams of water vapour per cubic metre of gas,

i. shall not have a cricondentherm hydrocarbon dewpoint exceeding minus eight (-8) degrees Celsius,

j. shall have Wobbe Number from forty seven point fifty (47.50) megajoules per cubic metre of gas to fifty one point forty six (51.46) megajoules per cubic metre of gas, maximum of one point five (1.5) mole percent by volume of butane plus (C4+) in the gas, and maximum of four point zero (4.0) mole percent by volume of total inerts in the gas in order to be interchangeable with other Interconnecting Pipeline gas.

3. Non-conforming Gas: In addition to any other right or remedy of a party, each party shall be entitled to refuse to accept delivery of any gas which does not conform to any of the specifications set out in this Article II.

4. Quality of Gas Received: The quality of the gas to be received by Union hereunder is to be of a merchantable quality and in accordance with the quality standards as set out by Union in this Article II, but, Union will also accept gas of a quality as set out in any other Interconnecting Pipeline's general terms and conditions, provided that all Interconnecting Pipelines accept such quality of gas. In addition to any other right or remedy of a party, each party shall be entitled to refuse to accept delivery of any gas which does not conform to any of the specifications set out in Union's M12 Rate Schedule.

III. MEASUREMENTS

1. Storage, Transportation, and/or Sales Unit: The unit of the gas delivered to Union shall be a megajoule or a gigajoule. The unit of gas transported or stored by Union shall be a megajoule or a gigajoule. The unit of gas delivered by Union shall be a megajoule, a gigajoule, a cubic metre (m^3) or one thousand cubic metres (10^3m^3) at Union's discretion.

2. Determination of Volume and Energy:

a. The volume and energy amounts determined under the Contract shall be determined in accordance with the Electricity and Gas Inspection Act (Canada), RSC 1985, c E-4- (the "**Act**") and the Electricity and Gas Inspection Regulations, SOR 86/131 (the "**Regulations**"), and any documents issued under the authority of the Act and Regulations and any amendments thereto.

b. The supercompressibility factor shall be determined in accordance with either the "Manual for Determination of Supercompressibility Factors for Natural Gas" (PAR Project NX-19) published in 1962 or with American Gas Association Transmission Measurement Committee Report No. 8, Nov. 1992, at Union's discretion, all as amended from time to time.

c. The volume and/or energy of the gas delivered to/by Union hereunder shall be determined by the measurement equipment designated in Article VII herein.

d. Upon request by Union, Shipper shall obtain measurement of the total quantity of gas received by Union hereunder from the Interconnecting Pipeline. Such measurement shall be done in accordance with established practices between Union and the Interconnecting Pipeline.

IV. RECEIPT POINT AND DELIVERY POINT

1. Unless otherwise specified in the Contract, the point or points of receipt and point or points of delivery for all gas to be covered hereunder shall be on the outlet side of the measuring stations located at or near the point or points of connection specified in the Contract, where possession of the gas changes from one party to the other, and as per Schedule “D 2010”.

V. POSSESSION OF AND RESPONSIBILITY FOR GAS

1. Possession of Gas: Union accepts no responsibility for any gas prior to such gas being delivered to Union at the Receipt Point or after its delivery by Union at the Delivery Point. As between the parties hereto, Union shall be deemed to be in control and possession of and responsible for all such gas from the time that such gas enters Union's system until such gas is delivered to Shipper.

2. Liability: Shipper agrees that Union is not a common carrier and is not an insurer of Shipper’s gas, and that Union shall not be liable to Shipper or any third party for loss of gas in Union’s possession, except to the extent such loss is caused entirely by Union’s negligence or wilful misconduct.

VI. FACILITIES ON SHIPPER’S PROPERTY

Except under those conditions where Union is delivering to TCPL for TCPL or Shipper at Parkway (TCPL), or to an Interconnecting Pipeline, or where otherwise specified in the Contract, the following will apply:

1. Construction and Maintenance: Union, at its own expense may construct, maintain and operate on Shipper's property at the delivery point a measuring station properly equipped with a meter or meters and any other necessary measuring equipment for properly measuring the gas redelivered under the Contract. Shipper will grant to Union a lease and/or rights-of-way over property of Shipper as required by Union to install such facilities and to connect same to Union's pipeline.

2. Entry: Union, its servants, agents and each of them may at any reasonable time on notice (except in cases of emergency) to Shipper or his duly authorized representative enter Shipper's property for the purpose of constructing, maintaining, removing, operating and/or repairing station equipment.

3. Property: The said station and equipment will be and remain the property of Union notwithstanding it is constructed on and attached to the realty of Shipper, and Union may at its own expense remove it upon termination of the Contract and will do so if so requested by Shipper.

VII. MEASURING EQUIPMENT

1. Metering by Union: Union will install and operate meters and related equipment as required and in accordance with the Act and Regulations referenced in Article III herein.

2. Metering by Others: In the event that all or any gas delivered to/by Union hereunder is measured by a meter that is owned and operated by an Interconnecting Pipeline, then Union and Shipper agree to accept that metering for the purpose of determining the volume and energy of gas delivered to/by Union on behalf of the Shipper. The standard of measurement and tests for the gas delivered to/by Union hereunder shall be in accordance with the general terms and conditions as incorporated in that Interconnecting Pipeline company’s gas tariff as approved by its regulatory body.

3. Check Measuring Equipment: Shipper may install, maintain and operate, at the redelivery point, at its own expense, such check measuring equipment as desired, provided that such equipment shall be so installed as not to interfere with the operation of Union's measuring equipment at or near the delivery point, and shall be installed, maintained and operated in conformity with the same standards and specifications applicable to Union's metering facilities.

4. Rights of Parties: The measuring equipment installed by either party, together with any building erected by it for such equipment, shall be and remain its property. However, Union and Shipper shall have the right to have representatives present at the time of any installing, reading, cleaning, changing, repairing, inspecting, testing, calibrating, or adjusting done in connection with the other's measuring equipment used in measuring or checking the measurement of deliveries of gas to/by Union under the Contract. Either party will give the other party reasonable notice of its intention to carry out the acts herein specified. The records from such measuring equipment shall remain the property of their owner, but upon request each will submit to the other its records and charts, together with calculations therefrom, for inspection and verification, subject to return within ten (10) days after receipt thereof.

5. Calibration and Test of Measuring Equipment: The accuracy of Union's measuring equipment shall be verified by Union at reasonable intervals, and if requested, in the presence of representatives of Shipper, but Union shall not be required to verify the accuracy of such equipment more frequently than once in any thirty (30) day period. In the event either party notifies the other that it desires a special test of any measuring equipment, the parties shall co-operate to secure a prompt verification of the accuracy of such equipment. The expense of any such special test, if called for by Shipper, shall be borne by Shipper if the measuring equipment tested is found to be in error by not more than two per cent (2%). If, upon test, any measuring equipment is found to be in error by not more than two per cent (2%), previous recordings of such equipment shall be considered accurate in computing receipts and deliveries of gas, but such equipment shall be adjusted at once to record as near to absolute accuracy as possible. If the test conducted shows a percentage of inaccuracy greater than two percent (2%), the financial adjustment, if any, shall be calculated in accordance with the Act and Regulations, as may be amended from time to time and in accordance with any successor statutes and regulations.

6. Preservation of Metering Records: Union and Shipper shall each preserve for a period of at least six (6) years all test data, and other relevant records.

7. Error in Metering or Meter Failure: In the event of an error in metering or a meter failure, (such error or failure being determined through check measurement by Union or any other available method), then Shipper shall enforce its rights as Shipper with the Interconnecting Pipeline(s) to remedy such error or failure including enforcing any inspection and/or verification rights and procedures.

VIII. BILLING

1. Monthly Billing Date: Union shall render bills on or before the tenth (10th) day of each month for all Transportation Services furnished during the preceding Month. Such charges may be based on estimated quantities, if actual quantities are unavailable in time to prepare the billing. Union shall provide, in a succeeding Month's billing, an adjustment based on any difference between actual quantities and estimated quantities, without any interest charge. If presentation of a bill to Shipper is delayed after the tenth (10th) day of the month, then the time of payment shall be extended accordingly, unless Shipper is responsible for such delay.

2. Right of Examination: Both Union and Shipper shall have the right to examine at any reasonable time the books, records and charts of the other to the extent necessary to verify the accuracy of any statement, chart or computation made under or pursuant to the provisions of the Contract.

3. Amendment of Statements: For the purpose of completing a final determination of the actual quantities of gas handled in any of the Transportation Services to Shipper, the parties shall have the right to amend their statement for a period equal to the time during which the Interconnecting Pipeline retains the right to amend their statements, which period shall not exceed three (3) years from the date of termination of the Contract.

IX. PAYMENTS

1. Monthly Payments: Shipper shall pay the invoiced amount directly into Union's bank account as directed on the invoice on or before the twentieth (20th) day of each month. If the payment date is not a Business Day, then payment must be received in Union's account on the first Business Day preceding the twentieth (20th) day of the month.

2. Remedies for Non-payment: Should Shipper fail to pay all of the amount of any bill as herein provided when such amount is due,

a. Shipper shall pay to Union interest on the unpaid portion of the bill accruing at a rate per annum equal to the minimum commercial lending rate of Union's principal banker in effect from time to time from the due date until the date of payment; and,

b. If such failure to pay continues for thirty (30) days after payment is due, Union, in addition to any other remedy it may have under the Contract, may suspend Services until such amount is paid. Notwithstanding such suspension, all demand charges shall continue to accrue hereunder as if such suspension were not in place.

If Shipper in good faith disputes the amount of any such bill or part thereof Shipper shall pay to Union such amounts as it concedes to be correct. At any time thereafter, within twenty (20) days of a demand made by Union, Shipper shall furnish financial assurances satisfactory to Union, guaranteeing payment to Union of the amount ultimately found due upon such bill after a final determination. Such a final determination may be reached either by agreement, arbitration decision or judgement of the courts, as may be the case. Union shall not be entitled to suspend Services because of such non-payment unless and until default occurs in the conditions of such financial assurances or default occurs in payment of any other amount due to Union hereunder.

Notwithstanding the foregoing, Shipper is not relieved from the obligation to continue its deliveries of gas to Union under the terms of any agreement, where Shipper has contracted to deliver specified quantities of gas to Union.

3. Billing Adjustments: If it shall be found that at any time or times Shipper has been overcharged or undercharged in any form whatsoever under the provisions of the Contract and Shipper shall have actually paid the bills containing such overcharge or undercharge, Union shall refund the amount of any such overcharge and interest shall accrue from and including the first day of such overcharge as paid to the date of refund and shall be calculated but not compounded at a rate per annum determined each day during the calculation period to be equal to the minimum commercial lending rate of Union's principal banker, and the Shipper shall pay the amount of any such undercharge, but without interest. In the event Union renders a bill to Shipper based upon measurement estimates, the required adjustment to reflect actual measurement shall be made on the bill next following the determination of such actual measurement, without any charge of interest. In the event an error is discovered in the amount billed in any statement rendered by Union, such error shall be adjusted by Union. Such overcharge, undercharge or error shall be adjusted by Union on the bill next following its determination (where the term "**bill next following**" shall mean a bill rendered at least fourteen (14) days after the day of its determination), provided that claim therefore shall have been made within three (3) years from the date of the incorrect billing. In the event any refund is issued with Shipper's bill, the aforesaid date of refund shall be deemed to be the date of the issue of bill.

4. Taxes: In addition to the charges and rates as per the applicable rate schedules and price schedules, Shipper shall pay all Taxes which are imposed currently or subsequent to the execution of the Contract by any legal authority having jurisdiction and any amount in lieu of such Taxes paid or payable by Union.

5. Set Off: If either party shall, at any time, be in arrears under any of its payment obligations to the other party under the Contract, then the party not in arrears shall be entitled to reduce the amount payable by it to the other party in arrears under the Contract, or any other contract, by an amount equal to the amount of such arrears or other indebtedness to the other party. In addition to the foregoing remedy, Union may, upon forty-eight (48) hours verbal notice, to be followed by written notice, take possession of any or all of Shipper's gas under the Contract or any enhancement to the Contract, which shall be deemed to have been assigned to Union, to reduce such arrears or other indebtedness to Union.

X. ARBITRATION

If and when any dispute, difference or question shall arise between the parties hereto touching the Contract or anything herein contained, or the construction hereof, or the rights, duties or liabilities of the parties in relation to any matter hereunder, the matter in dispute shall be submitted and referred to arbitration within ten (10) days after written request of either party. Upon such request each party shall appoint an arbitrator, and the two so appointed shall appoint a third. A majority decision of the arbitrators shall be final and binding upon both parties. In all other respects the provisions of the Arbitration Act, 1991, or any act passed in amendment thereof or substitution therefore, shall apply to each such submission. Operations under the Contract shall continue, without prejudice, during any such arbitration and the costs attributable to such arbitration shall be shared equally by the parties hereto.

XI. FORCE MAJEURE

1. Definition: The term "**force majeure**" as used herein shall mean acts of God, strikes, lockouts or any other industrial disturbance, acts of the public enemy, sabotage, wars, blockades, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, storms, floods, washouts, arrests and restraints of governments and people, civil disturbances, explosions, breakage or accident to machinery or lines of pipe, freezing of wells or lines of pipe, inability to obtain materials, supplies, permits or labour, any laws, orders, rules, regulations, acts or restraints of any governmental body or authority (civil or military), any act or omission that is excused by any event or occurrence of the character herein defined as constituting force majeure, any act or omission by parties not controlled by the party having the difficulty and any other similar cases not within the control of the party claiming suspension and which by the exercise of due diligence such party is unable to prevent or overcome.

2. Notice: In the event that either the Shipper or Union is rendered unable, in whole or in part, by force majeure, to perform or comply with any obligation or condition of the Contract, such party shall give notice and full particulars of such force majeure in writing delivered by hand, fax or other direct written electronic means to the other party as soon as possible after the occurrence of the cause relied on and subject to the provision of this Article.

3. Exclusions: Neither party shall be entitled to the benefit of the provisions of force majeure hereunder if any or all of the following circumstances prevail: the failure resulting in a condition of force majeure was caused by the negligence of the party claiming suspension; the failure was caused by the party claiming suspension where such party failed to remedy the condition by making all reasonable efforts (short of litigation, if such remedy would require litigation); the party claiming suspension failed to resume the performance of such condition obligations with reasonable dispatch; the failure was caused by lack of funds; the party claiming suspension did not, as soon as possible after determining, or within a period within which it should acting reasonably have determined, that the occurrence was in the nature of force majeure and would affect its ability to observe or perform any of its conditions or obligations under the Contract, give to the other party the notice required hereunder.

4. Notice of Remedy: The party claiming suspension shall likewise give notice as soon as possible after the force majeure condition is remedied, to the extent that the same has been remedied, and that such party has resumed or is then in a position to resume the performance of the obligations and conditions of the Contract.

5. Obligation to Perform: An event of force majeure on Union's system will excuse the failure to deliver gas by Union or the failure to accept gas by Union hereunder, and both parties shall be excused from performance of their obligations hereunder, except for payment obligations, to the extent of and for the duration of the force majeure.

6. Upstream or Downstream Force Majeure: An event of force majeure upstream or downstream of Union's system shall not relieve Shipper of any payment obligations.

7. Delay of Firm Transportation Services: Despite Article XI herein, if Union is prevented, by reason of an event of force majeure on Union's system from delivering gas on the Day or Days upon which Union has accepted gas from Shipper, Union shall thereafter make all reasonable efforts to deliver such quantities as soon as practicable and on such Day or Days as are agreed to by Shipper and Union. If Union accepts such gas on this basis, Shipper shall not receive any demand charge relief as contemplated under Article XI herein.

8. Demand Charge Relief for Firm Transportation Services: Despite Article XI herein, if on any Day Union fails to accept gas from Shipper by reason of an event of force majeure on Union's system and fails to deliver the quantity of gas nominated hereunder by Shipper up to the firm Contract Demand for that Contract, then for that Day the Monthly demand charge shall be reduced by an amount equal to the applicable Daily Demand Rate, as defined in this paragraph, multiplied by the difference between the quantity of gas actually delivered by Union during such Day and the quantity of gas which Shipper in good faith nominated on such Day. The term "**Daily Demand Rate**" shall mean the Monthly demand charge or equivalent pursuant to the M12 Rate Schedule divided by the number of days in the month for which such rate is being calculated.

9. Proration of Firm Transportation Service: If, due to the occurrence of an event of force majeure as outlined above, the capacity for gas deliveries by Union is impaired, it will be necessary for Union to curtail Shipper's gas receipts to Union hereunder, via proration based on utilization of such facilities for the Day. This prorating shall be determined by

multiplying the capability of such facilities as available downstream of the impairment on the Day, by a fraction where the numerator is Shipper's nominated firm quantity and the denominator is the total of all such nominated firm quantities for nominated services and planned consumption for in-franchise customers on the Day. For the purposes of this Article XI, firm services shall mean all firm services provided by Union to in-franchise customers and ex-franchise shippers.

XII. DEFAULT AND TERMINATION

In case of the breach or non-observance or non-performance on the part of either party hereto of any covenant, proviso, condition, restriction or stipulation contained in the Contract (but not including herein failure to take or make delivery in whole or in part of the gas delivered to/by Union hereunder occasioned by any of the reasons provided for in Article XI herein) which has not been waived by the other party, then and in every such case and as often as the same may happen, the non-defaulting party may give written notice to the defaulting party requiring it to remedy such default and in the event of the defaulting party failing to remedy the same within a period of thirty (30) days from receipt of such notice, the non-defaulting party may at its sole option declare the Contract to be terminated and thereupon the Contract shall be terminated and be null and void for all purposes other than and except as to any liability of the parties under the same incurred before and subsisting as of termination. The right hereby conferred upon each party shall be in addition to, and not in derogation of or in substitution for, any other right or remedy which the parties respectively at law or in equity shall or may possess.

XIII. AMENDMENT

Subject to Article XV herein and the ability of Union to amend the applicable rate schedules and price schedules, with the approval of the OEB (if required), no amendment or modification of the Contract shall be effective unless the same shall be in writing and signed by each of the Shipper and Union.

XIV. NON-WAIVER AND FUTURE DEFAULT

No waiver of any provision of the Contract shall be effective unless the same shall be in writing and signed by the party entitled to the benefit of such provision and then such waiver shall be effective only in the specific instance and for the specified purpose for which it was given. No failure on the part of Shipper or Union to exercise, and no course of dealing with respect to, and no delay in exercising, any right, power or remedy under the Contract shall operate as a waiver thereof.

XV. LAWS, REGULATIONS AND ORDERS

The Contract and the respective rights and obligations of the parties hereto are subject to all present and future valid laws, orders, rules and regulations of any competent legislative body, or duly constituted authority now or hereafter having jurisdiction and the Contract shall be varied and amended to comply with or conform to any valid order or direction of any board, tribunal or administrative agency which affects any of the provisions of the Contract.

XVI ALLOCATION OF CAPACITY

1. Requests for Transportation Service: A potential shipper may request firm transportation service on Union's system at any time. Any request for firm M12 transportation service must include: potential shipper's legal name, Receipt Point(s), Delivery Point(s), Commencement Date, Initial Term, Contract Demand and proposed payment. This is applicable for M12 service requests for firm transportation service with minimum terms of ten (10) years where Expansion Facilities are required or a minimum term of five (5) years for use of existing capacity.

2. Expansion Facilities: If requests for firm transportation services cannot be met through existing capacity such that the only way to satisfy the requests for transportation service would require the construction of Expansion Facilities which create new capacity, Union shall allocate any such new capacity by open season, subject to the terms of the open season, and these General Terms and Conditions.

3. Open Seasons: If requests for long-term firm transportation service can be met through existing facilities upon which long-term capacity is becoming available, Union shall allocate such long-term capacity by open season, subject to the terms of the open season, and these General Terms and Conditions. "**Long-term**", for the purposes of this Article XVI, means, in the case of a transportation service, a service that has a term of one year or greater.

4. Awarding Open Season Capacity: Capacity requests received during an open season shall be awarded starting with those bids with the highest economic value. If the economic values of two or more independent bids are equal, then service shall be allocated on a pro-rata basis. The economic value shall be based on the net present value which shall be calculated based on the proposed per- unit rate and the proposed term of the contract and without regard to the proposed Contract Demand ("**NPV**").

5. Available Capacity Previously Offered in Open Season: Union may at any time allocate capacity to respond to any M12 transportation service request through an open season. If a potential shipper requests M12 transportation service that can be provided through Available Capacity that was previously offered by Union in an open season but was not awarded, then:

   a. Any such request must conform to the requirements of Section 1 of this Article XVI;

   b. Union shall allocate capacity to serve such request pursuant to this Section 5, and subject to these General Terms and Conditions and Union's standard form M12 transportation contract;

   c. Union may reject a request for M12 transportation service for any of the following reasons:

      i) if there is insufficient Available Capacity to fully meet the request, but if that is the only reason for rejecting the request for service, Union must offer to supply the Available Capacity to the potential shipper;

      ii) if the proposed monthly payment is less than Union's Monthly demand charge plus fuel requirements for the applicable service;

      iii) if prior to Union accepting the request for transportation service Union receives a request for transportation service from one or more other potential shippers and there is, as a result, insufficient Available Capacity to service all the requests for service, in which case Union shall follow the procedure in Section 5 d hereof; -

      iv) if Union does not provide the type of transportation service requested; or

      v) if all of the conditions precedent specified in Article XXI Sections 1 and 2 herein have not been satisfied or waived.

   d. Union will advise the potential shipper in writing whether Union accepts or rejects the request for service, subject to Article XVI 5 c, within 5 calendar days of receiving a request for M12 transportation service. If Union rejects a request for service, Union shall inform the potential shipper of the reasons why its request is being rejected; and

   e. If Union has insufficient Available Capacity to service all pending requests for transportation service Union may:

      i) Reject all the pending requests for transportation service and conduct an open season; or

      ii) Union shall inform all the potential shippers who have submitted a pending request for transportation service that it does not have sufficient capacity to service all pending requests for service, and Union shall provide all such potential shippers with an equal opportunity to submit a revised request for service. Union shall then allocate the Available Capacity to the request for transportation service with the highest economic value to Union. If the economic values of two or more requests are equal, then service shall be allocated on a pro-rata basis. The economic value of any request shall be based on the NPV.

XVII. RENEWALS

Contracts with an Initial Term of five (5) years or greater will continue in full force and effect beyond the Initial Term, automatically renewing for a period of one (1) year, and every one (1) year thereafter. Shipper may reduce the Contract Demand or terminate the Contract with notice in writing by Shipper at least two (2) years prior to the expiration thereof.

XVIII. SERVICE CURTAILMENT

1. Right to Curtail: Union shall have the right to curtail or not to schedule part or all of Transportation Services, in whole or in part, on all or a portion of its pipeline system at any time for reasons of Force Majeure or when, in Union sole discretion, acting reasonably, capacity or operating conditions so require or it is desirable or necessary to make modifications, repairs or operating changes to its pipeline system. Union shall provide Shipper such notice of such curtailment as is reasonable under the circumstances. If due to any cause whatsoever Union is unable to receive or deliver the quantities of Gas which Shipper has requested, then Union shall order curtailment by all Shippers affected and to the extent necessary to remove the effect of the disability. Union has a priority of service policy to determine the order of service curtailment. In order to place services on the priority of service list, Union considers the following business principles: appropriate level of access to core services, customer commitment, encouraging appropriate contracting, materiality, price and term, and promoting and enabling in-franchise consumption.

   The Priority ranking for all services utilizing Union Gas' storage, transmission and distribution system as applied to both in-franchise and ex-franchise services are as follows; with number 1 having the highest priority and the last interrupted.

   1. Firm In-franchise Transportation and Distribution services and firm Ex-franchise services (Note 1)
   2. In-franchise Interruptible Distribution services
   3. C1/M12 IT Transport and IT Exchanges with Take or Pay rates
   4. Balancing (Hub Activity) < = 100 GJ/d; Balancing (Direct Purchase) < = 500 GJ/d; In-franchise distribution authorized overrun (Note 3)
   5. C1/M12 IT Transport and IT Exchanges at premium rates
   6. C1/M12 Overrun < = 20% of CD (Note 4)
   7. Balancing (Direct Purchase) > 500 GJ/d
   8. Balancing (Hub Activity) > 100 GJ/d; C1/M12 IT Transport and IT Exchanges
   9. C1/M12 Overrun > 20% of CD
   10. C1/M12 IT Transport and IT Exchanges at a discount
   11. Late Nominations

   Notes:

   1. Nominated services must be nominated on the NAESB Timely Nomination Cycle otherwise they are considered to be late nomination and are therefore interruptible.
   2. Higher value or more reliable IT is contemplated in the service and contract, when purchase at market competitive prices.
   3. Captures the majority of customers that use Direct Purchase balancing transactions.
   4. Captures the majority of customers that use overrun.

2. Capacity Procedures: Union reserves the right to change its procedures for sharing interruptible capacity and will provide Shipper with two (2) months prior notice of any such change.

3. Maintenance: Union's facilities from time to time may require maintenance or construction. If such maintenance or construction is required, and in Union's sole opinion, acting reasonably, such maintenance or construction may impact Union's ability to meet Shipper's requirements, Union shall provide at least ten (10) days notice to Shipper, except in the case of an emergency. In the event the maintenance impacts Union's ability to meet Shipper's requirements, Union shall not be liable for any damages and shall not be deemed in breach of the Contract. To the extent that Union's ability to accept and/or deliver Shipper's gas is impaired, the Monthly demand charge shall be reduced in accordance with Article XI Section 8 and available capacity allocated in accordance with Article XI Section 9 herein.

   Union shall use reasonable efforts to determine a mutually acceptable period during which such maintenance or construction will occur and also to limit the extent and duration of any impairments. Union will endeavour to schedule and complete the maintenance and construction, which would normally be expected to impact on Union's ability to meet Shipper's requirements, during the period from April 1 through to November 1.

XIX. SHIPPER'S REPRESENTATIONS AND WARRANTIES

1. Shipper's Warranty: Shipper warrants that it will, if required, maintain, or have maintained on its behalf, all external approvals including the governmental, regulatory, import/export permits and other approvals or authorizations that are required from any federal, state or provincial authorities for the gas quantities to be handled under the Contract. Shipper further warrants that it shall maintain in effect the Facilitating Agreements.

2. Financial Representations: Shipper represents and warrants that the financial assurances (including the Initial Financial Assurances and Security) (if any) shall remain in place throughout the term hereof, unless Shipper and Union agree otherwise. Shipper shall notify Union in the event of any change to the financial assurances throughout the term hereof. Should Union have reasonable grounds to believe that Shipper will not be able to perform or continue to perform any of its obligations under the Contract as a result of one of the following events ("**Material Event**");

   a. Shipper is in default, which default has not been remedied, of the Contract or is in default of any other material contract with Union or another party; or,

   b. Shipper's corporate or debt rating falls below investment grade according to at least one nationally recognized rating agency; or,

   c. Shipper ceases to be rated by a nationally recognized agency; or,

   d. Shipper has exceeded credit available as determined by Union from time to time,

   then Shipper shall within fourteen (14) days of receipt of written notice by Union, obtain and provide to Union a letter of credit or other security in the form and amount reasonably required by Union (the "**Security**"). The Security plus the Initial Financial Assurances shall not exceed twelve (12) months of Monthly demand charges (in accordance with Article IX herein) multiplied by Contract Demand. In the event that Shipper does not provide to Union such Security within such fourteen (14) day period, Union may deem a default under the Default and Termination provisions of Article XII herein.

   In the event that Shipper in good faith, reasonably believes that it should be entitled to reduce the amount of or value of the Security previously provided, it may request such a reduction from Union and to the extent that the Material Event has been mitigated or eliminated, Union shall return all or a portion of the Security to Shipper within fourteen (14) Business Days after receipt of the request.

XX. MISCELLANEOUS PROVISIONS

1. Permanent Assignment: Shipper may assign the Contract to a third party ("Assignee"), up to the Contract Demand, (the "Capacity Assigned"). Such assignment shall require the prior written consent of Union and release of obligations by Union for the Capacity Assigned from the date of assignment. Such consent and release shall not be unreasonably withheld and shall be conditional upon the Assignee providing, amongst other things, financial assurances as per Article XXI herein. Any such assignment will be for the full rights, obligations and remaining term of the Contract as relates to the Capacity Assigned.

2. Temporary Assignment: Shipper may, upon notice to Union, assign all or a part of its service entitlement under the Contract (the "Assigned Quantity") and the corresponding rights and obligations to an Assignee on a temporary basis for not less than one calendar month. Such assignment shall not be unreasonably withheld and shall be conditional upon the Assignee executing the Facilitating Agreement as per Article XXI herein. Notwithstanding such assignment, Shipper shall remain obligated to Union to perform and observe the covenants and obligations contained herein in regard to the Assigned Quantity to the extent that Assignee fails to do so.

3. Title to Gas: Shipper represents and warrants to Union that Shipper shall have good and marketable title to, or legal authority to deliver to Union, all gas delivered to Union hereunder. Furthermore, Shipper hereby agrees to indemnify and save Union harmless from all suits, actions, debts, accounts, damages, costs, losses and expenses arising from or out of claims of any or all third parties to such gas or on account of Taxes, or other charges thereon.

XXI. PRECONDITIONS TO TRANSPORTATION SERVICES

1. Union Conditions: The obligations of Union to provide Transportation Services hereunder are subject to the following conditions precedent, which are for the sole benefit of Union and which may be waived or extended in whole or in part in the manner provided in the Contract:

   a. Union shall have obtained, in form and substance satisfactory to Union, and all conditions shall have been satisfied under, all governmental, regulatory and other third party approvals, consents, orders and authorizations, that are required to provide the Transportation Services; and,

   b. Union shall have obtained all internal approvals that are necessary or appropriate to provide the transportation Services; and,

   c. Union shall have received from Shipper the requisite financial assurances reasonably necessary to ensure Shipper's ability to honour the provisions of the Contract (the "**Initial Financial Assurances**"). The Initial Financial Assurances, if required, will be as determined solely by Union; and,

   d. Shipper and Union shall have entered into the Interruptible Service HUB Contract or equivalent (the "**Facilitating Agreement**") with Union.

2. Shipper Conditions: The obligations of Shipper hereunder are subject to the following conditions precedent, which are for the sole benefit of Shipper and which may be waived or extended in whole or in part in the manner provided in the Contract:

   a. Shipper shall, as required, have entered into the necessary contracts with Union and/or others to facilitate the Transportation Services contemplated herein, including contracts for upstream and downstream transportation, and shall specifically have an executed and valid Facilitating Agreement; and shall, as required, have entered into the necessary contracts to purchase the gas quantities handled under the Contract; and,

   b. Shipper shall have obtained, in form and substance satisfactory to Shipper, and all conditions shall have been satisfied under, all governmental, regulatory and other third party approvals, consents, orders and authorizations, that are required from federal, state, or provincial authorities for the gas quantities handled under the Contract; and,

   c. Shipper shall have obtained all internal approvals that are necessary or appropriate for the Shipper to execute the Contract.

3. Satisfaction of Conditions: Union and Shipper shall each use due diligence and reasonable efforts to satisfy and fulfil the conditions precedent specified in this Article XXI Section 1 a, c, and d and Section 2 a and b. Each party shall notify the other forthwith in writing of the satisfaction or waiver of each condition precedent for such party's benefit. If a party concludes that it will not be able to satisfy a condition precedent that is for its benefit, such party may, upon written notice to the other party, terminate the Contract and upon the giving of such notice, the Contract shall be of no further force and effect and each of the parties shall be released from all further obligations thereunder.

4. Non-Satisfaction of Conditions: If any of the conditions precedent in this Article XXI Section 1 c or Section 2 are not satisfied or waived by the party entitled to the benefit of that condition by the Conditions Date as such term is defined in the Contract, then either party may, upon written notice to the other party, terminate the Contract and upon the giving of such notice, the Contract shall be of no further force and effect and each of the parties shall be released from all further obligations hereunder, provided that any rights or remedies that a party may have for breaches of the Contract prior to such termination and any liability a party may have incurred before such termination shall not thereby be released.

SCHEDULE "B"

RATE M12
NOMINATIONS

a) For Services provided either under this rate schedule or referenced to this rate schedule:

i) For Services required on any day Shipper shall provide Union with details regarding the quantity it desires to be handled at the applicable Receipt Point(s) and/or Delivery Point(s), and such additional information as Union determines to be necessary (a “**Nomination**”).

ii) All Nominations shall be submitted by electronic means via *Unionline*. Union, in its sole discretion, may amend or modify the nominating procedures or *Unionline* at any time. Nominations shall be submitted so as to be received by Union in accordance with timelines established by Union, which reflect the NAESB standard nomination cycles. Union will accept all Nominations on each of the nomination cycles. Nominations made after the applicable deadline shall not be accepted except at the sole discretion of Union. The nomination cycle timelines are posted on Union’s website and the nomination deadlines are provided in *Unionline*.

iii) For customers electing firm all day transportation service, nominations shall be provided to Union’s Gas Management Services as outlined in the F24 –T Agreement.

b) Union shall determine whether or not all or any portion of the Nomination will be accepted. In the event Union determines that it will not accept such Nomination, Union shall advise Shipper of the reduced quantity (the "**Quantity Available**") for Services at the applicable points as outlined in each nomination cycle. After receiving such advice from Union but no later than one half hour after the Quantities Available deadline as outlined in each nomination cycle, Shipper shall provide a "**Revised Nomination**" to Union which shall be no greater than the Quantity Available. If such Revised Nomination is not provided within the time allowed as required above or such Revised Nomination is greater than the Quantity Available, then the Revised Nomination shall be deemed to be the Quantity Available. If the Revised Nomination (delivered within the time allowed as required above) is less than the Quantity Available, then such lesser amount shall be the Revised Nomination.

c) That portion of a Shipper's Nomination or Revised Nomination, as set out in (a) and (b), above, which Union shall accept for Services hereunder, shall be known as Shipper's "**Authorized Quantity**".

d) If on any day the actual quantities handled by Union, for each of the Services authorized, exceed Shipper's Authorized Quantity, and such excess was caused by either Shipper's incorrect nomination or by its delivering or receiving too much gas, then the amount by which the actual quantities handled for each of the Services exceed Shipper's Authorized Quantity, such excess shall be deemed "**Unauthorized Overrun**".

e) The daily quantity of gas nominated by Shipper will be delivered by Shipper at rates of flow that are as nearly constant as possible, however, Union shall use reasonable efforts to take receipt of gas on any day at an hourly rate of flow up to one twentieth (1/20) of the quantity received for that day. Union shall have the right to limit Services when on any day the cumulative hourly imbalance between receipts and deliveries exceeds one twentieth (1/20) of the quantity handled for that day, for each applicable Service.

f) A nomination for a daily quantity of gas on any day shall remain in effect and apply to subsequent days unless and until Union receives a new nomination from Shipper or unless Union gives Shipper written notice that it is not acceptable in accordance with either (a) or (b) of this schedule.

g) Except for periods of gas or quantity balancing as provided in the Contract, nominations by Shipper for deliveries to Union and redeliveries by Union shall be the same delivery of gas by Union either to Shipper or a Shipper’s Account with Union.

SCHEDULE "B 2010"

RATE M12
NOMINATIONS

1. For Transportation Services required on any Day under the Contract, Shipper shall provide Union with details regarding the quantity of Gas it desires to be handled at the applicable Receipt Point(s) and/or Delivery Point(s), and such additional information as Union determines to be necessary (a "**Nomination**").

2. All Nominations shall be submitted by electronic means via *Unionline*. Union, in its sole discretion, may amend or modify the nominating procedures or *Unionline* at any time. Nominations shall be submitted so as to be received by Union in accordance with timelines established by Union, which reflect the NAESB standard nomination cycles. Union will accept all Nominations on each of the nomination cycles. Nominations made after the applicable deadline shall not be accepted except at the sole discretion of Union. The nomination cycle timelines are posted on Union's website and the nomination deadlines are provided in *Unionline*.

3. Union shall determine whether or not all or any portion of the Nomination will be scheduled at each nomination cycle. With respect to each nomination cycle, in the event Union determines that it will not schedule such Nomination, Union shall advise Shipper of the reduced quantity (the "**Quantities Available**") for Transportation Services at the applicable points as outlined in each nomination cycle. After receiving such advice from Union, but no later than one half hour after the Quantities Available deadline as outlined in each nomination cycle, Shipper shall provide a revised nomination ("**Revised Nomination**") to Union which shall be no greater than the Quantity Available. If such Revised Nomination is not provided within the time allowed as required above or such Revised Nomination is greater than the Quantities Available, then the Revised Nomination shall be deemed to be the Quantities Available. If the Revised Nomination (delivered with the time allowed as required above) is less than the Quantity Available, then such lessor amount shall be the Revised Nomination.

4. For Shippers electing firm all day transportation service, nominations shall be provided to Union's Gas Management Services as outlined in the F24 –T Agreement.

5. For Transportation Services requiring Shipper to provide compressor fuel in kind, the nominated fuel requirements will be calculated by rounding to the nearest whole GJ.

6. All Timely Nominations shall have rollover options. Specifically, Shippers shall have the ability to nominate for several days, months or years, provided the Nomination start date and end date are both within the term of the Transportation Agreement.

7. Nominations received after the nomination deadline shall, if accepted by Union, be scheduled after Nominations received before the nomination deadline.

8. All Services are required to be nominated in whole Gigajoules (GJ).

9. To the extent Union is unable to complete a Nomination confirmation due to inaccurate, untimely or incomplete data involving an Interconnecting Pipeline entity, Union shall undertake reasonable efforts to confirm the transaction on a non-discriminatory basis until such time that the transaction is adequately verified by the parties, or until such time that Union determines that the Nomination is invalid at which time the Union shall reject the Nomination.

10. That portion of a Shipper's Nomination or Revised Nomination, as set out in paragraphs 1 and 3 above, which Union shall schedule for Transportation Services hereunder, shall be known as Shipper's "**Authorized Quantity**".

11. If on any day the actual quantities handled by Union, for each of the Transportation Services authorized, exceed Shipper's Authorized Quantity, and such excess was caused by either Shipper's incorrect nomination or by its delivering or receiving too much gas, then the amount by which the actual quantities handled for each of the Transportation

Services exceed Shipper's Authorized Quantity shall be deemed "**Unauthorized Overrun**".

12. The daily quantity of gas nominated by Shipper will be delivered by Shipper at rates of flow that are as nearly constant as possible, however, Union shall use reasonable efforts to take receipt of gas on any day at an hourly rate of flow up to one twentieth (1/20th) of the quantity received for that day. Union shall have the right to limit Transportation Services when on any day the cumulative hourly imbalance between receipts and deliveries exceeds one twentieth (1/20th) of the quantity handled for that day, for each applicable Transportation Service.

13. The parties hereto recognize that with respect to Transportation Services, on any day, receipts of gas by Union and deliveries of gas by Union may not always be exactly equal, but each party shall cooperate with the other in order to balance as nearly as possible the quantities transacted on a daily basis, and any imbalances arising shall be allocated to the Facilitating Agreement and shall be subject to the respective terms and charges contained therein, and shall be resolved in a timely manner.

14. Shipper may designate via *Unionline* access request form, a third party as agent for purposes of providing a Nomination, and for giving and receiving notices related to Nominations, and Union shall only accept nominations from the agent. Any such designation, if acceptable to Union, shall be effective following the receipt and processing of the written notice and will remain in effect until revoked in writing by Shipper.

SCHEDULE "C"

UNION GAS LIMITED

M12 Monthly Transportation Fuel Ratios and Fuel Rates

Firm or Interruptible Transportation Commodity

Effective January 1, 2018

	VT1 Easterly Dawn to Parkway (TCPL), Parkway (EGT) With Dawn Compression		VT1 Easterly Dawn to Kirkwall, Lisgar, Parkway (Consumers) With Dawn Compression		VT3 Westerly Parkway to Kirkwall, Dawn	
Month	Fuel Ratio (%)	Fuel Rate ($/GJ)	Fuel Ratio (%)	Fuel Rate ($/GJ)	Fuel Ratio (%)	Fuel Rate ($/GJ)
April	0.862	0.031	0.545	0.020	0.157	0.006
May	0.612	0.023	0.370	0.013	0.157	0.006
June	0.508	0.019	0.271	0.009	0.398	0.013
July	0.494	0.018	0.259	0.009	0.396	0.013
August	0.393	0.013	0.158	0.006	0.396	0.013
September	0.389	0.013	0.158	0.006	0.392	0.013
October	0.739	0.027	0.464	0.018	0.157	0.006
November	0.882	0.032	0.622	0.022	0.157	0.006
December	0.995	0.035	0.733	0.027	0.157	0.006
January	1.147	0.040	0.870	0.031	0.157	0.006
February	1.089	0.038	0.820	0.030	0.157	0.006
March	1.018	0.036	0.736	0.027	0.157	0.006

	M12-X Easterly Kirkwall to Parkway (TCPL), Parkway (EGT)		M12-X Easterly Kirkwall to Lisgar, Parkway (Consumers)		M12-X Westerly Parkway to Kirkwall, Dawn	
Month	Fuel Ratio (%)	Fuel Rate ($/GJ)	Fuel Ratio (%)	Fuel Rate ($/GJ)	Fuel Ratio (%)	Fuel Rate ($/GJ)
April	0.474	0.018	0.157	0.006	0.293	0.010
May	0.399	0.013	0.157	0.006	0.293	0.010
June	0.394	0.013	0.157	0.006	0.293	0.010
July	0.392	0.013	0.157	0.006	0.293	0.010
August	0.392	0.013	0.157	0.006	0.293	0.010
September	0.388	0.013	0.157	0.006	0.293	0.010
October	0.432	0.015	0.157	0.006	0.293	0.010
November	0.418	0.014	0.157	0.006	0.157	0.006
December	0.420	0.014	0.157	0.006	0.157	0.006
January	0.434	0.015	0.157	0.006	0.157	0.006
February	0.426	0.015	0.157	0.006	0.157	0.006
March	0.439	0.015	0.157	0.006	0.157	0.006

UNION GAS LIMITED

M12 Monthly Transportation Authorized Overrun Fuel Ratios and Fuel Rates

Firm or Interruptible Transportation Commodity

Effective January 1, 2018

	VT1 Easterly Dawn to Parkway (TCPL), Parkway (EGT) With Dawn Compression		VT1 Easterly Dawn to Kirkwall, Lisgar, Parkway (Consumers) With Dawn Compression		VT3 Westerly Parkway to Kirkwall, Dawn	
Month	Fuel Ratio (%)	Fuel Rate ($/GJ)	Fuel Ratio (%)	Fuel Rate ($/GJ)	Fuel Ratio (%)	Fuel Rate ($/GJ)
April	1.479	0.164	1.162	0.135	0.774	0.140
May	1.228	0.155	0.987	0.129	0.774	0.140
June	1.125	0.152	0.888	0.127	1.015	0.147
July	1.111	0.151	0.876	0.126	1.013	0.147
August	1.010	0.147	0.775	0.122	1.013	0.147
September	1.005	0.147	0.775	0.122	1.009	0.147
October	1.356	0.160	1.081	0.132	0.774	0.140
November	1.499	0.165	1.239	0.138	0.774	0.140
December	1.612	0.169	1.350	0.142	0.774	0.140
January	1.764	0.174	1.486	0.147	0.774	0.140
February	1.706	0.173	1.437	0.146	0.774	0.140
March	1.635	0.170	1.353	0.142	0.774	0.140

	M12-X Easterly Kirkwall to Parkway (TCPL), Parkway (EGT)		M12-X Easterly Kirkwall to Lisgar, Parkway (Consumers)		M12-X Westerly Parkway to Kirkwall, Dawn	
Month	Fuel Ratio (%)	Fuel Rate ($/GJ)	Fuel Ratio (%)	Fuel Rate ($/GJ)	Fuel Ratio (%)	Fuel Rate ($/GJ)
April	1.091	0.178	0.774	0.167	0.910	0.171
May	1.016	0.175	0.774	0.167	0.910	0.171
June	1.011	0.175	0.774	0.167	0.910	0.171
July	1.009	0.175	0.774	0.167	0.910	0.171
August	1.009	0.175	0.774	0.167	0.910	0.171
September	1.005	0.174	0.774	0.167	0.910	0.171
October	1.049	0.176	0.774	0.167	0.910	0.171
November	1.035	0.175	0.774	0.167	0.774	0.167
December	1.037	0.175	0.774	0.167	0.774	0.167
January	1.051	0.176	0.774	0.167	0.774	0.167
February	1.043	0.175	0.774	0.167	0.774	0.167
March	1.056	0.176	0.774	0.167	0.774	0.167

RATE M12
RECEIPT AND DELIVERY POINTS AND PRESSURES

1. Receipt and Delivery Points:

The following defines each Receipt Point and/or Delivery Point, as indicated (R= Receipt Point; D= Delivery Point)

R,D	**DAWN (FACILITIES):**	Union's Compressor Station site situated in the northwest corner of Lot Twenty-Five (25), Concession II, in the Township of Dawn-Euphemia, in the County of Lambton. This point is applicable for quantities of gas that have been previously transported or stored under other contracts that Shipper may have in place with Union.
R	**DAWN (TCPL):**	At the junction of Union's and TCPL's facilities, at or adjacent to Dawn (Facilities).
R	**DAWN (TECUMSEH):**	At the junction of Union's and Enbridge Gas Distribution Inc.'s (Enbridge) Tecumseh Gas Storage's facilities, at or adjacent to Dawn (Facilities).
R	**DAWN (TSLE):**	At the junction of Union's and Enbridge Gas Distribution Inc.'s ("**Enbridge**") NPS 16 Tecumseh Sombra Line Extension facilities; at or adjacent to Dawn (Facilities).
R	**DAWN (VECTOR):**	At the junction of Union's and Vector Pipeline Limited Partnership ("**Vector**") facilities, at or adjacent to Dawn (Facilities).
R,D	**PARKWAY (TCPL):**	At the junction of Union's and TCPL's facilities, at or adjacent to Union's facilities situated in the Part Lot 9 and Part Lot 10, Concession IX, New Survey, Town of Milton, Regional Municipality of Halton (now part of City of Mississauga).
R,D	**KIRKWALL:**	At the junction of Union's and TCPL's facilities at or adjacent to Union's facilities situated in Part Lot Twenty-Five (25), Concession 7, Town of Flamborough.
D	**PARKWAY (CONSUMERS):**	At the junction of Union's and Enbridge's facilities, at or adjacent to Union's facilities situated in Part Lot 9 and Part Lot 10, Concession IX, New Survey, Town of Milton, Regional Municipality of Halton (now part of City of Mississauga).
D	**PARKWAY (EGT):**	At the junction of Union's and Enbridge's facilities, at or adjacent to Union's facilities situated in Part Lot 9 and Part Lot 10, Concession IX, New Survey, Town of Milton, Regional Municipality of Halton (now part of City of Mississauga).
D	**LISGAR:**	At the junction of the facilities of Union and Enbridge situated at 6620 Winston Churchill Boulevard, City of Mississauga.

2. Receipt and Delivery Pressures:

(a) All Gas tendered by or on behalf of Shipper to Union shall be tendered at the Receipt Point(s) at Union's prevailing pressure at that Receipt Point, or at such pressure as per operating agreements between Union and the applicable Interconnecting Pipeline as amended or restated from time to time.

(b) All Gas tendered by or on behalf of Union to Shipper shall be tendered at the Delivery Point(s) at Union's prevailing pressure at that Delivery Point or at such pressure as per agreements between Union and the applicable Interconnecting Pipeline as amended or restated from time to time.

(c) Under no circumstances shall Union be obligated to receive or deliver gas hereunder at pressures exceeding the maximum allowable operating pressures prescribed under any applicable governmental regulations; nor shall Union be required to make any physical deliveries or to accept any physical receipts which its existing facilities cannot accommodate.

TRANSPORTATION OF LOCALLY PRODUCED GAS

(A) Applicability

The charges under this rate schedule shall be applicable to a customer who enters into a contract with Union for gas received at a local production point to be transported to Dawn.

Applicable Points
Dawn as a delivery point: Dawn (Facilities).

(B) Rates

The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated, which may be higher than the identified rates.

Demand Commodity

				Union Supplied Fuel	Shipper Supplied Fuel		
		Demand Charge Rate/Month	Commodity Charge Rate/GJ	Fuel and Commodity Charge Rate/GJ	Fuel Ratio %	AND	Commodity Charge Rate/GJ
1.	Monthly fixed charge per Customer Station	$952.72					
2.	Transmission Commodity Charge		$0.035				
3.	Delivery Commodity Charge			$0.006	0.157%		
4.	Cap-and-Trade Facility-Related Charge (applied to all quantities transported)			$0.006			$0.006

These charges are in addition to the transportation, storage and/or balancing charges which shall be paid for under Rate M12 or Rate C1, or other services that may be negotiated.

5. Overrun Services

Authorized Overrun

Authorized overrun will be payable on all quantities transported in excess of Union's obligation on any day. The overrun charges payable will be calculated at the identified authorized overrun charge. Overrun will be authorized at Union's sole discretion.

	Union Supplied Fuel	Shipper Supplied Fuel		
	Fuel and Commodity Charge Rate/GJ	Fuel Ratio %	AND	Commodity Charge Rate/GJ
Authorized Overrun Charge	$0.074	0.157%		$0.069
Cap-and-Trade Facility-Related Charge (applied to all quantities transported)	$0.006			$0.006

Unauthorized Overrun

Authorized Overrun rates payable on all volumes up to 2% in excess of Union's contractual obligation.

The Unauthorized Overrun rate during the November 1 to April 15 period will be $50 per GJ for all usage on any day in excess of 102% of Union's contractual obligation. The Unauthorized Overrun rate during the April 16 to October 31 period will be $9.373 per GJ for all usage on any day in excess of 102% of Union's contractual obligation.

(C) Terms of Service

General Terms & Conditions applicable to this rate shall be in accordance with the attached Schedule "A" in effect before January 1, 2013. The General Terms & Conditions applicable to this rate schedule shall be in accordance with the attached Schedule "A 2013" for contracts in effect on or after January 1, 2013.

SCHEDULE "A"

GENERAL TERMS & CONDITIONS
M13 TRANSPORTATION AGREEMENT

I. DEFINITIONS

Except where the context expressly requires or states another meaning, the following terms, when used in these General Terms & Conditions and in any contract into which these General Terms & Conditions are incorporated, shall be construed to have the following meanings:

1. "Banking Day" shall mean a day on which the general offices of the Canadian Imperial Bank of Commerce, 99 King St. W., Chatham, Ontario are open for business;

2. "business day" shall mean a day on which the general offices of Union in Chatham, Ontario are open for business;

3. "Contract" shall refer to the Contract to which these General Terms & Conditions shall apply, and into which they are incorporated;

4. "contract year" shall mean a period of three hundred and sixty-five (365) consecutive days, beginning on the day agreed upon by Union and Shipper as set forth in the Contract, or on any anniversary of such date; provided, however, that any such period which contains a date of February 29 shall consist of three hundred and sixty-six (366) consecutive days;

5. "day" shall mean a period of twenty-four (24) consecutive hours beginning at 9:00 a.m. Central Standard time. The reference date for any day shall be the calendar date upon which the twenty-four (24) hour period shall commence;

6. "month" shall mean the period beginning at 9:00 a.m. Central Standard time on the first day of a calendar month and ending at 9:00 a.m. Central Standard time on the first day of the following calendar month;

7. "firm" shall mean service not subject to curtailment or interruption except under Articles XI and XII of this Schedule "B";

8. "interruptible service" shall mean service subject to curtailment or interruption, after notice, at any time;

9. "gas" shall mean gas as defined in the Ontario Energy Board Act, R.S.O. 1980, c. 332, as amended, supplemented or reenacted from time to time;

10. "cubic metre" shall mean the volume of gas which occupies one cubic metre when such gas is at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

11. "m^3" shall mean cubic metre of gas and "10^3m^3" shall mean 1,000 cubic metres of gas;

12. "pascal" (Pa) shall mean the pressure produced when a force of one (1) newton is applied to an area of one (1) square metre. The term "kilopascal" (kPa) shall mean 1,000 pascals;

13. "joule" (J) shall mean the work done when the point of application of a force of one (1) newton is displaced a distance of one (1) metre in the direction of the force. The term "megajoule" (MJ) shall mean 1,000,000 joules. The term “gigajoule” (GJ) shall mean 1,000,000,000 joules;

14. "gross heating value" shall mean the total heat expressed in megajoules per cubic metre (MJ/m^3) produced by the complete combustion at constant pressure of one (1) cubic metre of gas with air, with the gas free of water vapour and the temperature of the gas, air and products of combustion at standard temperature and all water formed by the combustion reaction condensed to the liquid state;

15. "Shipper" shall have the meaning as defined in the Contract and shall also include Shipper’s agent(s);

16. "subsidiary" shall mean a company in which more than fifty (50) per cent of the issued share capital (having full voting rights under all circumstances) is owned or controlled directly or indirectly by another company, by one or more subsidiaries of such other company, or by such other company and one or more of its subsidiaries;

17. "TCPL" means TransCanada PipeLines Limited;

18. "NOVA" means NOVA Gas Transmission Ltd;

19. "Panhandle" means CMS Panhandle Eastern Pipeline Company;

20. "MichCon" means Michigan Consolidated Gas Company;

21. "SCPL" means St. Clair Pipelines (1996) Ltd.;

22. "OEB" means the Ontario Energy Board;

23. "NEB" means the National Energy Board (Canada);

    i. "GLGT" means Great Lakes Gas Transmission Company;

    ii. "CMS" means CMS Gas Transmission and Storage Company; and,

    iii. "Consumers" means The Consumers' Gas Company, Limited.

24. "cricondentherm hydrocarbon dewpoint" shall mean the highest hydrocarbon dewpoint temperature on the phase envelope;

25. "hydrocarbon dewpoint" shall mean temperature at a specific pressure where hydrocarbon vapour condensation begins;

26. "specific gravity" shall mean density of the gas divided by density of air, with both at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute; and,

27. "Wobbe Number" shall mean gross heating value of the gas divided by the square root of its specific gravity.

II. GAS QUALITY

1. Natural Gas: The minimum gross heating value of the gas delivered to/by Union hereunder, shall be thirty-six (36) megajoules per cubic metre. The maximum gross heating value of the gas delivered to/by Union hereunder shall be forty point two (40.2) megajoules per cubic metre. The gas to be delivered hereunder to Union may be a commingled supply from Shipper's gas sources of supply. The gas to be delivered by Union may be a commingled supply from Union's sources of gas supply; provided, however, that helium, natural gasoline, butane, propane and other hydrocarbons, except methane, may be removed prior to delivery to Shipper. Further, Union may subject, or permit the subjection of, the gas to compression, dehydration, cooling, cleaning and other processes.

2. Freedom from objectionable matter: The gas to be delivered to Union at the Receipt Point(s) hereunder,

    a. shall be commercially free from bacteria, sand, dust, gums, crude oils, lubricating oils, liquids, chemicals or compounds used in the production, treatment, compression or dehydration of the gas or any other objectionable substance in sufficient quantity so as to render the gas toxic, unmerchantable or cause injury to, or interference with, the proper operation of the lines, regulators, meters or other appliances through which it flows,

    b. shall not contain more than seven (7) milligrams of hydrogen sulphide per cubic metre of gas, nor more than one hundred (100) milligrams of total sulphur per cubic metre of gas,

    c. shall not contain more than five (5) milligrams of mercaptan sulphur per cubic metre of gas,

    d. shall not contain more than two point zero (2.0) molar percent by volume of carbon dioxide in the gas,

    e. shall not contain more than zero point four (0.4) molar percent by volume of oxygen in the gas,

f. shall not contain more than zero point five (0.5) molar percent by volume of carbon monoxide in the gas,

g. shall not contain more than four point zero (4.0) molar percent by volume of hydrogen in the gas,

h. shall not contain more than sixty-five (65) milligrams of water vapour per cubic metre of gas,

i. shall not have a cricondentherm hydrocarbon dewpoint exceeding minus eight (-8) degrees Celsius,

j. shall have Wobbe Number from forty seven point fifty (47.50) megajoules per cubic metre of gas to fifty one point forty six (51.46) megajoules per cubic metre of gas, maximum of one point five (1.5) mole percent by volume of butane plus (C4+) in the gas, and maximum of four point zero (4.0) mole percent by volume of total inerts in the gas in order to be interchangeable with other Interconnecting Pipeline gas,

k. shall not exceed forty-three degrees Celsius (43ºC), and,

l. shall not be odourized by Shipper.

3. Non-conforming Gas:

a. In the event that the quality of the gas does not conform or if Union, acting reasonably, suspects the quality of the gas may not conform to the specifications herein, then Shipper shall, if so directed by Union acting reasonably, forthwith carry out, at Shipper's cost, whatever field testing of the gas quality as may be required to ensure that the quality requirements set out herein are met, and to provide Union with a certified copy of such tests. If Shipper does not carry out such tests forthwith, Union may conduct such test and Shipper shall reimburse Union for all costs incurred by Union for such testing.

b. If Shipper's gas fails at any time to conform to the requirements of this Article II, Union, in addition to its other remedies, may refuse to accept delivery of gas at the Receipt Points hereunder until such deficiency has been remedied by Shipper. Each Party agrees to notify the other verbally, followed by written notification, of any such deficiency of quality.

4. Quality of Gas Received: The quality of the gas to be received by Union at the Receipt Point(s) hereunder is to be of a merchantable quality and in accordance with the quality standards as set out by Union in this Article II, but, Union will use reasonable efforts to accept gas of a quality that may deviate from the quality standards set out therein.

5. Quality of Gas at Dawn: The quality of the gas to be delivered to Union at Dawn (Facilities) or the gas to be delivered by Union to Shipper at Dawn (Facilities) hereunder is to be of a merchantable quality and in accordance with the quality standards and measurement standards as set out by Union in this Article II, except that total sulphur limit shall be not more than four hundred and sixty (460) milligrams per cubic metre of gas. In addition to any other right or remedy of a party, each party shall be entitled to refuse to accept delivery of any gas which does not conform to any of the specifications set out in this Article II.

III. MEASUREMENTS

1. Service Unit: The unit of the gas delivered to Union shall be a quantity of 10^3m^3. The unit of gas delivered by Union shall be a megajoule, a gigajoule, a cubic metre (m^3) or one thousand cubic metres (10^3m^3) at Union's discretion.

2. Determination of Volume and Energy:

a. The volume and energy amounts determined under the Contract shall be determined in accordance with the Electricity and Gas Inspection Act (Canada), RSC 1985, c E-4- (the "**Act**") and the Electricity and Gas Inspection Regulations, SOR 86/131 (the "**Regulations**"), and any documents issued under the authority of the Act and Regulations and any amendments thereto.

b. The supercompressibility factor shall be determined in accordance with either the "Manual for Determination of Supercompressibility Factors for Natural Gas" (PAR Project NX-19) published in 1962 or with American Gas Association Transmission Measurement Committee Report No. 8, Nov. 1992, at Union's discretion, all as amended from time to time.

c. The volume and/or energy of the gas delivered to/by Union hereunder shall be determined by the measurement equipment designated in Article VI herein.

IV. POINT OF RECEIPT AND POINT OF DELIVERY

1. Unless otherwise specified in the Contract, the point or points of receipt for all gas to be covered hereunder shall be on the outlet side of the measuring stations located at or near the point or points of connection specified in the Contract, where Union takes possession of the gas. Whenever the phrase “receipt point” appears herein, it shall mean Point of Receipt as defined in this Article IV.

2. Unless otherwise specified in the Contract, the point or points of delivery for all gas to be covered hereunder shall be on the outlet side of the measuring stations located at or near the point or points of connection as specified in the Contract, where Shipper takes possession of the gas. Whenever the phrase “delivery point” shall appear herein, it shall mean Point of Delivery as defined in this Article IV.

V. FACILITIES ON CUSTOMER'S PROPERTY

N/A.

VI. MEASURING EQUIPMENT

1. Metering by Union: Union will install and operate meters and related equipment as required and in accordance with the Act and Regulations referenced in Article III herein.

2. Metering by Others: In the event that all or any gas received or delivered hereunder is measured by a meter that is owned and operated by an upstream or downstream transporter (the “Transporter”) whose facilities may or may not interconnect with Union’s, then Union and Shipper agree to accept that metering for the purpose of determining the volume and energy of gas received or delivered on behalf of the Shipper. The standard of measurement and tests for the gas delivered to/by Union pursuant to this Article VII, Section 2 shall be in accordance with the general terms and conditions as incorporated in that Transporter’s gas tariff as approved by Transporter’s regulatory body.

3. Check Measuring Equipment: Shipper may install, maintain and operate, at the Receipt Point, at its own expense, such check measuring equipment as desired, provided that such equipment shall be so installed as not to interfere with the operation of Union's measuring equipment at or near the Receipt Point, and shall be installed, maintained and operated in conformity with the same standards and specifications applicable to Union's metering facilities.

4. Calibration and Test of Measuring Equipment: The accuracy of Union's measuring equipment shall be verified by Union at reasonable intervals, and if requested, in the presence of representatives of Shipper, but Union shall not be required to verify the accuracy of such equipment more frequently than once in any thirty (30) day period. In the event either party notifies the other that it desires a special test of any measuring equipment, the parties shall co-operate to secure a prompt verification of the accuracy of such equipment. The expense of any such special test, if called for by Shipper, shall be borne by Shipper if the measuring equipment tested is found to be in error by not more than two per cent (2%). If, upon test, any measuring equipment is found to be in error by not more than two per cent (2%), previous recordings of such equipment shall be considered accurate in computing receipts of gas, but such equipment shall be adjusted at once to record as near to absolute accuracy as possible. If the test conducted shows a percentage of inaccuracy greater than two percent (2%), the financial adjustment, if any, shall be calculated in accordance with the Act and Regulations, as may be amended from time to time and in accordance with any successor statutes and regulations.

5. Preservation of Metering Records: Union and Shipper shall each preserve for a period of at least six (6) years all test data, and other relevant records.

VII. BILLING

1. Monthly Billing Date: Union shall render bills on or before the 10th day of each month for all services furnished during the preceding month. Such charges may be based on estimated quantities, if actual quantities are unavailable in time to prepare the billing. Union shall provide, in a succeeding month's billing, an adjustment based on any difference between actual quantities and estimated quantities. If presentation of a bill to Shipper is delayed after the 10th day of the month, then the time of payment shall be extended accordingly, unless Shipper is responsible for such delay.

2. Right of Examination: Both Union and Shipper shall have the right to examine at any reasonable time the books, records and charts of the other to the extent necessary to verify the accuracy of any statement, chart or computation made under or pursuant to the provisions of the Contract.

VIII. PAYMENTS

1. Monthly Payments: Shipper shall pay the invoiced amount directly into Union's bank account as directed on the invoice on or before the twentieth (20th) day of each month. If the payment date is not a business day, then payment must be received in Union's account on the first business day preceding the twentieth (20th) day of the month.

2. Remedies for Non-payment: Should Shipper fail to pay all of the amount of any bill as herein provided when such amount is due, Shipper shall pay to Union interest on the unpaid portion of the bill accruing at a rate per annum equal to the minimum commercial lending rate of Union's principal banker in effect from time to time from the due date until the date of payment. If such failure to pay continues for thirty (30) days after payment is due, Union, in addition to any other remedy it may have under the Contract may suspend service(s) until such amount is paid, provided however, that if Shipper, in good faith shall dispute the amount of any such bill or part thereof and shall pay to Union such amounts as it concedes to be correct and at any time thereafter within twenty (20) days of a demand made by Union shall furnish good and sufficient surety bond satisfactory to Union, guaranteeing payment to Union of the amount ultimately found due upon such bill after a final determination which may be reached either by agreement, arbitration decision or judgement of the courts, as may be the case, then Union shall not be entitled to suspend service(s) because of such non-payment unless and until default be made in the conditions of such bond or in payment for any further service(s) to Shipper hereunder.

3. Billing Adjustments: If it shall be found that at any time or times Shipper has been overcharged or undercharged in any form whatsoever under the provisions of the Contract and Shipper shall have actually paid the bills containing such overcharge or undercharge, Union shall refund the amount of any such overcharge and interest shall accrue from and including the first day of such overcharge as paid to the date of refund and shall be calculated but not compounded at a rate per annum determined each day during the calculation period to be equal to the minimum commercial lending rate of Union's principal banker, and the Shipper shall pay the amount of any such undercharge, but without interest. In the event Union renders a bill to Shipper based upon measurement estimates, the required adjustment to reflect actual measurement shall be made on the bill next following the determination of such actual measurement, without any charge of interest. In the event an error is discovered in the amount billed in any statement rendered by Union, such error shall be adjusted by Union. Such overcharge, undercharge or error shall be adjusted by Union on the bill next following its determination (where the term "bill" next following shall mean a bill rendered at least fourteen (14) days after the day of its determination), provided that claim therefore shall have been made within six (6) years from the date of the incorrect billing. In the event any refund is issued with Shipper's bill, the aforesaid date of refund shall be deemed to be the date of the issue of invoice.

IX. ARBITRATION

If and when any dispute, difference or question shall arise between the parties hereto touching the Contract or anything herein contained, or the construction hereof, or the rights, duties or liabilities of the parties in relation to any matter hereunder, the matter in dispute shall be submitted and referred to arbitration within ten (10) days after written request of either party. Upon such request each party shall appoint an arbitrator, and the two so appointed shall appoint a third. A majority decision of the arbitrators shall be final and binding upon both parties. In all other respects the provisions of the Arbitration Act of the Province of Ontario, or any act passed in amendment thereof or substitution therefore, shall apply to each such submission. Operations under this Contract shall continue, without prejudice, during any such arbitration and the costs attributable to such arbitration shall be shared equally by the parties hereto.

X. FORCE MAJEURE

N/A

XI. DEFAULT AND TERMINATION

N/A

XII. MODIFICATION

N/A

XIII. NONWAIVER AND FUTURE DEFAULT

N/A

XIV. LAWS, REGULATIONS AND ORDERS

The Contract and the respective rights and obligations of the parties hereto are subject to all present and future valid laws, orders, rules and regulations of any competent legislative body, or duly constituted authority now or hereafter having jurisdiction and the Contract shall be varied and amended to comply with or conform to any valid order or direction of any board, tribunal or administrative agency which affects any of the provisions of the Contract.

RATE M13
GENERAL TERMS & CONDITIONS

I. DEFINITIONS

Except where the context expressly requires or states another meaning, the following terms, when used in these General Terms & Conditions and in any contract into which these General Terms & Conditions are incorporated, shall be construed to have the following meanings:

"**Aid to Construction"** shall include any and all costs, expenses, amounts, damages, obligations, or other liabilities (whether of a capital or operating nature, and whether incurred before or after the date of the Contract) actually paid by Union (including amounts paid to affiliates for services rendered in accordance with the Affiliate Relationships Code as established by the OEB) in connection with or in respect of satisfying the conditions precedent set out in Article XXI herein (including without limitation the cost of construction, installation and connection of any required meter station as described in Article IX, Section 6, the obtaining of all governmental, regulatory and other third party approvals, and the obtaining of rights of way) whether resulting from Union's negligence or not, except for any costs that have arisen from the gross negligence, fraud, or wilful misconduct of Union;

"**Average Local Producer Heat**" ("**ALPH**") shall mean the heat content value as set by Union, and shall be determined by volumetrically averaging the gross heat content of all produced gas delivered to the Union system by Ontario Local Producers. The ALPH shall be expressed in $GJ/10^3m^3$ and may be adjusted from time to time by Union;

"**Business Day**" shall mean any day, other than Saturday, Sunday or any days on which national banks in the Province of Ontario are authorized to close;

"**Contract**" shall refer to the Contract to which these General Terms & Conditions shall apply, and into which they are incorporated;

"**Contract Year**" shall mean a period of three hundred and sixty-five (365) consecutive days; provided however, that any such period which contains a date of February 29 shall consist of three hundred and sixty-six (366) consecutive days, commencing on November 1 of each year; except for the first Contract Year which shall commence on the Commencement Date and end on the first October 31 that follows such date;

"**cricondentherm hydrocarbon dewpoint**" shall mean the highest hydrocarbon dewpoint temperature on the phase envelope;

"**cubic metre**" shall mean the volume of gas which occupies one cubic metre when such gas is at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

"**Dawn Quantity**" shall mean the total daily quantity of gas in GJ delivered at Dawn (Facilities), which is equal to the total energy of all gas supplied daily to Union at the Receipt Point(s). The Dawn Quantity shall be calculated utilizing the following factor equation: Dawn Quantity = Produced Volume x ALPH;

"**Day**" shall mean a period of twenty-four (24) consecutive hours beginning at 10:00 a.m. Eastern Clock Time. The reference date for any Day shall be the calendar date upon which the twenty-four (24) hour period shall commence;

"**Delivery Point**" shall mean the point where Union shall deliver the Dawn Quantity and/or Market Quantity to Shipper and as further defined in Schedule 1 of the Contract;

"**Distribution Demand**" shall mean the varying demand for the supply of gas, as determined by Union, on Union's pipeline and distribution system for users of gas who are supplied or delivered gas by Union's pipeline and distribution system;

"Eastern Clock Time" shall mean the local clock time in the Eastern Time Zone on any Day;

"**firm**" shall mean service not subject to curtailment or interruption except under Articles XI, XII and XVIII herein;

"**Firm Daily Variability Demand**" shall mean the established quantity set forth in Schedule 2 of the Contract, which is the permitted difference between the Dawn Quantity and the Market Quantity;

"**gas**" shall mean gas as defined in the Ontario Energy Board Act, 1998, S.O. 1998, c.15, Sch. B, as amended, supplemented or re-enacted from time to time;

"**gross heating value**" shall mean the total heat expressed in megajoules per cubic metre (MJ/m^3) produced by the complete combustion at constant pressure of one (1) cubic metre of gas with air, with the gas free of water vapour and the temperature of the gas, air and products of combustion at standard temperature and all water formed by the combustion reaction condensed to the liquid state;

"**hydrocarbon dewpoint**" shall mean temperature at a specific pressure where hydrocarbon vapour condensation begins;

"**Interruptible Service HUB Contract**" shall mean a contract between Shipper and Union under which Union provides interruptible HUB service;

"**Interconnecting Pipeline**" shall mean a pipeline that directly connects to the Union pipeline and distribution system;

"**joule**" (J) shall mean the work done when the point of application of a force of one (1) newton is displaced a distance of one (1) metre in the direction of the force. The term "**megajoule**" (MJ) shall mean 1,000,000 joules. The term "**gigajoule**" (GJ) shall mean 1,000,000,000 joules;

"**m^3**" shall mean cubic metre of gas and "**10^3m^3**" shall mean 1,000 cubic metres of gas;

"**MAOP"** shall mean the maximum allowable operating pressure of Union's pipeline and distribution system and as further defined in Schedule 1 of the Contract;

"**Market Quantity**" shall mean the daily quantity in GJ nominated for Name Change Service that Day by Shipper at Dawn (Facilities);

"**Maximum Daily Quantity**" shall mean the maximum quantity of gas Shipper may deliver to Union at a Receipt Point on any Day, as further defined in Schedule 1;

"**Month**" shall mean the period beginning at 10:00 a.m. Eastern Clock Time on the first day of a calendar month and ending at 10:00 a.m. Eastern Clock Time on the first day of the following calendar month;

"**Name Change Service**" shall mean an interruptible administrative service whereby Union acknowledges for Shipper a change in title of a gas quantity from Shipper to a third party at the Delivery Point;

"**OEB**" means the Ontario Energy Board;

"**pascal**" "**(Pa)**" shall mean the pressure produced when a force of one (1) newton is applied to an area of one (1) square metre. The term "**kilopascal**" "**(kPa)"** shall mean 1,000 pascals;

"**Produced Volume**" shall mean the aggregate of all actual volumes of gas in 10^3m^3, delivered by Shipper to Union at all Receipt Points on any Day;

"**Producer Balancing Account**" shall mean the gas balance held by Union for Shipper, or owed by Shipper to Union, at the Delivery Point. Where the Producer Balancing Account is zero or a positive number, the account is in a credit position, and where the Producer Balancing Account is less than zero, the account is in a debit position;

"**Producer Balancing Service**" shall mean a Service whereby Union either calculates a credit or debit to the Producer Balancing Account by subtracting the Market Quantity from the Dawn Quantity. Where such amount is greater than zero, Union will credit the Producer Balancing Account, or where such amount is less than zero, Union will debit the Producer Balancing Account. This Service shall be performed on a retroactive basis on the terms and conditions contained in Schedule 2 of the Contract, as may be revised from time to time by Union;

"Receipt Point" shall mean the point(s) where Union shall receive gas from Shipper;

"**Sales Agreement**" shall mean the Ontario Gas Purchase Agreement(s) entered into between Shipper and Union;

"**Shipper**" shall have the meaning as defined in the Contract, and shall also include Shipper's agent(s);

"**specific gravity**" shall mean density of the gas divided by density of air, with both at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

"**System Capacity**" shall mean the volumetric capacity that exists from time to time within Union's pipeline and distribution system which determines Union's ability to accept volumes of gas into Union's pipeline and distribution system hereunder. System Capacity shall be determined by Union and such determination, in addition to the physical characteristics of Union's pipeline and distribution system Distribution Demand, shall also include consideration of Union's local Distribution Demand, Union's total system Distribution Demand, availability of Union's gas storage capacity, and other gas being purchased and/or delivered into Union's pipeline and distribution system;

"**Taxes**" shall mean any tax (other than tax on income or tax on property), duty, royalty, levy, license, fee or charge not included in the charges and rates as per the applicable rate schedule (including but not limited to charges under any form of cap and trade, carbon tax, or similar system) and that is levied, assessed or made by any governmental authority on the gas itself, or the act, right, or privilege of producing, severing, gathering, storing, transporting, handling, selling or delivering gas under the Contract;

"**Wobbe Number**" shall mean gross heating value of the gas divided by the square root of its specific gravity.

II. GAS QUALITY

1. Natural Gas: The minimum gross heating value of the gas delivered to/by Union hereunder, shall be thirty-six (36) megajoules per cubic metre. The maximum gross heating value of the gas delivered to/by Union hereunder shall be forty point two (40.2) megajoules per cubic metre. The gas to be delivered hereunder to Union may be a commingled supply from Shipper's gas sources of supply. The gas to be delivered by Union may be a commingled supply from Union's sources of gas supply; provided, however, that helium, natural gasoline, butane, propane and other hydrocarbons, except methane, may be removed prior to delivery to Shipper. Further, Union may subject, or permit the subjection of, the gas to compression, dehydration, cooling, cleaning and other processes.

2. Freedom from objectionable matter: The gas to be delivered to Union at the Receipt Point(s) hereunder,

   a. shall be commercially free from bacteria, sand, dust, gums, crude oils, lubricating oils, liquids, chemicals or compounds used in the production, treatment, compression or dehydration of the gas or any other objectionable substance in sufficient quantity so as to render the gas toxic, unmerchantable or cause injury to, or interference with, the proper operation of the lines, regulators, meters or other appliances through which it flows,

   b. shall not contain more than seven (7) milligrams of hydrogen sulphide per cubic metre of gas, nor more than one hundred (100) milligrams of total sulphur per cubic metre of gas,

   c. shall not contain more than five (5) milligrams of mercaptan sulphur per cubic metre of gas,

   d. shall not contain more than two point zero (2.0) molar percent by volume of carbon dioxide in the gas,

   e. shall not contain more than zero point four (0.4) molar percent by volume of oxygen in the gas,

   f. shall not contain more than zero point five (0.5) molar percent by volume of carbon monoxide in the gas,

   g. shall not contain more than four point zero (4.0) molar percent by volume of hydrogen in the gas,

   h. shall not contain more than sixty-five (65) milligrams of water vapour per cubic metre of gas,

   i. shall not have a cricondentherm hydrocarbon dewpoint exceeding minus eight (-8) degrees Celsius,

   j. shall have Wobbe Number from forty seven point fifty (47.50) megajoules per cubic metre of gas to fifty one point forty six (51.46) megajoules per cubic metre of gas, maximum of one point five (1.5) mole percent by volume of butane plus (C4+) in the gas, and maximum of four point zero (4.0) mole percent by volume of total inerts in the gas in order to be interchangeable with other Interconnecting Pipeline gas,

k. shall not exceed forty-three degrees Celsius (43ºC), and,

l. shall not be odourized by Shipper.

3. Non-conforming Gas:

a. In the event that the quality of the gas does not conform or if Union, acting reasonably, suspects the quality of the gas may not conform to the specifications herein, then Shipper shall, if so directed by Union acting reasonably, forthwith carry out, at Shipper's cost, whatever field testing of the gas quality as may be required to ensure that the quality requirements set out herein are met, and to provide Union with a certified copy of such tests. If Shipper does not carry out such tests forthwith, Union may conduct such test and Shipper shall reimburse Union for all costs incurred by Union for such testing.

b. If Shipper's gas fails at any time to conform to the requirements of this Article II, Union, in addition to its other remedies, may refuse to accept delivery of gas at the Receipt Points hereunder until such deficiency has been remedied by Shipper. Each Party agrees to notify the other verbally, followed by written notification, of any such deficiency of quality.

4. Quality of Gas Received: The quality of the gas to be received by Union at the Receipt Point(s) hereunder is to be of a merchantable quality and in accordance with the quality standards as set out by Union in this Article II, but, Union will use reasonable efforts to accept gas of a quality that may deviate from the quality standards set out therein.

5. Quality of Gas at Dawn: The quality of the gas to be delivered to Union at Dawn (Facilities) or the gas to be delivered by Union to Shipper at Dawn (Facilities) hereunder is to be of a merchantable quality and in accordance with the quality standards and measurement standards as set out by Union in this Article II, except that total sulphur limit shall be not more than four hundred and sixty (460) milligrams per cubic metre of gas. In addition to any other right or remedy of a party, each party shall be entitled to refuse to accept delivery of any gas which does not conform to any of the specifications set out in this Article II.

III. MEASUREMENTS

1. Service Unit: The unit of the gas delivered to Union shall be a quantity of 10^3m^3. The unit of gas delivered by Union shall be a megajoule, a gigajoule, a cubic metre (m^3) or one thousand cubic metres (10^3m^3) at Union's discretion.

2. Determination of Volume and Energy:

a. The volume and energy amounts determined under the Contract shall be determined in accordance with the Electricity and Gas Inspection Act (Canada), RSC 1985, c E-4- (the "**Act**") and the Electricity and Gas Inspection Regulations, SOR 86/131 (the "**Regulations**"), and any documents issued under the authority of the Act and Regulations and any amendments thereto.

b. The supercompressibility factor shall be determined in accordance with either the "**Manual for Determination of Supercompressibility Factors for Natural Gas**" (PAR Project NX-19) published in 1962 or with American Gas Association Transmission Measurement Committee Report No. 8, Nov. 1992, at Union's discretion, all as amended from time to time.

c. The volume and/or energy of the gas delivered to/by Union hereunder shall be determined by the measurement equipment designated in Article VII herein.

IV. RECEIPT POINT AND DELIVERY POINT

The point(s) of receipt and point of delivery for all gas to be covered hereunder shall be on the outlet side of the measuring stations located at or near the point or points of connection specified in Schedule 1 of the Contract, where possession of the gas changes from one party to the other.

V. POSSESSION OF AND RESPONSIBILITY FOR GAS

1. Possession of Gas: Union accepts no responsibility for any gas prior to such gas being delivered to Union at the Receipt Point or after its delivery by Union at the Delivery Point. As between the parties hereto, Union shall be deemed to be in control and possession of and responsible for all such gas from the time that such gas enters Union's system until such gas is delivered to Shipper.

2. Liability: Shipper agrees that Union is not a common carrier and is not an insurer of Shipper's gas, and that Union shall not be liable to Shipper or any third party for loss of gas in Union's possession, except to the extent such loss is caused entirely by Union's negligence or wilful misconduct.

VI. FACILITIES ON SHIPPER'S PROPERTY

1. Meter Station: Union shall provide, at the Receipt Point(s), according to the terms hereunder, the meter station required to receive and measure the Produced Volume of gas received by Union from Shipper. Shipper agrees, if requested by Union, to provide Union with sufficient detailed information regarding Shipper's current and expected operations in order to aid Union in Union's design of the meter station.

2. Union Obligations: Pursuant to Article VI. Section 1 herein, Union shall purchase, install and maintain, at the Receipt Point(s):

   a. a meter and any associated recording gauges as are necessary; and,

   b. a suitable gas odourizing injection facility where Union deems such facility to be necessary.

3. Union Equipment: All equipment installed by Union at the Receipt Point(s) shall remain the property of Union at all times, notwithstanding the fact that it may be affixed to Shipper's property. Union shall be entitled to remove said equipment at any time within a period of sixty (60) days from any termination or expiry of the Contract. Shipper shall take all necessary steps to ensure Union may enter onto the Receipt Point(s) to remove such equipment for a period of sixty (60) days after termination or expiry of the Contract or the Sales Agreement.

4. Shipper Obligations: Upon Union's request Shipper shall, at Shipper's own cost and expense:

   a. obtain a registered lease or freehold ownership at the Receipt Point(s) sufficient to provide Union with free uninterrupted access to, from, under and above the Receipt Point(s), for a term (and extended terms) identical to the Contract, plus sixty (60) days, and shall provide Union with a bona fide copy of such lease agreement prior to Union commencing the construction of the meter station;

   b. furnish, install, set, and maintain suitable pressure and volume control equipment and such additional equipment as required on Shipper's delivery system, to protect against the overpressuring of Union's facilities, and to limit the daily flow of gas to the corresponding Maximum Daily Quantity applicable to the Receipt Point(s);

   c. supply, install and maintain a gravel or cut stone covering on each Receipt Point and shall maintain such Receipt Point(s) in a safe and workmanlike manner; and,

   d. install and maintain a fence satisfactory to Union around the perimeter of each Receipt Point which will adequately secure and protect Union's equipment therein.

5. Maintenance Costs: Shipper shall within thirty (30) days of the delivery of an invoice by Union, reimburse Union for any actual costs reasonably incurred by Union for any repair, replacement, relocation, or upgrading of any meter station

requested by Shipper, or as required by law, or by duly constituted regulatory body, or through good engineering practice. Union shall be responsible for any costs incurred by Union to correct an error made by Union.

VII. MEASURING EQUIPMENT

1. Metering by Union: Union will install and operate meters and related equipment as required and in accordance with the Act and Regulations referenced in Article III herein.

2. Metering by Others: In the event that all or any gas received or delivered hereunder is measured by a meter that is owned and operated by an upstream or downstream transporter (the "**Transporter**") whose facilities may or may not interconnect with Union's, then Union and Shipper agree to accept that metering for the purpose of determining the volume and energy of gas received or delivered on behalf of the Shipper. The standard of measurement and tests for the gas delivered to/by Union pursuant to this Article VII, Section 2 shall be in accordance with the general terms and conditions as incorporated in that Transporter's gas tariff as approved by Transporter's regulatory body.

3. Check Measuring Equipment: Shipper may install, maintain and operate, at the Receipt Point, at its own expense, such check measuring equipment as desired, provided that such equipment shall be so installed as not to interfere with the operation of Union's measuring equipment at or near the Receipt Point, and shall be installed, maintained and operated in conformity with the same standards and specifications applicable to Union's metering facilities.

4. Calibration and Test of Measuring Equipment: The accuracy of Union's measuring equipment shall be verified by Union at reasonable intervals, and if requested, in the presence of representatives of Shipper, but Union shall not be required to verify the accuracy of such equipment more frequently than once in any thirty (30) day period. In the event either party notifies the other that it desires a special test of any measuring equipment, the parties shall co-operate to secure a prompt verification of the accuracy of such equipment. The expense of any such special test, if called for by Shipper, shall be borne by Shipper if the measuring equipment tested is found to be in error by not more than two per cent (2%). If, upon test, any measuring equipment is found to be in error by not more than two per cent (2%), previous recordings of such equipment shall be considered accurate in computing receipts of gas, but such equipment shall be adjusted at once to record as near to absolute accuracy as possible. If the test conducted shows a percentage of inaccuracy greater than two percent (2%), the financial adjustment, if any, shall be calculated in accordance with the Act and Regulations, as may be amended from time to time and in accordance with any successor statutes and regulations.

5. Preservation of Metering Records: Union and Shipper shall each preserve for a period of at least six (6) years all test data, and other relevant records.

VIII. BILLING

1. Monthly Billing Date: Union shall render bills on or before the tenth (10th) day of each month for all Services furnished during the preceding Month. Such charges may be based on estimated quantities, if actual quantities are unavailable in time to prepare the billing. Union shall provide, in a succeeding Month's billing, an adjustment based on any difference between actual quantities and estimated quantities, without any interest charge. If presentation of a bill to Shipper is delayed after the tenth (10th) day of the month, then the time of payment shall be extended accordingly, unless Shipper is responsible for such delay.

2. Right of Examination: Both Union and Shipper shall have the right to examine at any reasonable time the books, records and charts of the other to the extent necessary to verify the accuracy of any statement, chart or computation made under or pursuant to the provisions of the Contract.

3. Amendment of Statements: For the purpose of completing a final determination of the actual quantities of gas handled in any of the Services to Shipper, the parties shall have the right to amend their statement for a period equal to the time during which the companies, that transport the gas contemplated herein for Union and Shipper, retain the right to amend their statements, which period shall not exceed three (3) years from the date of termination of the Contract.

IX. PAYMENTS

1. <u>Monthly Payments:</u> Shipper shall pay the invoiced amount directly into Union's bank account as directed on the invoice on or before the twentieth (20th) day of each month. If the payment date is not a Business Day, then payment must be received in Union's account on the first Business Day preceding the twentieth (20th) day of the month.

2. <u>Remedies for Non-payment:</u> Should Shipper fail to pay all of the amount of any bill as herein provided when such amount is due,

   a. Shipper shall pay to Union interest on the unpaid portion of the bill accruing at a rate per annum equal to the minimum commercial lending rate of Union's principal banker in effect from time to time from the due date until the date of payment; and,

   b. If such failure to pay continues for thirty (30) days after payment is due, Union, in addition to any other remedy it may have under the Contract, may suspend Services until such amount is paid. Notwithstanding such suspension, all demand charges shall continue to accrue hereunder as if such suspension were not in place.

   If Shipper in good faith disputes the amount of any such bill or part thereof Shipper shall pay to Union such amounts as it concedes to be correct. At any time thereafter, within twenty (20) days of a demand made by Union, Shipper shall furnish financial assurances satisfactory to Union, guaranteeing payment to Union of the amount ultimately found due upon such bill after a final determination. Such a final determination may be reached either by agreement, arbitration decision or judgement of the courts, as may be the case. Union shall not be entitled to suspend Services because of such non-payment unless and until default occurs in the conditions of such financial assurances or default occurs in payment of any other amount due to Union hereunder.

   Notwithstanding the foregoing, Shipper is not relieved from the obligation to continue its deliveries of gas to Union under the terms of any agreement, where Shipper has contracted to deliver specified quantities of gas to Union.

3. <u>Billing Adjustments:</u> If it shall be found that at any time or times Shipper has been overcharged or undercharged in any form whatsoever under the provisions of the Contract and Shipper shall have actually paid the bills containing such overcharge or undercharge, Union shall refund the amount of any such overcharge and interest shall accrue from and including the first day of such overcharge as paid to the date of refund and shall be calculated but not compounded at a rate per annum determined each day during the calculation period to be equal to the minimum commercial lending rate of Union's principal banker, and the Shipper shall pay the amount of any such undercharge, but without interest. In the event Union renders a bill to Shipper based upon measurement estimates, the required adjustment to reflect actual measurement shall be made on the bill next following the determination of such actual measurement, without any charge of interest. In the event an error is discovered in the amount billed in any statement rendered by Union, such error shall be adjusted by Union. Such overcharge, undercharge or error shall be adjusted by Union on the bill next following its determination (where the term "**bill next following**" shall mean a bill rendered at least fourteen (14) days after the day of its determination), provided that claim therefore shall have been made within three (3) years from the date of the incorrect billing. In the event any refund is issued with Shipper's bill, the aforesaid date of refund shall be deemed to be the date of the issue of bill.

4. <u>Taxes:</u> In addition to the charges and rates as per the applicable rate schedules and price schedules, Shipper shall pay all Taxes which are imposed currently or subsequent to the execution of the Contract by any legal authority having jurisdiction and any amount in lieu of such Taxes paid or payable by Union.

5. <u>Set Off:</u> If either party shall, at any time, be in arrears under any of its payment obligations to the other party under the Contract, then the party not in arrears shall be entitled to reduce the amount payable by it to the other party in arrears under the Contract, or any other contract, by an amount equal to the amount of such arrears or other indebtedness to the other party. In addition to the foregoing remedy, Union may, upon forty-eight (48) hours verbal notice, to be followed by written notice, take possession of any or all of Shipper's gas under the Contract, which shall be deemed to have been assigned to Union, to reduce such arrears or other indebtedness to Union.

6. <u>Station and Connection Costs:</u> In the event that a meter station must be constructed and/or installed in order to give effect to the Contract, Shipper agrees to pay Union for a portion, as determined by Union, of Union's actual cost, as hereinafter defined, for constructing and installing such station. Shipper also agrees to pay the actual costs to connect such station to Union's pipeline and distribution system. Union shall advise Shipper as to the need for a meter station and shall provide Shipper with an estimate of the Aid to Construction. Such Aid to Construction shall include the costs of all pipe, fittings and materials, third party labour costs and Union's direct labour, labour saving devices, vehicles and

mobile equipment, but shall exclude the purchase costs of gas pressure control equipment and gas meters installed by Union.

X. ARBITRATION

If and when any dispute, difference or question shall arise between the parties hereto touching the Contract or anything herein contained, or the construction hereof, or the rights, duties or liabilities of the parties in relation to any matter hereunder, the matter in dispute shall be submitted and referred to arbitration within ten (10) days after written request of either party. Upon such request each party shall appoint an arbitrator, and the two so appointed shall appoint a third. A majority decision of the arbitrators shall be final and binding upon both parties. In all other respects the provisions of the Arbitration Act, 1991, or any act passed in amendment thereof or substitution therefore, shall apply to each such submission. Operations under the Contract shall continue, without prejudice, during any such arbitration and the costs attributable to such arbitration shall be shared equally by the parties hereto.

XI. FORCE MAJEURE

1. Definition: The term "**force majeure**" as used herein shall mean acts of God, strikes, lockouts or any other industrial disturbance, acts of the public enemy, sabotage, wars, blockades, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, storms, floods, washouts, arrests and restraints of governments and people, civil disturbances, explosions, breakage or accident to machinery or lines of pipe, freezing of wells or lines of pipe, inability to obtain materials, supplies, permits or labour, any laws, orders, rules, regulations, acts or restraints of any governmental body or authority (civil or military), any act or omission that is excused by any event or occurrence of the character herein defined as constituting force majeure, any act or omission by parties not controlled by the party having the difficulty and any other similar cases not within the control of the party claiming suspension and which by the exercise of due diligence such party is unable to prevent or overcome.

2. Notice: In the event that either the Shipper or Union is rendered unable, in whole or in part, by force majeure, to perform or comply with any obligation or condition of the Contract, such party shall give notice and full particulars of such force majeure in writing delivered by hand, fax or other direct written electronic means to the other party as soon as possible after the occurrence of the cause relied on and subject to the provision of this Article.

3. Exclusions: Neither party shall be entitled to the benefit of the provisions of force majeure hereunder if any or all of the following circumstances prevail: the failure resulting in a condition of force majeure was caused by the negligence of the party claiming suspension; the failure was caused by the party claiming suspension where such party failed to remedy the condition by making all reasonable efforts (short of litigation, if such remedy would require litigation); the party claiming suspension failed to resume the performance of such condition obligations with reasonable dispatch; the failure was caused by lack of funds; the party claiming suspension did not, as soon as possible after determining, or within a period within which it should acting reasonably have determined, that the occurrence was in the nature of force majeure and would affect its ability to observe or perform any of its conditions or obligations under the Contract, give to the other party the notice required hereunder.

4. Notice of Remedy: The party claiming suspension shall likewise give notice as soon as possible after the force majeure condition is remedied, to the extent that the same has been remedied, and that such party has resumed or is then in a position to resume the performance of the obligations and conditions of the Contract.

5. Obligation to Perform: An event of force majeure on Union's system will excuse the failure to deliver gas by Union or the failure to accept gas by Union hereunder, and both parties shall be excused from performance of their obligations hereunder, except for payment obligations, to the extent of and for the duration of the force majeure.

6. Upstream or Downstream Force Majeure: An event of force majeure upstream or downstream of Union's system shall not relieve Shipper of any payment obligations.

7. Delay of Services: Despite Article XI herein, if Union is prevented, by reason of an event of force majeure on Union's system from delivering gas on the Day or Days upon which Union has accepted gas from Shipper, Union shall thereafter make all reasonable efforts to deliver such quantities as soon as practicable and on such Day or Days as are agreed to

by Shipper and Union. If Union accepts such gas on this basis, Shipper shall not receive any demand charge relief as contemplated under Article XI herein.

8. Firm Daily Variability Demand Charge Relief: Despite Article XI herein, if on any Day Union fails to accept gas from Shipper by reason of an event of force majeure on Union's system and fails to deliver the quantity of gas nominated hereunder by Shipper up to the Firm Daily Variability Demand for that Contract, then for that Day the Monthly charge shall be reduced by an amount equal to the applicable Firm Daily Variability Demand Rate, as defined in this paragraph, multiplied by the difference between the quantity of gas actually delivered by Union during such Day and the quantity of gas which Shipper in good faith nominated on such Day. The term "**Firm Daily Variability Demand Rate**" shall mean the monthly Firm Daily Variability Demand charge as provided in Schedule 2 of the Contract, divided by the number of days in the month for which such rate is being calculated.

XII. DEFAULT AND TERMINATION

In case of the breach or non-observance or non-performance on the part of either party hereto of any covenant, proviso, condition, restriction or stipulation contained in the Contract (but not including herein failure to take or make delivery in whole or in part of the gas delivered to/by Union hereunder occasioned by any of the reasons provided for in Article XI herein) which has not been waived by the other party, then and in every such case and as often as the same may happen, the non-defaulting party may give written notice to the defaulting party requiring it to remedy such default and in the event of the defaulting party failing to remedy the same within a period of thirty (30) days from receipt of such notice, the non-defaulting party may at its sole option declare the Contract to be terminated and thereupon the Contract shall be terminated and be null and void for all purposes other than and except as to any liability of the parties under the same incurred before and subsisting as of termination. The right hereby conferred upon each party shall be in addition to, and not in derogation of or in substitution for, any other right or remedy which the parties respectively at law or in equity shall or may possess.

In the event that the Contract is terminated pursuant to this Article XII, the parties hereto agree that they shall continue to be bound only by the terms and conditions set forth in the Contract but only for the purpose of determining the actual quantities in Shipper's Producer Balancing Account with such determination being subject to Article X. Such extended period of time shall not exceed one (1) year from the date of termination of the Contract.

XIII. AMENDMENT

Subject to Article XV herein and the ability of Union to amend the applicable rate schedules and price schedules, with the approval of the OEB (if required), no amendment or modification of the Contract shall be effective unless the same shall be in writing and signed by each of the Shipper and Union.

XIV. NON-WAIVER AND FUTURE DEFAULT

No waiver of any provision of the Contract shall be effective unless the same shall be in writing and signed by the party entitled to the benefit of such provision and then such waiver shall be effective only in the specific instance and for the specified purpose for which it was given. No failure on the part of Shipper or Union to exercise, and no course of dealing with respect to, and no delay in exercising, any right, power or remedy under the Contract shall operate as a waiver thereof.

XV. LAWS, REGULATIONS AND ORDERS

The Contract and the respective rights and obligations of the parties hereto are subject to all present and future valid laws, orders, rules and regulations of any competent legislative body, or duly constituted authority now or hereafter having jurisdiction and the Contract shall be varied and amended to comply with or conform to any valid order or direction of any board, tribunal or administrative agency which affects any of the provisions of the Contract.

XVI. RESERVED FOR FUTURE USE

N/A

XVII. RENEWALS

The Contract will continue in full force and effect beyond the Initial Term, automatically renewing for a period of one (1) year, and every one (1) year thereafter, subject to notice in writing by either party of termination at least three (3) months prior to the expiration thereof.

XVIII. SERVICE CURTAILMENT

1. Verbal Notice: Excepting instances of emergency, Shipper and Union agree to give at least twenty-four (24) hours verbal notice before a planned curtailment of receipt or delivery, shut-down or start-up.

2. Emergency: Shipper shall complete and maintain a plan which depicts all of the Shipper's gas production facilities including all emergency shut off valves and emergency equipment and provide a copy to Union upon Union's request. Shipper shall provide to Union the names and telephone numbers of those persons whom Union may contact in the event of an emergency situation arising within the Shipper's facilities.

3. Emergency Notice: In the event that Union is notified by a third party or if Union becomes aware of an emergency situation in which Shipper's gas production site, pipeline or associated equipment is involved, Union shall immediately notify Shipper or Shipper's representative of such emergency condition.

4. Right to Modify: Union shall have the right, at all times, to reconstruct or modify Union's pipeline and distribution system and the pressure carried therein, notwithstanding that such reconstruction or modification may reduce the System Capacity available to receive Shipper's gas, or Shipper's ability to deliver gas to Union. Should Union expect any such reconstruction or modification to reduce the delivery or receipt of gas by either party, Union will, where able, provide Shipper with six (6) months’ notice or as much notice as is reasonably practical in the circumstances. Union shall use reasonable efforts to assist the Shipper in meeting its Market Quantity in these circumstances.

XIX. SHIPPER'S REPRESENTATIONS AND WARRANTIES

1. Shipper's Warranty: Shipper warrants that it will, if required, maintain, or have maintained on its behalf, all external approvals including the governmental, regulatory, import/export permits and other approvals or authorizations that are required from any federal, state or provincial authorities for the gas quantities to be handled under the Contract. Shipper further warrants that it shall maintain in effect the Facilitating Agreements.

2. Financial Representations: Shipper represents and warrants that the financial assurances (including the Initial Financial Assurances and Security), if any, shall remain in place throughout the term hereof unless Shipper and Union agree otherwise. Shipper shall notify Union in the event of any change to the financial assurances (including the Initial Financial Assurances and Security), if any, throughout the term hereof. Should Union have reasonable grounds to believe that Shipper will not be able to perform or continue to perform any of its obligations under the Contract for any reason (a “**Material Event**”), then Shipper shall within fourteen (14) days of receipt of written notice by Union, obtain and provide to Union a letter of credit or other security in the form and amount reasonably required by Union (the “**Security**”). In the event that Shipper does not provide to Union such Security, Union may deem a default in accordance with the provisions of Article XII herein.

   In the event that Shipper in good faith, reasonably believes that it should be entitled to reduce the amount of or value of the Security previously provided, it may request such a reduction from Union and to the extent that the Material Event has been mitigated or eliminated, Union shall return all or a portion of the Security to Shipper within fourteen (14) Business Days after receipt of the request.

3. Licence: Shipper represents and warrants to Union that Shipper possesses a licence to produce gas in the Province of Ontario.

XX. MISCELLANEOUS PROVISIONS

1. Assignment: Shipper may assign the Contract to a third party ("**Assignee**"), up to the Maximum Daily Quantity, (the "**Capacity Assigned**"). Such assignment shall require the prior written consent of Union and release of obligations by Union for the Capacity Assigned from the date of assignment. Such consent and release shall not be unreasonably withheld and shall be conditional upon the Assignee providing, amongst other things, financial assurances as per Article XXI herein. Any such assignment will be for the full rights, obligations and remaining term of the Contract as relates to the Capacity Assigned.

2. Title to Gas: Shipper represents and warrants to Union that Shipper shall have good and marketable title to, or legal authority to deliver to Union, all gas delivered to Union hereunder. Furthermore, Shipper hereby agrees to indemnify and save Union harmless from all suits, actions, debts, accounts, damages, costs, losses and expenses arising from or out of claims of any or all third parties to such gas or on account of Taxes, or other charges thereon.

XXI. PRECONDITIONS TO SERVICES

1. Union Conditions: The obligations of Union to provide Services hereunder are subject to the following conditions precedent, which are for the sole benefit of Union and which may be waived or extended in whole or in part in the manner provided in the Contract:

   a. Union shall have obtained, in form and substance satisfactory to Union, and all conditions shall have been satisfied under, all governmental, regulatory and other third party approvals, consents, orders and authorizations, that are required to provide the Services; and,

   b. Union shall have obtained all internal approvals that are necessary or appropriate to provide the Services; and,

   c. Union shall have received from Shipper the requisite financial assurances reasonably necessary to ensure Shipper's ability to honour the provisions of the Contract (the "**Initial Financial Assurances**"). The Initial Financial Assurances, if required, will be as determined solely by Union; and,

   d. Shipper and Union shall have entered into the Interruptible Service HUB Contract or equivalent (the "**Facilitating Agreement**") with Union; and,

   e. Union shall, where applicable, have obtained all internal and external approvals including the governmental, regulatory and other approvals or authorizations required to construct any facilities necessary to provide the Services hereunder, which approvals and authorizations, if granted upon conditions, shall be conditions satisfactory to Union; and,

   f. Union shall, where applicable, have completed and placed into service those facilities necessary to provide the Services hereunder; and,

   g. Further to Article IX Section 6 herein, Shipper shall pay to Union a payment ("**First Prepayment**") towards the Aid to Construction at the time of the execution of this Agreement. Shipper shall pay a payment prior to installation of the meter station ("**Second Prepayment**"). The foregoing payments are specified in the attached Schedule 1 for the first meter station ("**Receipt Point #1**") to be installed under the Contract. Payments for additional meter stations will be handled by written mutual agreement between the parties. Shipper shall pay Union the difference if the actual Aid to Construction is more than the Prepayments, within thirty (30) days of the delivery of an invoice from Union on which the actual costs for construction and installation of facilities are stated. Union shall pay Shipper the difference if the actual Aid to Construction is less than the Prepayments. In the event Shipper terminates this Agreement prior to Union incurring any costs related to the construction, installation or connection of the meter station, Shipper's Prepayments shall be returned to Seller, without interest, within fifteen (15) days notice to Union of such termination by Shipper. In the event Union has incurred costs, as set out herein, relative to the construction, installation or connection of the meter station prior to being notified by Shipper of Shipper's intention to terminate the Agreement, Union shall deduct such actual costs from Union's return of Shipper's Prepayments. "**Prepayments**" shall mean the sum of the First Prepayment and the Second

Prepayment.

2. Shipper Conditions: The obligations of Shipper hereunder are subject to the following conditions precedent, which are for the sole benefit of Shipper and which may be waived or extended in whole or in part in the manner provided in the Contract:

   a. Shipper shall, as required, have entered into the necessary contracts with Union and/or others to facilitate the Services contemplated herein, including contracts for upstream and downstream transportation, and shall specifically have an executed and valid Facilitating Agreement; and,

   b. Shipper shall have obtained, in form and substance satisfactory to Shipper, and all conditions shall have been satisfied under, all governmental, regulatory and other third party approvals, consents, orders and authorizations, that are required from federal, state, or provincial authorities for the gas quantities handled under the Contract; and,

   c. Shipper shall have obtained all internal approvals that are necessary or appropriate for the Shipper to execute the Contract; and,

   d. Shipper shall have cancelled or renegotiated its Sales Agreement, on terms satisfactory to Union, as applicable.

3. Satisfaction of Conditions: Union and Shipper shall each use due diligence and reasonable efforts to satisfy and fulfil the conditions precedent specified in this Article XXI Section 1 a, c, d, e, f, g, and Section 2 a, b, and d. Each party shall notify the other forthwith in writing of the satisfaction or waiver of each condition precedent for such party's benefit. If a party concludes that it will not be able to satisfy a condition precedent that is for its benefit, such party may, upon written notice to the other party, terminate the Contract and upon the giving of such notice, the Contract shall be of no further force and effect and each of the parties shall be released from all further obligations thereunder.

4. Non-Satisfaction of Conditions: If any of the conditions precedent in this Article XXI Section 1 c or Section 2 are not satisfied or waived by the party entitled to the benefit of that condition by the Conditions Date as such term is defined in the Contract, or if any of the Shipper payments required under the condition precedent in this Article XXI Section 1 g have not been paid as required in such section, then either party may, upon written notice to the other party, terminate the Contract and upon the giving of such notice, the Contract shall be of no further force and effect and each of the parties shall be released from all further obligations hereunder, provided that any rights or remedies that a party may have for breaches of the Contract prior to such termination and any liability a party may have incurred before such termination shall not thereby be released.

STORAGE AND TRANSPORTATION SERVICES TRANSPORTATION CHARGES

(A) Availability

The charges under this rate schedule shall be applicable for transportation service rendered by Union for all quantities transported to and from embedded storage pools located within Union's franchise area and served using Union's distribution and transmission assets.

Applicable Points
Dawn as a receipt point: Dawn (Facilities).
Dawn as a delivery point: Dawn (Facilities).

(B) Rates

The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically. Multi-year prices may also be negotiated, which may be higher than the identified rates.

a) Charges Applicable to both Firm and/or Interruptible Transportation Services:

Monthly Fixed Charge per customer station ($ per month) (1)	$1,515.67
Transmission Commodity Charge to Dawn ($ per GJ)	$0.035

Transportation Fuel:	Customers located East of Dawn	Customers located West of Dawn
Fuel Charges to Dawn		
Commodity Rate - Union supplied fuel ($ per GJ)	$0.006	$0.006
Fuel Ratio - Shipper supplied fuel (%)	0.157%	0.157%
Fuel Charges to the Pool		
Commodity Rate - Union supplied fuel ($ per GJ)	$0.007	$0.016
Fuel Ratio - Shipper supplied fuel (%)	0.186%	0.447%

b) Firm Transportation Demand Charges: (2)

Monthly Demand Charge applied to contract demand ($ per GJ)	$0.770	$1.045

c) Cap-and-Trade Facility-Related Charges (applied to all quantities transported):

Cap-and-Trade Facility-Related Charges - To Dawn ($ per GJ)	$0.006	$0.006
Cap-and-Trade Facility-Related Charges - To the Pool ($ per GJ)	$0.006	$0.006

(B) Rates (Cont'd)

Authorized Overrun:

The authorized overrun rate payable on all quantities transported in excess of Union's obligation any day shall be:

	Customers located East of Dawn	Customers located West of Dawn
Firm Transportation:		
Charges to Dawn		
Commodity Rate - Union supplied fuel ($ per GJ)	$0.065	$0.074
Commodity Rate - Shipper supplied fuel ($ per GJ)	$0.060	$0.069
Fuel Ratio - Shipper supplied fuel (%)	0.157%	0.157%
Charges to the Pool		
Commodity Rate - Union supplied fuel ($ per GJ)	$0.032	$0.050
Commodity Rate - Shipper supplied fuel ($ per GJ)	$0.025	$0.034
Fuel Ratio - Shipper supplied fuel (%)	0.186%	0.447%
Cap-and-Trade Facility-Related Charges (applied to all quantities transported):		
Cap-and-Trade Facility-Related Charges - To Dawn ($ per GJ)	$0.006	$0.006
Cap-and-Trade Facility-Related Charges - To the Pool ($ per GJ)	$0.006	$0.006

Overrun will be authorized at Union's sole discretion.

Unauthorized Overrun

Authorized Overrun rates payable on all transported quantities up to 2% in excess of Union's contractual obligation.

The Unauthorized Overrun rate during the November 1 to April 15 period will be $50 per GJ for all usage on any day in excess of 102% of Union's contractual obligation. The Unauthorized Overrun rate during the April 16 to October 31 period will be $9.373 per GJ for all usage on any day in excess of 102% of Union's contractual obligation.

Charges aforesaid in respect of any given month in accordance with General Terms & Conditions shall be payable no later than the twenty-fifth day of the succeeding month.

Notes for Section (B) Rates:
(1) The monthly fixed charge will be applied once per month per customer station regardless of service being firm, interruptible or a combination thereof.

(2) Demand charges will be applicable to customers firm daily contracted demand or the firm portion of a combined firm and interruptible service.

(C) Terms of Service

The General Terms & Conditions applicable to this rate schedule shall be in accordance with the attached Schedule “A” for contracts in effect before October 1, 2010. The General Terms & Conditions applicable to this rate schedule shall be in accordance with the attached Schedule “A 2013” for contracts in effect on or after January 1, 2013.

SCHEDULE "A"

GENERAL TERMS & CONDITIONS
M16 TRANSPORTATION AGREEMENT

I. DEFINITIONS

Except where the context expressly requires or states another meaning, the following terms, when used in these General Terms & Conditions and in any contract into which these General Terms & Conditions are incorporated, shall be construed to have the following meanings:

1. "Banking Day" shall mean a day on which the general offices of the Canadian Imperial Bank of Commerce, 99 King St. W., Chatham, Ontario are open for business;

2. "business day" shall mean a day on which the general offices of Union in Chatham, Ontario are open for business;

3. "Contract" shall refer to the Contract to which these General Terms & Conditions shall apply, and into which they are incorporated;

4. "contract year" shall mean a period of three hundred and sixty-five (365) consecutive days, beginning on the day agreed upon by Union and Shipper as set forth in the Contract, or on any anniversary of such date; provided, however, that any such period which contains a date of February 29 shall consist of three hundred and sixty-six (366) consecutive days;

5. "day" shall mean a period of twenty-four (24) consecutive hours beginning at 9:00 a.m. Central Standard time. The reference date for any day shall be the calendar date upon which the twenty-four (24) hour period shall commence;

6. "month" shall mean the period beginning at 9:00 a.m. Central Standard time on the first day of a calendar month and ending at 9:00 a.m. Central Standard time on the first day of the following calendar month;

7. "firm" shall mean service not subject to curtailment or interruption except under Articles XI and XII of this Schedule "B";

8. "interruptible service" shall mean service subject to curtailment or interruption, after notice, at any time;

9. "gas" shall mean gas as defined in the Ontario Energy Board Act, R.S.O. 1980, c. 332, as amended, supplemented or reenacted from time to time;

10. "cubic metre" shall mean the volume of gas which occupies one cubic metre when such gas is at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

11. "m^3" shall mean cubic metre of gas and "10^3m^3" shall mean 1,000 cubic metres of gas;

12. "pascal" (Pa) shall mean the pressure produced when a force of one (1) newton is applied to an area of one (1) square metre. The term "kilopascal" (kPa) shall mean 1,000 pascals;

13. "joule" (J) shall mean the work done when the point of application of a force of one (1) newton is displaced a distance of one (1) metre in the direction of the force. The term "megajoule" (MJ) shall mean 1,000,000 joules. The term “gigajoule” (GJ) shall mean 1,000,000,000 joules;

14. "gross heating value" shall mean the total heat expressed in megajoules per cubic metre (MJ/m^3) produced by the complete combustion at constant pressure of one (1) cubic metre of gas with air, with the gas free of water vapour and the temperature of the gas, air and products of combustion at standard temperature and all water formed by the combustion reaction condensed to the liquid state;

15. "Shipper" shall have the meaning as defined in the Contract, and shall also include Shipper's agent(s);

16. "subsidiary" means a company in which more than fifty (50) per cent of the issued share capital (having full voting

rights under all circumstances) is owned or controlled directly or indirectly by another company, by one or more subsidiaries of such other company, or by such other company and one or more of its subsidiaries;

17. "TCPL" means TransCanada PipeLines Limited;

18. "NOVA" means Gas Transmission Ltd.;

19. "Panhandle" means CMS Panhandle Eastern Pipeline Company;

20. "MichCon" means Michigan Consolidated Gas Company;

21. "SCPL" means St. Clair Pipelines (1996) Ltd.;

22. "OEB" means the Ontario Energy Board;

23. "NEB" means the National Energy Board (Canada);

24. "GLGT" means Great Lakes Gas Transmission Company;

25. “CMS” means CMS Gas Transmission and Storage Company;

26. “Consumers” means The Consumers’ Gas Company, Limited;

27. "cricondentherm hydrocarbon dewpoint" shall mean the highest hydrocarbon dewpoint temperature on the phase envelope;

28. "hydrocarbon dewpoint" shall mean temperature at a specific pressure where hydrocarbon vapour condensation begins;

29. "specific gravity" shall mean density of the gas divided by density of air, with both at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute; and,

30. "Wobbe Number" shall mean gross heating value of the gas divided by the square root of its specific gravity.

II. GAS QUALITY

1. Natural Gas: The minimum gross heating value of the gas delivered to/by Union hereunder, shall be thirty-six (36) megajoules per cubic metre. The maximum gross heating value of the gas delivered to/by Union hereunder shall be forty point two (40.2) megajoules per cubic metre. The gas to be delivered hereunder to Union may be a commingled supply from Shipper's gas sources of supply. The gas to be delivered by Union may be a commingled supply from Union's sources of gas supply; provided, however, that helium, natural gasoline, butane, propane and other hydrocarbons, except methane, may be removed prior to delivery to Shipper. Further, Union may subject, or permit the subjection of, the gas to compression, dehydration, cooling, cleaning and other processes.

2. Freedom from objectionable matter: The gas to be delivered to Union at the Receipt Point(s) hereunder,

    a. shall be commercially free from bacteria, sand, dust, gums, crude oils, lubricating oils, liquids, chemicals or compounds used in the production, treatment, compression or dehydration of the gas or any other objectionable substance in sufficient quantity so as to render the gas toxic, unmerchantable or cause injury to, or interference with, the proper operation of the lines, regulators, meters or other appliances through which it flows,

    b. shall not contain more than seven (7) milligrams of hydrogen sulphide per cubic metre of gas, nor more than one hundred (100) milligrams of total sulphur per cubic metre of gas,

    c. shall not contain more than five (5) milligrams of mercaptan sulphur per cubic metre of gas,

d. shall not contain more than two point zero (2.0) molar percent by volume of carbon dioxide in the gas,

e. shall not contain more than zero point four (0.4) molar percent by volume of oxygen in the gas,

f. shall not contain more than zero point five (0.5) molar percent by volume of carbon monoxide in the gas,

g. shall not contain more than four point zero (4.0) molar percent by volume of hydrogen in the gas,

h. shall not contain more than sixty-five (65) milligrams of water vapour per cubic metre of gas,

i. shall not have a cricondentherm hydrocarbon dewpoint exceeding minus eight (-8) degrees Celsius,

j. shall have Wobbe Number from forty seven point fifty (47.50) megajoules per cubic metre of gas to fifty one point forty six (51.46) megajoules per cubic metre of gas, maximum of one point five (1.5) mole percent by volume of butane plus (C4+) in the gas, and maximum of four point zero (4.0) mole percent by volume of total inerts in the gas in order to be interchangeable with other Interconnecting Pipeline gas,

k. shall not exceed forty-three degrees Celsius (43ºC), and,

l. shall not be odourized by Shipper.

3. Non-conforming Gas:
   a. In the event that the quality of the gas does not conform or if Union, acting reasonably, suspects the quality of the gas may not conform to the specifications herein, then Shipper shall, if so directed by Union acting reasonably, forthwith carry out, at Shipper's cost, whatever field testing of the gas quality as may be required to ensure that the quality requirements set out herein are met, and to provide Union with a certified copy of such tests. If Shipper does not carry out such tests forthwith, Union may conduct such test and Shipper shall reimburse Union for all costs incurred by Union for such testing.

   b. If Shipper's gas fails at any time to conform to the requirements of this Article II, Union, in addition to its other remedies, may refuse to accept delivery of gas at the Receipt Points hereunder until such deficiency has been remedied by Shipper. Each Party agrees to notify the other verbally, followed by written notification, of any such deficiency of quality.

   c. With respect to Article II 2. h. herein, Union may accept the gas subject to Shipper's obligations under the Dehydration Contract, if applicable.

4. Quality of Gas Received: The quality of the gas to be received by Union at the Receipt Point(s) hereunder is to be of a merchantable quality and in accordance with the quality standards as set out by Union in this Article II.

5. Quality of Gas at Dawn: The quality of the gas to be delivered to Union at Dawn (Facilities) or the gas to be delivered by Union to Shipper at Dawn (Facilities) hereunder is to be of a merchantable quality and in accordance with the quality standards and measurement standards as set out by Union in this Article II, except that total sulphur limit shall be not more than four hundred and sixty (460) milligrams per cubic metre of gas. In addition to any other right or remedy of a party, each party shall be entitled to refuse to accept delivery of any gas which does not conform to any of the specifications set out in this Article II.

6. Odourization of Gas:
   a. Union may odourize or deliver odourized gas under the Contract,

   b. Shipper shall if requested by Union monitor the mercaptan sulphur content of the gas delivered to Union under the Contract and shall provide at no cost to Union a continuous signal quantifying the mercaptan sulphur content in milligrams per cubic metre.

III. MEASUREMENTS

1. Storage, Transportation, and/or Sales Unit: The unit of the gas delivered to Union shall be a megajoule or a gigajoule. The unit of gas transported or stored by Union shall be a megajoule or a gigajoule. The unit of gas delivered by Union shall be a megajoule, a gigajoule, a cubic metre (m^3) or one thousand cubic metres (10^3m^3) at Union's discretion.

2. Determination of Volume and Energy:

   a. The volume and energy amounts determined under the Contract shall be determined in accordance with the Electricity and Gas Inspection Act (Canada), RSC 1985, c E-4- (the "**Act**") and the Electricity and Gas Inspection Regulations, SOR 86/131 (the "**Regulations**"), and any documents issued under the authority of the Act and Regulations and any amendments thereto.

   b. The supercompressibility factor shall be determined in accordance with either the "Manual for Determination of Supercompressibility Factors for Natural Gas" (PAR Project NX-19) published in 1962 or with American Gas Association Transmission Measurement Committee Report No. 8, Nov. 1992, at Union's discretion, all as amended from time to time.

   c. The volume and/or energy of the gas delivered to/by Union hereunder shall be determined by the measurement equipment designated in Article VII herein.

   d. Upon request by Union, Shipper shall obtain measurement of the total quantity of gas received by Union hereunder from the Interconnecting Pipeline. Such measurement shall be done in accordance with established practices between Union and the Interconnecting Pipeline.

IV. POINT OF RECEIPT AND POINT OF DELIVERY

1. Unless otherwise specified in the Contract, the point or points of receipt for all gas to be covered thereunder shall be on the outlet side of the measuring stations located at or near the point or points of connection specified in the Contract, where Union takes possession of the gas. Whenever the phrase "receipt point" appears herein, it shall mean Point of Receipt as defined in this Article IV.

2. Unless otherwise specified in the Contract, the point or points of delivery for all gas to be covered hereunder shall be on the outlet side of the measuring stations located at or near the point or points of connection as specified in the Contract, where Shipper takes possession of the gas. Whenever the phrase "delivery point" shall appear hereon, it shall mean Point of Delivery as defined in this Article IV.

V. POSSESSION OF AND RESPONSIBILITY FOR GAS

N/A

VI. FACILITIES ON SHIPPER'S PROPERTY

N/A

VII. MEASURING EQUIPMENT

1. Metering by Union: Union will install and operate meters and related equipment as required and in accordance with the Act and Regulations referenced in Article III herein.

2. Metering by Others: In the event that all or any gas delivered to/by Union hereunder is measured by a meter that is owned and operated by an Interconnecting Pipeline, then Union and Shipper agree to accept that metering for the purpose of determining the volume and energy of gas delivered to/by Union on behalf of the Shipper. The standard of

measurement and tests for the gas delivered to/by Union hereunder shall be in accordance with the general terms and conditions as incorporated in that Interconnecting Pipeline company's gas tariff as approved by its regulatory body.

3. Check Measuring Equipment: Shipper may install, maintain and operate, at the Custody Transfer Point, at its own expense, such check measuring equipment as desired, provided that such equipment shall be so installed as not to interfere with the operation of Union's measuring equipment at or near the Custody Transfer Point, and shall be installed, maintained and operated in conformity with the same standards and specifications applicable to Union's metering facilities.

4. Rights of Parties: The measuring equipment installed by either party, together with any building erected by it for such equipment, shall be and remain its property. However, Union and Shipper shall have the right to have representatives present at the time of any installing, reading, cleaning, changing, repairing, inspecting, testing, calibrating, or adjusting done in connection with the other's measuring equipment used in measuring or checking the measurement of deliveries of gas to/by Union under the Contract. Either party will give the other party reasonable notice of its intention to carry out the acts herein specified. The records from such measuring equipment shall remain the property of their owner, but upon request each will submit to the other its records and charts, together with calculations therefrom, for inspection and verification, subject to return within ten (10) days after receipt thereof.

5. Calibration and Test of Measuring Equipment: The accuracy of Union's measuring equipment shall be verified by Union at reasonable intervals, and if requested, in the presence of representatives of Shipper, but Union shall not be required to verify the accuracy of such equipment more frequently than once in any thirty (30) day period. In the event either party notifies the other that it desires a special test of any measuring equipment, the parties shall co-operate to secure a prompt verification of the accuracy of such equipment. The expense of any such special test, if called for by Shipper, shall be borne by Shipper if the measuring equipment tested is found to be in error by not more than two per cent (2%). If, upon test, any measuring equipment is found to be in error by not more than two per cent (2%), previous recordings of such equipment shall be considered accurate in computing receipts and deliveries of gas, but such equipment shall be adjusted at once to record as near to absolute accuracy as possible. If the test conducted shows a percentage of inaccuracy greater than two percent (2%), the financial adjustment, if any, shall be calculated in accordance with the Act and Regulations, as may be amended from time to time and in accordance with any successor statutes and regulations.

6. Preservation of Metering Records: Union and Shipper shall each preserve for a period of at least six (6) years all test data, and other relevant records.

7. Error in Metering or Meter Failure: In the event of an error in metering or a meter failure (such error or failure being determined through check measurement by Union or any other available method), then Shipper shall enforce its rights as Shipper with the Interconnecting Pipeline(s) to remedy such error or failure including enforcing any inspection and/or verification rights and procedures.

VIII. BILLING

1. Monthly Billing Date: Union shall render bills on or before the 10th day of each month for all services furnished during the preceding month. Such charges may be based on estimated quantities, if actual quantities are unavailable in time to prepare the billing. Union shall provide, in a succeeding month's billing, an adjustment based on any difference between actual quantities and estimated quantities. If presentation of a bill to Shipper is delayed after the 10th day of the month, then the time of payment shall be extended accordingly, unless Shipper is responsible for such delay.

2. Right of Examination: Both Union and Shipper shall have the right to examine at any reasonable time the books, records and charts of the other to the extent necessary to verify the accuracy of any statement, chart or computation made under or pursuant to the provisions of the Contract.

IX. PAYMENTS

1. <u>Monthly Payments:</u> Shipper shall pay the invoiced amount directly into Union's bank account as directed on the invoice on or before the twentieth (20th) day of each month. If the payment date is not a business day, then payment must be received in Union's account on the first business day preceding the twentieth (20th) day of the month.

2. <u>Remedies for Non-payment:</u> Should Shipper fail to pay all of the amount of any bill as herein provided when such amount is due, Shipper shall pay to Union interest on the unpaid portion of the bill accruing at a rate per annum equal to the minimum commercial lending rate of Union's principal banker in effect from time to time from the due date until the date of payment. If such failure to pay continues for thirty (30) days after payment is due, Union, in addition to any other remedy it may have under the Contract may suspend service(s) until such amount is paid, provided however, that if Shipper, in good faith shall dispute the amount of any such bill or part thereof and shall pay to Union such amounts as it concedes to be correct and at any time thereafter within twenty (20) days of a demand made by Union shall furnish good and sufficient surety bond satisfactory to Union, guaranteeing payment to Union of the amount ultimately found due upon such bill after a final determination which may be reached either by agreement, arbitration decision or judgement of the courts, as may be the case, then Union shall not be entitled to suspend service(s) because of such non-payment unless and until default be made in the conditions of such bond or in payment for any further service(s) to Shipper hereunder.

   Notwithstanding the foregoing paragraph, this does not relieve Shipper from the obligation to continue its deliveries of gas under the terms of any agreement, where Shipper has contracted to deliver specified quantities of gas to Union.

3. <u>Billing Adjustments:</u> If it shall be found that at any time or times Shipper has been overcharged or undercharged in any form whatsoever under the provisions of the Contract and Shipper shall have actually paid the bills containing such overcharge or undercharge, Union shall refund the amount of any such overcharge and interest shall accrue from and including the first day of such overcharge as paid to the date of refund and shall be calculated but not compounded at a rate per annum determined each day during the calculation period to be equal to the minimum commercial lending rate of Union's principal banker, and the Shipper shall pay the amount of any such undercharge, but without interest. In the event Union renders a bill to Shipper based upon measurement estimates, the required adjustment to reflect actual measurement shall be made on the bill next following the determination of such actual measurement, without any charge of interest. In the event an error is discovered in the amount billed in any statement rendered by Union, such error shall be adjusted by Union. Such overcharge, undercharge or error shall be adjusted by Union on the bill next following its determination (where the term "bill" next following shall mean a bill rendered at least fourteen (14) days after the day of its determination), provided that claim therefore shall have been made within six (6) years from the date of the incorrect billing. In the event any refund is issued with Shipper's bill, the aforesaid date of refund shall be deemed to be the date of the issue of invoice.

X. ARBITRATION

If and when any dispute, difference or question shall arise between the parties hereto touching the Contract or anything herein contained, or the construction hereof, or the rights, duties or liabilities of the parties in relation to any matter hereunder, the matter in dispute shall be submitted and referred to arbitration within ten (10) days after written request of either party. Upon such request each party shall appoint an arbitrator, and the two so appointed shall appoint a third. A majority decision of the arbitrators shall be final and binding upon both parties. In all other respects the provisions of the Arbitration Act of the Province of Ontario, or any act passed in amendment thereof or substitution therefore, shall apply to each such submission. Operations under the Contract shall continue, without prejudice, during any such arbitration and the costs attributable to such arbitration shall be shared equally by the parties hereto.

XI. FORCE MAJEURE

N/A

XII. DEFAULT AND TERMINATION

N/A

XIII. MODIFICATION

N/A

XIV. NONWAIVER AND FUTURE DEFAULT

N/A

XV. LAWS, REGULATIONS AND ORDERS

The Contract and the respective rights and obligations of the parties hereto are subject to all present and future valid laws, orders, rules and regulations of any competent legislative body, or duly constituted authority now or hereafter having jurisdiction and the Contract shall be varied and amended to comply with or conform to any valid order or direction of any board, tribunal or administrative agency which affects any of the provisions of the Contract.

SCHEDULE "A 2013"

RATE M16
GENERAL TERMS & CONDITIONS

I. DEFINITIONS

Except where the context expressly requires or states another meaning, the following terms, when used in these General Terms & Conditions and in any contract into which these General Terms & Conditions are incorporated, shall be construed to have the following meanings:

"**Aid to Construction"** shall include any and all costs, expenses, amounts, damages, obligations, or other liabilities (whether of a capital or operating nature, and whether incurred before or after the date of the Contract) actually paid by Union (including amounts paid to affiliates for services rendered in accordance with the Affiliate Relationships Code as established by the OEB) in connection with or in respect of satisfying the conditions precedent set out in Article XXI herein (including without limitation the construction and placing into service of the Union Expansion Facilities, the obtaining of all governmental, regulatory and other third party approvals, and the obtaining of rights of way) whether resulting from Union's negligence or not, except for any costs that have arisen from the gross negligence, fraud, or wilful misconduct of Union;

"**Authorized Overrun**" shall mean the amount by which Shipper's Authorized Quantity exceeds the firm and interruptible contract demands;

"**Authorized Quantity**" shall have the meaning given thereto in Schedule "B 2010" of the C1 Rate Schedule;

"**Business Day**" shall mean any day, other than Saturday, Sunday or any days on which national banks in the Province of Ontario are authorized to close;

"**Contract**" shall refer to the Contract to which these General Terms & Conditions shall apply, and into which they are incorporated;

"**Contract Year**" shall mean a period of three hundred and sixty-five (365) consecutive days, beginning on the Commencement Date or on any anniversary of such date; provided, however, that any such period which contains a date of February 29 shall consist of three hundred and sixty-six (366) consecutive days;

"**cricondentherm hydrocarbon dewpoint**" shall mean the highest hydrocarbon dewpoint temperature on the phase envelope;

"**cubic metre**" shall mean the volume of gas which occupies one cubic metre when such gas is at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

"**Custody Transfer Point**" That point on the piping system at the Pool Station which is at the Shipper side of the insulating flange on the Union Expansion Facilities, and which point shall serve as the point of custody transfer;

"**Day**" shall mean a period of twenty-four (24) consecutive hours beginning at 10:00 a.m. Eastern Clock Time. The reference date for any Day shall be the calendar date upon which the twenty-four (24) hour period shall commence;

"**Dehydration Contract**" shall mean the contract for Dehydration Service between Union and the Shipper as detailed in Schedule 1 of the Contract;

"**Delivery Point**" shall mean the point(s) where Union shall deliver gas to Shipper as defined in Schedule 1 of the Contract;

"Eastern Clock Time" shall mean the local clock time in the Eastern Time Zone on any Day;

"**firm**" shall mean service not subject to curtailment or interruption except under Articles XI, XII and XVIII herein;

"**gas**" shall mean gas as defined in the Ontario Energy Board Act, 1998, S.O. 1998, c. 15, Sch. B, as amended, supplemented or re-enacted from time to time;

"**gross heating value**" shall mean the total heat expressed in megajoules per cubic metre (MJ/m^3) produced by the complete combustion at constant pressure of one (1) cubic metre of gas with air, with the gas free of water vapour and the temperature of the gas, air and products of combustion at standard temperature and all water formed by the combustion reaction condensed to the liquid state;

"**hydrocarbon dewpoint**" shall mean temperature at a specific pressure where hydrocarbon vapour condensation begins;

"**Interconnecting Pipeline**" shall mean a pipeline that directly connects to the Union pipeline system;

"**Interruptible Service HUB Contract**" shall mean a contract between Shipper and Union under which Union provides interruptible HUB service;

"**interruptible**" shall mean service subject to curtailment or interruption, after notice, at any time;

"**joule**" (J) shall mean the work done when the point of application of a force of one (1) newton is displaced a distance of one (1) metre in the direction of the force. The term "**megajoule**" (MJ) shall mean 1,000,000 joules. The term "**gigajoule**" (GJ) shall mean 1,000,000,000 joules;

"**m^3**" shall mean cubic metre of gas and "**10^3m^3**" shall mean 1,000 cubic metres of gas;

"**Month**" shall mean the period beginning at 10:00 a.m. Eastern Clock Time on the first day of a calendar month and ending at 10:00 a.m. Eastern Clock Time on the first day of the following calendar month;

"**OEB**" means the Ontario Energy Board;

"**pascal**" "**(Pa)**" shall mean the pressure produced when a force of one (1) newton is applied to an area of one (1) square metre. The term "**kilopascal**" "**(kPa)** " shall mean 1,000 pascals;

"**Pool Quantity**" shall mean the actual daily quantity of gas delivered to or received from Shipper at the Custody Transfer Point;

"**Pool Station**" shall mean the physical location of Union's measurement and control facilities to the pool; the pool name as detailed in Schedule 1 of the Contract;

"**Receipt Point**" shall mean any one of the points where Union shall receive gas from Shipper as detailed in Schedule 1 of the Contract;

"**Shipper**" shall have the meaning as defined in the Contract, and shall also include Shipper's agent(s);

"**Shipper Quantity**" shall, on any Day, be equal to the greater of: (i) the Authorized Quantity for that Day; and (ii) the nomination duly made by Shipper in good faith prior to the nomination deadline for the first nomination window applicable for that Day; provided that in no event shall the Shipper Quantity exceed the firm contract demand;

"**specific gravity**" shall mean density of the gas divided by density of air, with both at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

"**Taxes**" shall mean any tax (other than tax on income or tax on property), duty, royalty, levy, license, fee or charge not included in the charges and rates as per the applicable rate schedule (including but not limited to charges under any form of cap and trade, carbon tax, or similar system) and that is levied, assessed or made by any governmental authority on the gas itself, or the act, right, or privilege of producing, severing, gathering, storing, transporting, handling, selling or delivering gas under the Contract;

"**TCPL**" means TransCanada PipeLines Limited;

"**Union Expansion Facilities**" shall mean any facilities necessary for Union to provide the Services, including without limiting the generality of the foregoing:

a. a meter and any associated recording gauges as are necessary;

b. pressure and/or flow control devices, over pressure protection and telemetry equipment as are necessary;

c. a suitable gas odourizing injection facility if Union deems such a facility to be necessary

d. piping, fittings, material, filtration facilities, cathodic protection and insulating flanges;

e. gas chromatograph, moisture analyzer, piping, fittings, material, filtration facilities, cathodic protection and insulating flanges;

"**Wobbe Number**" shall mean gross heating value of the gas divided by the square root of its specific gravity.

II. GAS QUALITY

1. Natural Gas: The minimum gross heating value of the gas delivered to/by Union hereunder, shall be thirty-six (36) megajoules per cubic metre. The maximum gross heating value of the gas delivered to/by Union hereunder shall be forty point two (40.2) megajoules per cubic metre. The gas to be delivered hereunder to Union may be a commingled supply from Shipper's gas sources of supply. The gas to be delivered by Union may be a commingled supply from Union's sources of gas supply; provided, however, that helium, natural gasoline, butane, propane and other hydrocarbons, except methane, may be removed prior to delivery to Shipper. Further, Union may subject, or permit the subjection of, the gas to compression, dehydration, cooling, cleaning and other processes.

2. Freedom from objectionable matter: The gas to be delivered to Union at the Receipt Point(s) hereunder,

a. shall be commercially free from bacteria, sand, dust, gums, crude oils, lubricating oils, liquids, chemicals or compounds used in the production, treatment, compression or dehydration of the gas or any other objectionable substance in sufficient quantity so as to render the gas toxic, unmerchantable or cause injury to, or interference with, the proper operation of the lines, regulators, meters or other appliances through which it flows,

b. shall not contain more than seven (7) milligrams of hydrogen sulphide per cubic metre of gas, nor more than one hundred (100) milligrams of total sulphur per cubic metre of gas,

c. shall not contain more than five (5) milligrams of mercaptan sulphur per cubic metre of gas,

d. shall not contain more than two point zero (2.0) molar percent by volume of carbon dioxide in the gas,

e. shall not contain more than zero point four (0.4) molar percent by volume of oxygen in the gas,

f. shall not contain more than zero point five (0.5) molar percent by volume of carbon monoxide in the gas,

g. shall not contain more than four point zero (4.0) molar percent by volume of hydrogen in the gas,

h. shall not contain more than sixty-five (65) milligrams of water vapour per cubic metre of gas,

i. shall not have a cricondentherm hydrocarbon dewpoint exceeding minus eight (-8) degrees Celsius,

j. shall have Wobbe Number from forty seven point fifty (47.50) megajoules per cubic metre of gas to fifty one point forty six (51.46) megajoules per cubic metre of gas, maximum of one point five (1.5) mole percent by volume of butane plus (C4+) in the gas, and maximum of four point zero (4.0) mole percent by volume of total inerts in the gas in order to be interchangeable with other Interconnecting Pipeline gas,

k. shall not exceed forty-three degrees Celsius (43ºC), and,

l. shall not be odourized by Shipper.

3. Non-conforming Gas:

a. In the event that the quality of the gas does not conform or if Union, acting reasonably, suspects the quality of the gas may not conform to the specifications herein, then Shipper shall, if so directed by Union acting reasonably, forthwith carry out, at Shipper's cost, whatever field testing of the gas quality as may be required to ensure that the quality requirements set out herein are met, and to provide Union with a certified copy of such tests. If Shipper does not carry out such tests forthwith, Union may conduct such test and Shipper shall reimburse Union for all costs incurred by Union for such testing.

b. If Shipper's gas fails at any time to conform to the requirements of this Article II, Union, in addition to its other remedies, may refuse to accept delivery of gas at the Receipt Points hereunder until such deficiency has been remedied by Shipper. Each Party agrees to notify the other verbally, followed by written notification, of any such deficiency of quality.

c. With respect to Article II 2. h. herein, Union may accept the gas subject to Shipper's obligations under the Dehydration Contract, if applicable.

4. Quality of Gas Received: The quality of the gas to be received by Union at the Receipt Point(s) hereunder is to be of a merchantable quality and in accordance with the quality standards as set out by Union in this Article II.

5. Quality of Gas at Dawn: The quality of the gas to be delivered to Union at Dawn (Facilities) or the gas to be delivered by Union to Shipper at Dawn (Facilities) hereunder is to be of a merchantable quality and in accordance with the quality standards and measurement standards as set out by Union in this Article II, except that total sulphur limit shall be not more than four hundred and sixty (460) milligrams per cubic metre of gas. In addition to any other right or remedy of a party, each party shall be entitled to refuse to accept delivery of any gas which does not conform to any of the specifications set out in this Article II.

6. Odourization of Gas:

a. Union may odourize or deliver odourized gas under the Contract,

b. Shipper shall if requested by Union monitor the mercaptan sulphur content of the gas delivered to Union under the Contract and shall provide at no cost to Union a continuous signal quantifying the mercaptan sulphur content in milligrams per cubic metre.

III. MEASUREMENTS

1. Storage, Transportation, and/or Sales Unit: The unit of the gas delivered to Union shall be a megajoule or a gigajoule. The unit of gas transported or stored by Union shall be a megajoule or a gigajoule. The unit of gas delivered by Union shall be a megajoule, a gigajoule, a cubic metre (m^3) or one thousand cubic metres ($10^3 m^3$) at Union's discretion.

2. Determination of Volume and Energy:

a. The volume and energy amounts determined under the Contract shall be determined in accordance with the Electricity and Gas Inspection Act (Canada), RSC 1985, c E-4- (the "**Act**") and the Electricity and Gas Inspection Regulations, SOR 86/131 (the "**Regulations**"), and any documents issued under the authority of the Act and Regulations and any amendments thereto.

b. The supercompressibility factor shall be determined in accordance with either the "Manual for Determination of Supercompressibility Factors for Natural Gas" (PAR Project NX-19) published in 1962 or with American Gas Association Transmission Measurement Committee Report No. 8, Nov. 1992, at Union's discretion, all as amended from time to time.

c. The volume and/or energy of the gas delivered to/by Union hereunder shall be determined by the measurement equipment designated in Article VII herein.

d. Upon request by Union, Shipper shall obtain measurement of the total quantity of gas received by Union hereunder from the Interconnecting Pipeline. Such measurement shall be done in accordance with established practices between Union and the Interconnecting Pipeline.

IV. RECEIPT POINT AND DELIVERY POINT

The point or points of receipt and point or points of delivery for all gas to be covered hereunder shall be on the outlet side of the measuring stations located at or near the point or points of connection specified in Schedule 1 of the Contract, where possession of the gas changes from one party to the other.

V. POSSESSION OF AND RESPONSIBILITY FOR GAS

1. <u>Possession of Gas:</u> Union accepts no responsibility for any gas prior to such gas being delivered to Union at the Receipt Point or after its delivery by Union at the Delivery Point. As between the parties hereto, Union shall be deemed to be in control and possession of and responsible for all such gas from the time that such gas enters Union's system until such gas is delivered to Shipper.

2. <u>Liability:</u> Shipper agrees that Union is not a common carrier and is not an insurer of Shipper's gas, and that Union shall not be liable to Shipper or any third party for loss of gas in Union's possession, except to the extent such loss is caused entirely by Union's negligence or wilful misconduct.

VI. FACILITIES ON SHIPPER'S PROPERTY

1. <u>Union Equipment:</u> All of the Union Expansion Facilities shall remain the property of Union. Union shall be entitled to remove said equipment at any time within a period of sixty (60) days from any termination or expiry of the Contract. Shipper shall take all necessary steps to ensure Union may enter the Pool Station to remove such equipment for a period of sixty (60) days after termination or expiry of the Contract.

2. <u>Shipper Obligations:</u> Shipper shall, at Shipper's own cost and expense:

   a. obtain the Pool Station Land Rights; and

   b. furnish, install, set, and maintain suitable pressure and quantity control equipment and such additional equipment as required on Shipper's delivery system, to protect against the over pressuring of Union's facilities as set out in Article VI of the Contract and Schedule 1 of the Contract, protect Union from receiving gas not meeting the quality specification as set out in Article II herein, and to limit the daily flow of gas to the corresponding parameters as set out in the Article II of the Contract.

3. <u>Maintenance Costs:</u> Shipper shall within thirty (30) days of the delivery of an invoice by Union, reimburse Union for any actual costs reasonably incurred by Union for any repair, replacement, relocation, or upgrading of any meter station or any Union Expansion Facilities requested by Shipper, or as required by law or by duly constituted regulatory body, or through good engineering practice. Union shall be responsible for any costs incurred by Union to correct an error made by Union.

4. Operation and Maintenance: Subject to this Article VI Section 3, each party shall be fully responsible for the continued operation, maintenance, repair and replacement of its respective facilities. Both parties agree to maintain cathodic protection on their respective facilities.

5. Inspection: Each party shall inspect its facilities as required by industry standards or by the appropriate regulatory body.

6. Repair or Replacement: Each party shall decide, in its sole discretion, whether its facilities need to be repaired or replaced. In the event that repair or replacement is needed, the party undertaking such work will, to the extent possible, give the other party sixty (60) days' notice and will ensure that the work be done in a manner so as to minimize the amount of time the pipeline has restricted flows.

VII. MEASURING EQUIPMENT

1. Metering by Union: Union will install and operate meters and related equipment as required and in accordance with the Act and Regulations referenced in Article III herein.

2. Metering by Others: In the event that all or any gas delivered to/by Union hereunder is measured by a meter that is owned and operated by an Interconnecting Pipeline, then Union and Shipper agree to accept that metering for the purpose of determining the volume and energy of gas delivered to/by Union on behalf of the Shipper. The standard of measurement and tests for the gas delivered to/by Union hereunder shall be in accordance with the general terms and conditions as incorporated in that Interconnecting Pipeline company's gas tariff as approved by its regulatory body.

3. Check Measuring Equipment: Shipper may install, maintain and operate, at the Custody Transfer Point, at its own expense, such check measuring equipment as desired, provided that such equipment shall be so installed as not to interfere with the operation of Union's measuring equipment at or near the Custody Transfer Point, and shall be installed, maintained and operated in conformity with the same standards and specifications applicable to Union's metering facilities.

4. Rights of Parties: The measuring equipment installed by either party, together with any building erected by it for such equipment, shall be and remain its property. However, Union and Shipper shall have the right to have representatives present at the time of any installing, reading, cleaning, changing, repairing, inspecting, testing, calibrating, or adjusting done in connection with the other's measuring equipment used in measuring or checking the measurement of deliveries of gas to/by Union under the Contract. Either party will give the other party reasonable notice of its intention to carry out the acts herein specified. The records from such measuring equipment shall remain the property of their owner, but upon request each will submit to the other its records and charts, together with calculations therefrom, for inspection and verification, subject to return within ten (10) days after receipt thereof.

5. Calibration and Test of Measuring Equipment: The accuracy of Union's measuring equipment shall be verified by Union at reasonable intervals, and if requested, in the presence of representatives of Shipper, but Union shall not be required to verify the accuracy of such equipment more frequently than once in any thirty (30) day period. In the event either party notifies the other that it desires a special test of any measuring equipment, the parties shall co-operate to secure a prompt verification of the accuracy of such equipment. The expense of any such special test, if called for by Shipper, shall be borne by Shipper if the measuring equipment tested is found to be in error by not more than two per cent (2%). If, upon test, any measuring equipment is found to be in error by not more than two per cent (2%), previous recordings of such equipment shall be considered accurate in computing receipts and deliveries of gas, but such equipment shall be adjusted at once to record as near to absolute accuracy as possible. If the test conducted shows a percentage of inaccuracy greater than two percent (2%), the financial adjustment, if any, shall be calculated in accordance with the Act and Regulations, as may be amended from time to time and in accordance with any successor statutes and regulations.

6. Preservation of Metering Records: Union and Shipper shall each preserve for a period of at least six (6) years all test data, and other relevant records.

7. Error in Metering or Meter Failure: In the event of an error in metering or a meter failure, (such error or failure being determined through check measurement by Union or any other available method), then Shipper shall enforce its rights as Shipper with the Interconnecting Pipeline(s) to remedy such error or failure including enforcing any inspection and/or verification rights and procedures.

VIII. BILLING

1. Monthly Billing Date: Union shall render bills on or before the tenth (10th) day of each month for all Services furnished during the preceding Month. Such charges may be based on estimated quantities, if actual quantities are unavailable in time to prepare the billing. Union shall provide, in a succeeding Month's billing, an adjustment based on any difference between actual quantities and estimated quantities, without any interest charge. If presentation of a bill to Shipper is delayed after the tenth (10th) day of the month, then the time of payment shall be extended accordingly, unless Shipper is responsible for such delay.

2. Right of Examination: Both Union and Shipper shall have the right to examine at any reasonable time the books, records and charts of the other to the extent necessary to verify the accuracy of any statement, chart or computation made under or pursuant to the provisions of the Contract.

3. Amendment of Statements: For the purpose of completing a final determination of the actual quantities of gas handled under the Contract, Union shall have the right to amend its statements for a period equal to the time during which the Interconnecting Pipeline retains the right to amend their statements, which period shall not exceed three (3) years from the date of termination of the Contract.

IX. PAYMENTS

1. Monthly Payments: Shipper shall pay the invoiced amount directly into Union's bank account as directed on the invoice on or before the twentieth (20th) day of each month. If the payment date is not a Business Day, then payment must be received in Union's account on the first Business Day preceding the twentieth (20th) day of the month.

2. Remedies for Non-payment: Should Shipper fail to pay all of the amount of any bill as herein provided when such amount is due,

   a. Shipper shall pay to Union interest on the unpaid portion of the bill accruing at a rate per annum equal to the minimum commercial lending rate of Union's principal banker in effect from time to time from the due date until the date of payment; and,

   b. If such failure to pay continues for thirty (30) days after payment is due, Union, in addition to any other remedy it may have under the Contract, may suspend Services until such amount is paid. Notwithstanding such suspension, all demand charges shall continue to accrue hereunder as if such suspension were not in place.

   If Shipper in good faith disputes the amount of any such bill or part thereof Shipper shall pay to Union such amounts as it concedes to be correct. At any time thereafter, within twenty (20) days of a demand made by Union, Shipper shall furnish financial assurances satisfactory to Union, guaranteeing payment to Union of the amount ultimately found due upon such bill after a final determination. Such a final determination may be reached either by agreement, arbitration decision or judgement of the courts, as may be the case. Union shall not be entitled to suspend Services because of such non-payment unless and until default occurs in the conditions of such financial assurances or default occurs in payment of any other amount due to Union hereunder.

   Notwithstanding the foregoing, Shipper is not relieved from the obligation to continue its deliveries of gas to Union under the terms of any agreement, where Shipper has contracted to deliver specified quantities of gas to Union.

3. Billing Adjustments: If it shall be found that at any time or times Shipper has been overcharged or undercharged in any form whatsoever under the provisions of the Contract and Shipper shall have actually paid the bills containing such

overcharge or undercharge, Union shall refund the amount of any such overcharge and interest shall accrue from and including the first day of such overcharge as paid to the date of refund and shall be calculated but not compounded at a rate per annum determined each day during the calculation period to be equal to the minimum commercial lending rate of Union's principal banker, and the Shipper shall pay the amount of any such undercharge, but without interest. In the event Union renders a bill to Shipper based upon measurement estimates, the required adjustment to reflect actual measurement shall be made on the bill next following the determination of such actual measurement, without any charge of interest. In the event an error is discovered in the amount billed in any statement rendered by Union, such error shall be adjusted by Union. Such overcharge, undercharge or error shall be adjusted by Union on the bill next following its determination (where the term "**bill next following**" shall mean a bill rendered at least fourteen (14) days after the day of its determination), provided that claim therefore shall have been made within three (3) years from the date of the incorrect billing. In the event any refund is issued with Shipper's bill, the aforesaid date of refund shall be deemed to be the date of the issue of bill.

4. Taxes: In addition to the charges and rates as per the applicable rate schedules and price schedules, Shipper shall pay all Taxes which are imposed currently or subsequent to the execution of the Contract by any legal authority having jurisdiction and any amount in lieu of such Taxes paid or payable by Union.

5. Set Off: If Shipper shall, at any time, be in arrears under any of its payment obligations to Union under the Contract, then Union shall be entitled to reduce the amount payable by Union to Shipper under the Contract or any other contract by an amount equal to the amount of such arrears or other indebtedness to Union. In addition to the foregoing remedy, Union may, upon forty-eight (48) hours verbal notice, to be followed by written notice, take possession of any or all of Shipper's gas under the Contract, which shall be deemed to have been assigned to Union, to reduce such arrears or other indebtedness to Union.

6. Aid to Construction: Shipper agrees to reimburse Union for the Aid to Construction.

   In the event Union has incurred costs, as set out herein, relative to the construction, installation or connection of the gas metering station prior to being notified by Shipper of Shipper's intention to terminate the Contract, Shipper shall promptly remit to Union such actual costs on presentation to Shipper of an invoice for same from Union.

   All applicable Taxes will be applied to all amounts to be paid under this Section. Shipper warrants and represents that no payment to be made by Shipper under the Contract is subject to any withholding tax.

X. ARBITRATION

If and when any dispute, difference or question shall arise between the parties hereto touching the Contract or anything herein contained, or the construction hereof, or the rights, duties or liabilities of the parties in relation to any matter hereunder, the matter in dispute shall be submitted and referred to arbitration within ten (10) days after written request of either party. Upon such request each party shall appoint an arbitrator, and the two so appointed shall appoint a third. A majority decision of the arbitrators shall be final and binding upon both parties. In all other respects the provisions of the Arbitration Act, 1991, or any act passed in amendment thereof or substitution therefore, shall apply to each such submission. Operations under the Contract shall continue, without prejudice, during any such arbitration and the costs attributable to such arbitration shall be shared equally by the parties hereto.

XI. FORCE MAJEURE

1. Definition: The term "**force majeure**" as used herein shall mean acts of God, strikes, lockouts or any other industrial disturbance, acts of the public enemy, sabotage, wars, blockades, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, storms, floods, washouts, arrests and restraints of governments and people, civil disturbances, explosions, breakage or accident to machinery or lines of pipe, freezing of wells or lines of pipe, inability to obtain materials, supplies, permits or labour, any laws, orders, rules, regulations, acts or restraints of any governmental body or authority (civil or military), any act or omission that is excused by any event or occurrence of the character herein defined as constituting force majeure, any act or omission by parties not controlled by the party having the difficulty and

any other similar cases not within the control of the party claiming suspension and which by the exercise of due diligence such party is unable to prevent or overcome.

2. Notice: In the event that either the Shipper or Union is rendered unable, in whole or in part, by force majeure, to perform or comply with any obligation or condition of the Contract, such party shall give notice and full particulars of such force majeure in writing delivered by hand, fax or other direct written electronic means to the other party as soon as possible after the occurrence of the cause relied on and subject to the provision of this Article.

3. Exclusions: Neither party shall be entitled to the benefit of the provisions of force majeure hereunder if any or all of the following circumstances prevail: the failure resulting in a condition of force majeure was caused by the negligence of the party claiming suspension; the failure was caused by the party claiming suspension where such party failed to remedy the condition by making all reasonable efforts (short of litigation, if such remedy would require litigation); the party claiming suspension failed to resume the performance of such condition obligations with reasonable dispatch; the failure was caused by lack of funds; the party claiming suspension did not, as soon as possible after determining, or within a period within which it should acting reasonably have determined, that the occurrence was in the nature of force majeure and would affect its ability to observe or perform any of its conditions or obligations under the Contract, give to the other party the notice required hereunder.

4. Notice of Remedy: The party claiming suspension shall likewise give notice as soon as possible after the force majeure condition is remedied, to the extent that the same has been remedied, and that such party has resumed or is then in a position to resume the performance of the obligations and conditions of the Contract.

5. Obligation to Perform: An event of force majeure on Union's system will excuse the failure to deliver gas by Union or the failure to accept gas by Union hereunder, and both parties shall be excused from performance of their obligations hereunder, except for payment obligations, to the extent of and for the duration of the force majeure.

6. Upstream or Downstream Force Majeure: An event of force majeure upstream or downstream of Union's system shall not relieve Shipper of any payment obligations.

7. Delay of Firm Transportation Services: Despite Article XI herein, if Union is prevented, by reason of an event of force majeure on Union's system from delivering gas on the Day or Days upon which Union has accepted gas from Shipper, Union shall thereafter make all reasonable efforts to deliver such quantities as soon as practicable and on such Day or Days as are agreed to by Shipper and Union. If Union accepts such gas on this basis, Shipper shall not receive any demand charge relief as contemplated under Article XI herein.

8. Demand Charge Relief for Firm Transportation Services: Despite Article XI herein, if on any Day Union fails to accept gas from Shipper by reason of an event of force majeure on Union's system and fails to deliver the quantity of gas nominated hereunder by Shipper up to the firm contract demand for the Contract, then for that Day the Monthly demand charge shall be reduced by an amount equal to the applicable Daily Demand Rate, as defined in this paragraph, multiplied by the difference between the quantity of gas actually delivered by Union during such Day and the quantity of gas which Shipper in good faith nominated on such Day. The term "**Daily Demand Rate**" shall mean the Monthly demand charge or equivalent pursuant to the C1 Rate Schedule divided by the number of days in the month for which such rate is being calculated.

9. Unforeseen Reduction: In addition to the definition of force majeure in Article XI, Section 1 herein, for the purposes of the Contract, it shall also include the unforeseen reduction in natural gas usage and/or capacity of the local transmission system as described in Schedule 1 of the Contract, regardless of the duration of such unforeseen reduction, or any other cause, whether of the kind herein enumerated or otherwise, not within the reasonable control of the party claiming relief hereunder and which, by the exercise of due diligence, such party is unable to prevent or overcome.

XII. DEFAULT AND TERMINATION

In case of the breach or non-observance or non-performance on the part of either party hereto of any covenant, proviso, condition, restriction or stipulation contained in the Contract (but not including herein failure to take or make delivery in whole or in part of the gas delivered to/by Union hereunder occasioned by any of the reasons provided for in Article XI herein) which has not been waived by the other party, then and in every such case and as often as the same may happen, the non-defaulting party may give written notice to the defaulting party requiring it to remedy such default and in the event of the defaulting party failing to remedy the same within a period of thirty (30) days from receipt of such notice, the non-defaulting party may at its sole option declare the Contract to be terminated and thereupon the Contract shall be terminated and be null and void for all purposes other than and except as to any liability of the parties under the same incurred before and subsisting as of termination. The right hereby conferred upon each party shall be in addition to, and not in derogation of or in substitution for, any other right or remedy which the parties respectively at law or in equity shall or may possess.

XIII. AMENDMENT

Subject to Article XV herein and the ability of Union to amend the applicable rate schedules and price schedules, with the approval of the OEB (if required), no amendment or modification of the Contract shall be effective unless the same shall be in writing and signed by each of the Shipper and Union.

XIV. NON-WAIVER AND FUTURE DEFAULT

No waiver of any provision of the Contract shall be effective unless the same shall be in writing and signed by the party entitled to the benefit of such provision and then such waiver shall be effective only in the specific instance and for the specified purpose for which it was given. No failure on the part of Shipper or Union to exercise, and no course of dealing with respect to, and no delay in exercising, any right, power or remedy under the Contract shall operate as a waiver thereof.

XV. LAWS, REGULATIONS AND ORDERS

The Contract and the respective rights and obligations of the parties hereto are subject to all present and future valid laws, orders, rules and regulations of any competent legislative body, or duly constituted authority now or hereafter having jurisdiction and the Contract shall be varied and amended to comply with or conform to any valid order or direction of any board, tribunal or administrative agency which affects any of the provisions of the Contract.

XVI. RESERVED FOR FUTURE USE

N/A

XVII. RENEWALS

The Contract will continue in full force and effect beyond the Initial Term, automatically renewing for a period of one (1) year, and every one (1) year thereafter. Shipper or Union may reduce the contract demands or terminate the Contract, with notice in writing to the other party, at least two (2) years prior to the expiration thereof.

XVIII. SERVICE CURTAILMENT

1. Capacity Sharing: Where requests for interruptible service hereunder exceed the capacity available for such Service, Union will authorize nominations from shippers and allocate capacity as per Union's procedures and policies and shippers shall be so advised. Any interruptible service provided herein are subordinate to any and all firm service supplied by Union, and subordinate to Union's own operational or system requirements.

2. Capacity Procedures: Union reserves the right to change its procedures and policies for sharing interruptible capacity and will provide Shipper with two (2) months' notice of any such change.

3. Maintenance: Union's facilities from time to time may require maintenance or construction. In the event that such event occurs and in Union's sole opinion, acting reasonably, may impact its ability to meet Shipper's requirements, Union shall provide at least ten (10) days' notice to the Shipper, except in the case of emergencies. In the event the maintenance impacts Union's ability to meet Shipper's requirements, Union shall not be liable for any damages and shall not be deemed to be in breach of the Contract. To the extent that Union's ability to receive or deliver gas is impaired, Demand Charge Relief shall be calculated and credited to Shipper's invoice in accordance with Article XI, Section 8 herein. Union shall use reasonable efforts to determine a mutually acceptable period during which such maintenance or construction will occur and also to limit the extent and duration of any impairments. Union will endeavour to schedule and complete the maintenance and construction, that can be scheduled and completed, and which would normally be expected to impact on Union's ability to meet its obligations of any Contract Year, during the period from April 1 through to October 31.

4. Shipper's Facilities: Shipper shall complete and maintain a plan which depicts all of Shipper's production storage facilities including all emergency shut off valves and emergency equipment and provide a copy to Union upon Union's request. Shipper shall provide to Union the names and telephone numbers of those persons whom Union may contact in the event of an emergency situation arising within the Shipper's facilities.

XIX. SHIPPER'S REPRESENTATIONS AND WARRANTIES

1. Shipper's Warranty: Shipper warrants that it will, if required, maintain, or have maintained on its behalf, all external approvals including the governmental, regulatory, import/export permits and other approvals or authorizations that are required from any federal, state or provincial authorities for the gas quantities to be handled under the Contract. Shipper further warrants that it shall maintain in effect the Facilitating Agreements.

2. Financial Representations: Shipper represents and warrants that the financial assurances (including the Initial Financial Assurances and Security), if any, shall remain in place throughout the term hereof unless Shipper and Union agree otherwise. Shipper shall notify Union in the event of any change to the financial assurances (including the Initial Financial Assurances and Security), if any, throughout the term hereof. Should Union have reasonable grounds to believe that Shipper will not be able to perform or continue to perform any of its obligations under the Contract for any reason (a "**Material Event**"), then Shipper shall within fourteen (14) days of receipt of written notice by Union, obtain and provide to Union a letter of credit or other security in the form and amount reasonably required by Union (the "**Security**"). In the event that Shipper does not provide to Union such Security, Union may deem a default in accordance with the provisions of Article XII herein.

   In the event that Shipper in good faith, reasonably believes that it should be entitled to reduce the amount of or value of the Security previously provided, it may request such a reduction from Union and to the extent that the Material Event has been mitigated or eliminated, Union shall return all or a portion of the Security to Shipper within fourteen (14) Business Days after receipt of the request.

3. License: Shipper represents and warrants to Union that Shipper possesses all licenses and permits needed to inject gas into, store gas in, and remove gas from the pool.

XX. MISCELLANEOUS PROVISIONS

1. Assignment: Shipper may not assign the Contract without the written consent of Union and, if required, the approval of the OEB. Should Union consent to the assignment, and if OEB approval is needed, Union will apply for OEB approval with all costs of the application to be paid by Shipper.

2. Title to Gas: Shipper represents and warrants to Union that Shipper shall have good and marketable title to, or legal authority to deliver to Union, all gas delivered to Union hereunder. Furthermore, Shipper hereby agrees to indemnify and save Union harmless from all suits, actions, debts, accounts, damages, costs, losses and expenses arising from or out of claims of any or all third parties to such gas or on account of Taxes, or other charges thereon.

XXI. PRECONDITIONS TO TRANSPORTATION SERVICES

1. Union Conditions: The obligations of Union to provide Services hereunder are subject to the following conditions precedent, which are for the sole benefit of Union and which may be waived or extended in whole or in part in the manner provided in the Contract:

    a. Union shall have obtained, in form and substance satisfactory to Union, and all conditions shall have been satisfied under, all governmental, regulatory and other third party approvals, consents, orders and authorizations, that are required to provide the Services; and,

    b. Union shall have obtained all internal approvals that are necessary or appropriate to provide the Services; and,

    c. Union shall have received from Shipper the requisite financial assurances reasonably necessary to ensure Shipper's ability to honour the provisions of the Contract (the "**Initial Financial Assurances**"). The Initial Financial Assurances, if required, will be as determined solely by Union; and,

    d. Shipper and Union shall have entered into the Interruptible Service HUB Contract or equivalent (the "**Facilitating Agreement**") with Union; and,

    e. Shipper shall have paid any amounts owing pursuant to Schedule 1 Aid to Construction; and,

    f. With regard to the Union Expansion Facilities:

        i. Union shall have obtained, in form and substance satisfactory to Union, and all conditions shall have been satisfied under, all governmental, regulatory and other third party approvals, consents, orders and authorizations required to construct the Union Expansion Facilities;

        ii. Union shall have obtained all internal approvals that are necessary or appropriate to construct the Union Expansion Facilities;

        iii. Union shall have completed and placed into service the Union Expansion Facilities; and,

    g. Shipper shall, at Shipper's own cost and expense, have obtained a registered lease or freehold ownership in Union's favour for the Union Expansion Facilities located at the Pool Station satisfactory to Union and sufficient to provide Union with free uninterrupted access to, from, under and above the Pool Station for a term (and extended terms) identical to the Contract, plus sixty (60) days (such land rights being referred to as the "**Pool Station Land Rights**"), and shall provide Union with a bona fide copy of such agreements prior to Union commencing the construction of the Union Expansion Facilities.

2. Shipper Conditions: The obligations of Shipper hereunder are subject to the following conditions precedent, which are for the sole benefit of Shipper and which may be waived or extended in whole or in part in the manner provided in the Contract:

    a. Shipper shall, as required, have entered into the necessary contracts with Union and/or others to facilitate the Services contemplated herein, including contracts for upstream and downstream transportation, and shall specifically have an executed and valid Facilitating Agreement; and shall, as required, have entered into the necessary contracts to purchase the gas quantities handled under the Contract; and,

    b. Shipper shall have obtained, in form and substance satisfactory to Shipper, and all conditions shall have been satisfied under, all governmental, regulatory and other third party approvals, consents, orders and authorizations, that are required from federal, state, or provincial authorities for the gas quantities handled under the Contract; and,

c. Shipper shall have obtained all internal approvals that are necessary or appropriate for the Shipper to execute the Contract.

3. Satisfaction of Conditions: Union and Shipper shall each use due diligence and reasonable efforts to satisfy and fulfil the conditions precedent specified in this Article XXI Section 1 a, c, d, e, f i., f iii., and g and Section 2 a and b. Each party shall notify the other forthwith in writing of the satisfaction or waiver of each condition precedent for such party's benefit. If a party concludes that it will not be able to satisfy a condition precedent that is for its benefit, such party may, upon written notice to the other party, terminate the Contract and upon the giving of such notice, the Contract shall be of no further force and effect and each of the parties shall be released from all further obligations thereunder.

4. Non-Satisfaction of Conditions: If any of the conditions precedent in this Article XXI Section 1 c or Section 2 are not satisfied or waived by the party entitled to the benefit of that condition by the Conditions Date as such term is defined in the Contract, then either party may, upon written notice to the other party, terminate the Contract and upon the giving of such notice, the Contract shall be of no further force and effect and each of the parties shall be released from all further obligations hereunder, provided that any rights or remedies that a party may have for breaches of the Contract prior to such termination and any liability a party may have incurred before such termination shall not thereby be released.

CROSS FRANCHISE TRANSPORTATION RATES

(A) Applicability

To a Shipper who enters into a Contract with Union for delivery by Shipper of gas to Union at one of Union's points listed below for redelivery by Union to Shipper at one of Union's points.

Applicable Points	(1)	(2)
	Ojibway	WDA
	St. Clair	NDA
	Dawn*	SSMDA
	Parkway	SWDA
	Kirkwall	CDA
	Bluewater	EDA

*Dawn as a receipt point: Dawn (TCPL), Dawn (Facilities), Dawn (Tecumseh), Dawn (Vector) and Dawn (TSLE).
*Dawn as a delivery point: Dawn (Facilities).

(B) Services

Transportation Service under this rate schedule is transportation on Union's pipeline facilities between any two Points as specified in Section (A), column 1.

(C) Rates

The identified rates (excluding gas supply charges, if applicable) represent maximum prices for service. These rates may change periodically.
Multi-year prices may also be negotiated, which may be higher than the identified rates.

Transportation Service (1):

	Monthly Demand Charges (applied to daily contract demand)	Fuel and Commodity Charges					
		Union Supplied Fuel		Shipper Supplied Fuel			
		Fuel and Commodity Charge		Fuel Ratio			Commodity Charge
		Apr.1-Oct.31	Nov.1-Mar.31	Apr.1-Oct.31	Nov.1-Mar.31		
	Rate/GJ	Rate/GJ	Rate/GJ	%	%	AND	Rate/GJ
a) Firm Transportation							
Between:							
St.Clair & Dawn	$1.045	$0.007	$0.009	0.207%	0.266%		
Ojibway & Dawn	$1.045	$0.016	$0.011	0.447%	0.303%		
Bluewater & Dawn	$1.045	$0.007	$0.009	0.207%	0.266%		
From:							
Parkway to Kirkwall	$0.837	$0.010	$0.006	0.293%	0.157%		
Parkway to Dawn	$0.837	$0.010	$0.006	0.293%	0.157%		
Kirkwall to Dawn	$1.475	$0.006	$0.006	0.157%	0.157%		
Dawn to Kirkwall	$2.865	$0.011	$0.027	0.318%	0.756%		
Dawn to Parkway	$3.402	$0.020	$0.036	0.571%	1.026%		
Kirkwall to Parkway	$0.537	$0.015	$0.015	0.410%	0.427%		
Cap-and-Trade Facility-Related Charges (applied to all quantities transported):							
St.Clair / Ojibway / Bluewater & Dawn		$0.006	$0.006				$0.006
Parkway to Dawn / Kirkwall		$0.006	$0.006				$0.006
Kirkwall to Dawn		$0.006	$0.006				$0.006
Dawn to Kirkwall		$0.006	$0.006				$0.006
Dawn to Parkway		$0.006	$0.006				$0.006
Kirkwall to Parkway		$0.006	$0.006				$0.006

(C) Rates (Cont'd)

			Fuel and Commodity Charges					
		Union Supplied Fuel		Shipper Supplied Fuel			
		Fuel and Commodity Charge		Fuel Ratio			Commodity Charge
		Apr.1-Oct.31 Rate/GJ	Nov.1-Mar.31 Rate/GJ	Apr.1-Oct.31 %	Nov.1-Mar.31 %	AND	Rate/GJ
b) Firm Transportation between two points within Dawn							
Dawn to Dawn-Vector	$0.029	n/a	n/a	0.339%	0.157%		
Dawn to Dawn-TCPL	$0.138	n/a	n/a	0.157%	0.351%		
Cap-and-Trade Facility-Related Charges (applied to all quantities transported):							
Dawn to Dawn-Vector		$0.006	$0.006				$0.006
Dawn to Dawn-TCPL		$0.006	$0.006				$0.006
c) Interruptible Transportation between two points within Dawn*							
*includes Dawn (TCPL), Dawn Facilities, Dawn (Tecumseh), Dawn (Vector) and Dawn (TSLE)				0.157%	0.157%		
d) Interruptible and Short Term (1 year or less) Firm Transportation:		$75.00					

Authorized Overrun:

The following Overrun rates are applied to any quantities transported in excess of the Contract parameters. Overrun will be authorized at Union's sole discretion.

	Union Supplied Fuel		Shipper Supplied Fuel			
	Fuel and Commodity Charge		Fuel Ratio			Commodity Charge
	Apr.1-Oct.31 Rate/GJ	Nov.1-Mar.31 Rate/GJ	Apr.1-Oct.31 %	Nov.1-Mar.31 %	AND	Rate/GJ
a) Firm Transportation						
Between:						
St.Clair & Dawn	$0.042	$0.044	0.207%	0.266%		$0.034
Ojibway & Dawn	$0.050	$0.045	0.447%	0.303%		$0.034
Bluewater & Dawn	$0.042	$0.044	0.207%	0.266%		$0.034
From:						
Parkway to Kirkwall	$0.144	$0.139	0.910%	0.774%		$0.112
Parkway to Dawn	$0.144	$0.139	0.910%	0.774%		$0.112
Kirkwall to Dawn	$0.054	$0.054	0.157%	0.157%		$0.049
Dawn to Kirkwall	$0.127	$0.143	0.935%	1.373%		$0.094
Dawn to Parkway	$0.154	$0.170	1.188%	1.643%		$0.112
Kirkwall to Parkway	$0.054	$0.055	1.027%	1.044%		$0.018
Cap-and-Trade Facility-Related Charges (applied to all quantities transported):						
St.Clair / Ojibway / Bluewater & Dawn	$0.006	$0.006				$0.006
Parkway to Dawn / Kirkwall	$0.006	$0.006				$0.006
Kirkwall to Dawn	$0.006	$0.006				$0.006
Dawn to Kirkwall	$0.006	$0.006				$0.006
Dawn to Parkway	$0.006	$0.006				$0.006
Kirkwall to Parkway	$0.006	$0.006				$0.006
b) Firm Transportation between two points within Dawn						
Dawn to Dawn-Vector	n/a	n/a	0.339%	0.157%		$0.001
Dawn to Dawn-TCPL	n/a	n/a	0.157%	0.351%		$0.005
Cap-and-Trade Facility-Related Charges (applied to all quantities transported):						
Dawn to Dawn-Vector	$0.006	$0.006				$0.006
Dawn to Dawn-TCPL	$0.006	$0.006				$0.006

(C) Rates (Cont'd)

Authorized overrun for short-term firm transportation is available at negotiated rates.

Unauthorized Overrun:

The Unauthorized Overrun rate shall be the higher of the reported daily spot price of gas at either, Dawn, Parkway, Niagara, Iroquois or Chicago in the month of or the month following the month in which the overrun occurred plus 25% for all usage on any day in excess of 102% of Union's contractual obligation.

Notes for Section (C) Rates:

(1) A demand charge of $0.070/GJ/day/month will be applicable to customers contracting for firm all day transportation service in addition to the demand charges appearing on this schedule for all firm transportation service paths.

(D) Terms of Service

The General Terms & Conditions applicable to this rate schedule shall be in accordance with the attached Schedule "A" for contracts in effect before October 1, 2010. The General Terms & Conditions applicable to this rate schedule shall be in accordance with the attached Schedule "A 2010" for contracts in effect on or after October 1, 2010.

(E) Nominations

Nominations under this rate schedule shall be in accordance with the attached Schedule "B" for contracts in effect before October 1, 2010. Nominations under this rate schedule shall be in accordance with the attached Schedule "B 2010" for contracts in effect on or after October 1, 2010.

(F) Receipt and Delivery Points and Pressures

Receipt and Delivery Points and Pressures under this rate schedule shall be in accordance with Schedule "C 2010" for contracts in effect on or after October 1, 2010.

SCHEDULE "A"

RATE C1
GENERAL TERMS & CONDITIONS

I. DEFINITIONS

Except where the context expressly requires or states another meaning, the following terms, when used in these General Terms & Conditions and in any contract into which these General Terms & Conditions are incorporated, shall be construed to have the following meanings:

1. "Contract" shall refer to the Contract to which these General Terms & Conditions shall apply, and into which they are incorporated;

2. "cubic metre" shall mean the volume of gas which occupies one cubic metre when such gas is at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

3. "day" shall mean a period of twenty-four (24) consecutive hours beginning at 9:00 a.m. Central Standard time. The reference date for any day shall be the calendar date upon which the twenty-four (24) hour period shall commence;

4. "delivery" shall mean any gas that is delivered by Union into Shipper's possession, or to the possession of Shipper's agent;

5. "firm" shall mean service not subject to curtailment or interruption except under Articles XI and XII of this Schedule "A";

6. "gas" shall mean gas as defined in the Ontario Energy Board Act, 1998, S.O. 1998, c.15, Sch. B, as amended, supplemented or re-enacted from time to time;

7. "gross heating value" shall mean the total heat expressed in megajoules per cubic metre (MJ/m^3) produced by the complete combustion at constant pressure of one (1) cubic metre of gas with air, with the gas free of water vapour and the temperature of the gas, air and products of combustion at standard temperature and all water formed by the combustion reaction condensed to the liquid state;

8. "interruptible service" shall mean service subject to curtailment or interruption, after notice, at any time;

9. “Interconnecting Pipeline” shall mean a pipeline that directly connects to the Union pipeline system;

10. "joule" (J) shall mean the work done when the point of application of a force of one (1) newton is displaced a distance of one (1) metre in the direction of the force. The term "megajoule" (MJ) shall mean 1,000,000 joules. The term “gigajoule” (GJ) shall mean 1,000,000,000 joules;

11. "limited interruptible service" shall mean gas service subject to interruption or curtailment on a limited number of days as specified in the Contract;

12. "m^3" shall mean cubic metre of gas and "10^3m^3" shall mean 1,000 cubic metres of gas;

13. "month" shall mean the period beginning at 9:00 a.m. Central Standard time on the first day of a calendar month and ending at 9:00 a.m. Central Standard time on the first day of the following calendar month;

14. "OEB" means the Ontario Energy Board;

15. "pascal" (Pa) shall mean the pressure produced when a force of one (1) newton is applied to an area of one (1) square metre. The term "kilopascal" (kPa) shall mean 1,000 pascals;

16. "receipt" shall mean any gas that is delivered into Union's possession, or the possession of Union’s agent;

17. "Shipper" shall have the meaning as defined in the Contract and shall also include Shipper's agent(s);

18. "TCPL" means TransCanada PipeLines Limited;

19. "cricondentherm hydrocarbon dewpoint" shall mean the highest hydrocarbon dewpoint temperature on the phase envelope;

20. "hydrocarbon dewpoint" shall mean temperature at a specific pressure where hydrocarbon vapour condensation begins;

21. "specific gravity" shall mean density of the gas divided by density of air, with both at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

22. "Wobbe Number" shall mean gross heating value of the gas divided by the square root of its specific gravity.

II. GAS QUALITY

1. Natural Gas: The minimum gross heating value of the gas delivered to/by Union hereunder, shall be thirty-six (36) megajoules per cubic metre. The maximum gross heating value of the gas delivered to/by Union hereunder shall be forty point two (40.2) megajoules per cubic metre. The gas to be delivered hereunder to Union may be a commingled supply from Shipper's gas sources of supply. The gas to be delivered by Union may be a commingled supply from Union's sources of gas supply; provided, however, that helium, natural gasoline, butane, propane and other hydrocarbons, except methane, may be removed prior to delivery to Shipper. Further, Union may subject, or permit the subjection of, the gas to compression, dehydration, cooling, cleaning and other processes.

2. Freedom from objectionable matter: The gas to be delivered to/by Union hereunder,

   a. shall be commercially free from bacteria, sand, dust, gums, crude oils, lubricating oils, liquids, chemicals or compounds used in the production, treatment, compression or dehydration of the gas or any other objectionable substance in sufficient quantity so as to render the gas toxic, unmerchantable or cause injury to, or interference with, the proper operation of the lines, regulators, meters or other appliances through which it flows,

   b. shall not contain more than seven (7) milligrams of hydrogen sulphide per cubic metre of gas, nor more than four hundred and sixty (460) milligrams of total sulphur per cubic metre of gas,

   c. shall not contain more than five (5) milligrams of mercaptan sulphur per cubic metre of gas,

   d. shall not contain more than two point zero (2.0) molar percent by volume of carbon dioxide in the gas,

   e. shall not contain more than zero point four (0.4) molar percent by volume of oxygen in the gas,

   f. shall not contain more than zero point five (0.5) molar percent by volume of carbon monoxide in the gas,

   g. shall not contain more than four point zero (4.0) molar percent by volume of hydrogen in the gas,

   h. shall not contain more than sixty-five (65) milligrams of water vapour per cubic metre of gas,

   i. shall not have a cricondentherm hydrocarbon dewpoint exceeding minus eight (-8) degrees Celsius,

   j. shall have Wobbe Number from forty seven point fifty (47.50) megajoules per cubic metre of gas to fifty one point forty six (51.46) megajoules per cubic metre of gas, maximum of one point five (1.5) mole percent by volume of butane plus (C4+) in the gas, and maximum of four point zero (4.0) mole percent by volume of total inerts in the gas in order to be interchangeable with other Interconnecting Pipeline gas.

3. Non-conforming Gas: In addition to any other right or remedy of a party, each party shall be entitled to refuse to accept delivery of any gas which does not conform to any of the specifications set out in this Article II.

4. Quality of Gas Received: The quality of the gas to be received by Union hereunder is to be of a merchantable quality and in accordance with the quality standards as set out by Union in this Article II, but, Union will also accept gas of a quality as set out in any other Interconnecting Pipeline's general terms and conditions, provided that all Interconnecting Pipelines accept such quality of gas. In addition to any other right or remedy of a party, each party shall be entitled to refuse to accept delivery of any gas which does not conform to any of the specifications set out in Union's C1 Rate Schedule.

III. MEASUREMENTS

1. Storage, Transportation, and/or Sales Unit: The unit of the gas delivered to Union shall be a megajoule or a gigajoule. The unit of gas transported or stored by Union shall be a megajoule or a gigajoule. The unit of gas delivered by Union shall be a megajoule, a gigajoule, a cubic metre (m^3) or one thousand cubic metres (10^3m^3) at Union's discretion.

2. Determination of Volume and Energy:

   a. The volume and energy amounts determined under the Contract shall be determined in accordance with the Electricity and Gas Inspection Act (Canada), RSC 1985, c E-4- (the "**Act**") and the Electricity and Gas Inspection Regulations, SOR 86/131 (the "**Regulations**"), and any documents issued under the authority of the Act and Regulations and any amendments thereto.

   b. The supercompressibility factor shall be determined in accordance with either the "Manual for Determination of Supercompressibility Factors for Natural Gas" (PAR Project NX-19) published in 1962 or with American Gas Association Transmission Measurement Committee Report No. 8, Nov. 1992, at Union's discretion, all as amended from time to time.

   c. The volume and/or energy of the gas delivered to/by Union hereunder shall be determined by the measurement equipment designated in Article VII herein.

   d. Upon request by Union, Shipper shall obtain measurement of the total quantity of gas received by Union hereunder from the Interconnecting Pipeline. Such measurement shall be done in accordance with established practices between Union and the Interconnecting Pipeline.

IV. RECEIPT POINT AND DELIVERY POINT

1. Unless otherwise specified in the Contract, the point or points of receipt for all gas to be covered hereunder shall be on the outlet side of the measuring stations located at or near the point or points of connection specified in the Contract, where Union takes possession of the gas.

2. Unless otherwise specified in the Contract, the point or points of delivery for all gas to be covered hereunder shall be on the outlet side of the measuring stations located at or near the point or points of connection as specified in the Contract where Shipper takes possession of the gas.

V. POSSESSION OF AND RESPONSIBILITY FOR GAS

Intentionally blank

VI. FACILITIES ON SHIPPER'S PROPERTY

SCHEDULE "A"

Except under those conditions where Union is delivering to TCPL for TCPL or Shipper at Union's Parkway Point of Delivery, or to an Interconnecting Pipeline, or where otherwise specified in the Contract, the following will apply:

1. Construction and Maintenance: Union, at its own expense may construct, maintain and operate on Shipper's property at the delivery point a measuring station properly equipped with a meter or meters and any other necessary measuring equipment for properly measuring the gas redelivered under the Contract. Shipper will grant to Union a lease and/or rights-of-way over property of Shipper as required by Union to install such facilities and to connect same to Union's pipeline.

2. Entry: Union, its servants, agents and each of them may at any reasonable time on notice (except in cases of emergency) to Shipper or his duly authorized representative enter Shipper's property for the purpose of constructing, maintaining, removing, operating and/or repairing station equipment.

3. Property: The said station and equipment will be and remain the property of Union notwithstanding it is constructed on and attached to the realty of Shipper, and Union may at its own expense remove it upon termination of the Contract and will do so if so requested by Shipper.

VII. MEASURING EQUIPMENT

1. Metering by Union: Union will install and operate meters and related equipment as required and in accordance with the Act and Regulations referenced in Article III herein.

2. Metering by Others: In the event that all or any gas delivered to/by Union hereunder is measured by a meter that is owned and operated by an Interconnecting Pipeline, then Union and Shipper agree to accept that metering for the purpose of determining the volume and energy of gas delivered to/by Union on behalf of the Shipper. The standard of measurement and tests for the gas delivered to/by Union hereunder shall be in accordance with the general terms and conditions as incorporated in that Interconnecting Pipeline company's gas tariff as approved by their regulatory body.

3. Check Measuring Equipment: Shipper may install, maintain and operate, at the redelivery point, at its own expense, such check measuring equipment as desired, provided that such equipment shall be so installed as not to interfere with the operation of Union's measuring equipment at or near the delivery point, and shall be installed, maintained and operated in conformity with the same standards and specifications applicable to Union's metering facilities.

4. Rights of Parties: The measuring equipment installed by either party, together with any building erected by it for such equipment, shall be and remain its property. However, Union and Shipper shall have the right to have representatives present at the time of any installing, reading, cleaning, changing, repairing, inspecting, testing, calibrating, or adjusting done in connection with the other's measuring equipment used in measuring or checking the measurement of deliveries of gas to/by Union under the Contract. Either party will give the other party reasonable notice of its intention to carry out the acts herein specified. The records from such measuring equipment shall remain the property of their owner, but upon request each will submit to the other its records and charts, together with calculations therefrom, for inspection and verification, subject to return within ten (10) days after receipt thereof.

5. Calibration and Test of Measuring Equipment: The accuracy of Union's measuring equipment shall be verified by Union at reasonable intervals, and if requested, in the presence of representatives of Shipper, but Union shall not be required to verify the accuracy of such equipment more frequently than once in any thirty (30) day period. In the event either party notifies the other that it desires a special test of any measuring equipment, the parties shall co-operate to secure a prompt verification of the accuracy of such equipment. The expense of any such special test, if called for by Shipper, shall be borne by Shipper if the measuring equipment tested is found to be in error by not more than two per cent (2%). If, upon test, any measuring equipment is found to be in error by not more than two per cent (2%), previous recordings of such equipment shall be considered accurate in computing receipts and deliveries of gas, but such equipment shall be adjusted at once to record as near to absolute accuracy as possible. If the test conducted shows a percentage of inaccuracy greater than two percent (2%), the financial adjustment, if any, shall be calculated in accordance with the Act and Regulations, as may be amended from time to time and in accordance with any successor statutes and regulations.

6. Preservation of Metering Records: Union and Shipper shall each preserve for a period of at least six (6) years all test data, and other relevant records.

7. Error in Metering or Meter Failure: In the event of an error in metering or a meter failure, (such error or failure being determined through check measurement by Union or any other available method), then Shipper shall enforce its rights as Shipper with the Interconnecting Pipeline(s) to remedy such error or failure including enforcing any inspection and/or verification rights and procedures.

VIII. BILLING

1. Monthly Billing Date: Union shall render bills on or before the 10th day of each month for all services furnished during the preceding month. Such charges may be based on estimated quantities, if actual quantities are unavailable in time to prepare the billing. Union shall provide, in a succeeding month's billing, an adjustment based on any difference between actual quantities and estimated quantities, without any interest charge. If presentation of a bill to Shipper is delayed after the 10th day of the month, then the time of payment shall be extended accordingly, unless Shipper is responsible for such delay.

2. Right of Examination: Both Union and Shipper shall have the right to examine at any reasonable time the books, records and charts of the other to the extent necessary to verify the accuracy of any statement, chart or computation made under or pursuant to the provisions of the Contract.

IX. PAYMENTS

1. Monthly Payments: Shipper shall pay the invoiced amount directly into Union's bank account as directed on the invoice on or before the twentieth (20th) day of each month. If the payment date is not a business day, then payment must be received in Union's account on the first business day preceding the twentieth (20th) day of the month.

2. Remedies for Non-payment: Should Shipper fail to pay all of the amount of any bill as herein provided when such amount is due,

   a. Shipper shall pay to Union interest on the unpaid portion of the bill accruing at a rate per annum equal to the minimum commercial lending rate of Union's principal banker in effect from time to time from the due date until the date of payment.

   b. If such failure to pay continues for thirty (30) days after payment is due, Union, in addition to any other remedy it may have under the Contract, may suspend service(s) until such amount is paid. Notwithstanding such suspension, all demand charges shall continue to accrue hereunder as if such suspension were not in place.

   If Shipper in good faith disputes the amount of any such bill or part thereof Shipper shall pay to Union such amounts as it concedes to be correct. At any time thereafter, within twenty (20) days of a demand made by Union, Shipper shall furnish financial assurances satisfactory to Union, guaranteeing payment to Union of the amount ultimately found due upon such bill after a final determination. Such a final determination may be reached either by agreement, arbitration decision or judgement of the courts, as may be the case. Union shall not be entitled to suspend service(s) because of such non-payment unless and until default occurs in the conditions of such financial assurances or default occurs in payment of any other amount due to Union hereunder.

   Notwithstanding the foregoing paragraph(s), Shipper is not relieved from the obligation to continue its deliveries of gas to Union under the terms of any agreement, where Shipper has contracted to deliver specified quantities of gas to Union.

3. Billing Adjustments: If it shall be found that at any time or times Shipper has been overcharged or undercharged in any form whatsoever under the provisions of the Contract and Shipper shall have actually paid the bills containing such

overcharge or undercharge, Union shall refund the amount of any such overcharge and interest shall accrue from and including the first day of such overcharge as paid to the date of refund and shall be calculated but not compounded at a rate per annum determined each day during the calculation period to be equal to the minimum commercial lending rate of Union's principal banker, and the Shipper shall pay the amount of any such undercharge, but without interest. In the event Union renders a bill to Shipper based upon measurement estimates, the required adjustment to reflect actual measurement shall be made on the bill next following the determination of such actual measurement, without any charge of interest. In the event an error is discovered in the amount billed in any statement rendered by Union, such error shall be adjusted by Union. Such overcharge, undercharge or error shall be adjusted by Union on the bill next following its determination (where the term "bill" next following shall mean a bill rendered at least fourteen (14) days after the day of its determination), provided that claim therefore shall have been made within six (6) years from the date of the incorrect billing. In the event any refund is issued with Shipper's gas bill, the aforesaid date of refund shall be deemed to be the date of the issue of bill.

X. ARBITRATION

If and when any dispute, difference or question shall arise between the parties hereto touching the Contract or anything herein contained, or the construction hereof, or the rights, duties or liabilities of the parties in relation to any matter hereunder, the matter in dispute shall be submitted and referred to arbitration within ten (10) days after written request of either party. Upon such request each party shall appoint an arbitrator, and the two so appointed shall appoint a third. A majority decision of the arbitrators shall be final and binding upon both parties. In all other respects the provisions of the Arbitration Act of the Province of Ontario, or any act passed in amendment thereof or substitution therefore, shall apply to each such submission. Operations under the Contract shall continue, without prejudice, during any such arbitration and the costs attributable to such arbitration shall be shared equally by the parties hereto.

XI. FORCE MAJEURE

1. The term "**force majeure**" as used herein shall mean acts of God, strikes, lockouts or any other industrial disturbance, acts of the public enemy, sabotage, wars, blockades, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, storms, floods, washouts, arrests and restraints of governments and people, civil disturbances, explosions, breakage or accident to machinery or lines of pipe, freezing of wells or lines of pipe, inability to obtain materials, supplies, permits or labour, any laws, orders, rules, regulations, acts or restraints of any governmental body or authority (civil or military), any act or omission that is excused by any event or occurrence of the character herein defined as constituting force majeure, any act or omission by parties not controlled by the party having the difficulty and any other similar cases not within the control of the party claiming suspension and which by the exercise of due diligence such party is unable to prevent or overcome.

2. In the event that either the Shipper or Union is rendered unable, in whole or in part, by force majeure, to perform or comply with any obligation or condition of the Contract, such party shall give notice and full particulars of such force majeure in writing delivered by hand, fax or other direct written electronic means to the other party as soon as possible after the occurrence of the cause relied on and subject to the provision of this Article.

3. Neither party shall be entitled to the benefit of the provisions of force majeure hereunder if any or all of the following circumstances prevail: the failure resulting in a condition of force majeure was caused by the negligence of the party claiming suspension; the failure was caused by the party claiming suspension where such party failed to remedy the condition by making all reasonable efforts (short of litigation, if such remedy would require litigation); the party claiming suspension failed to resume the performance of such condition obligations with reasonable dispatch; the failure was caused by lack of funds; the party claiming suspension did not, as soon as possible after determining, or within a period within which it should acting reasonably have determined, that the occurrence was in the nature of force majeure and would affect its ability to observe or perform any of its conditions or obligations under the Contract, give to the other party the notice required hereunder.

4. The party claiming suspension shall likewise give notice as soon as possible after the force majeure condition is remedied, to the extent that the same has been remedied, and that such party has resumed or is then in a position to resume the performance of the obligations and conditions of the Contract.

5. An event of force majeure on Union's system will excuse the failure to deliver gas by Union or the failure to accept gas by Union hereunder, and both parties shall be excused from performance of their obligations hereunder, except for payment obligations, to the extent of and for the duration of the force majeure.

6. Upstream or Downstream Force Majeure: An event of force majeure upstream or downstream of Union's system shall not relieve Shipper of any payment obligations.

7. Delay of Firm Transportation Services: Despite Article XI herein, if Union is prevented, by reason of an event of force majeure on Union's system from delivering gas on the Day or Days upon which Union has accepted gas from Shipper, Union shall thereafter make all reasonable efforts to deliver such quantities as soon as practicable and on such Day or Days as are agreed to by Shipper and Union. If Union accepts such gas on this basis, Shipper shall not receive any demand charge relief as contemplated under Article XI herein.

8. Demand Charge Relief for Firm Transportation Services: Despite Article XI herein, if on any Day Union fails to accept gas from Shipper by reason of an event of force majeure on Union's system and fails to deliver the quantity of gas nominated hereunder by Shipper up to the firm Contract Demand for that Contract, then for that Day the Monthly demand charge shall be reduced by an amount equal to the applicable Daily Demand Rate, as defined in this paragraph, multiplied by the difference between the quantity of gas actually delivered by Union during such Day and the quantity of gas which Shipper in good faith nominated on such Day. The term "**Daily Demand Rate**" shall mean the Monthly demand charge or equivalent pursuant to the C1 Rate Schedule divided by the number of days in the month for which such rate is being calculated.

9. If, due to the occurrence of an event of force majeure as outlined above, the capacity for gas deliveries by Union is impaired, it will be necessary for Union to curtail Shipper's gas receipts to Union hereunder, via proration based on utilization of such facilities for the Day. This prorating shall be determined by multiplying the capability of such facilities as available downstream of the impairment on the Day, by a fraction where the numerator is Shipper's nominated firm quantity and the denominator is the total of all such nominated firm quantities for nominated services and planned consumption for in-franchise customers on the Day. For the purposes of this Article XI, firm services shall mean all firm services provided by Union to in-franchise customers and ex-franchise shippers.

XII. DEFAULT AND TERMINATION

In case of the breach or non-observance or non-performance on the part of either party hereto of any covenant, proviso, condition, restriction or stipulation contained in the Contract (but not including herein failure to take or make delivery in whole or in part of the gas delivered to/by Union hereunder occasioned by any of the reasons provided for in Article XI hereof) which has not been waived by the other party, then and in every such case and as often as the same may happen, the Non-defaulting party may give written notice to the Defaulting party requiring it to remedy such default and in the event of the Defaulting party failing to remedy the same within a period of thirty (30) days from receipt of such notice, the Non-defaulting party may at its sole option declare the Contract to be terminated and thereupon the Contract shall be terminated and be null and void for all purposes other than and except as to any liability of the parties under the same incurred before and subsisting as of termination. The right hereby conferred upon each party shall be in addition to, and not in derogation of or in substitution for, any other right or remedy which the parties respectively at law or in equity shall or may possess.

XIII. MODIFICATION

Subject to Union's C1 Rate Schedule, Schedule A, Article XV and the ability of Union to amend the C1 Rate Schedule with the approval of the OEB, no amendment or modification of the Contract shall be effective unless the same shall be in writing and signed by each of the Shipper and Union.

XIV. NON-WAIVER AND FUTURE DEFAULT

Intentionally blank

XV. LAWS, REGULATIONS AND ORDERS

The Contract and the respective rights and obligations of the parties hereto are subject to all present and future valid laws, orders, rules and regulations of any competent legislative body, or duly constituted authority now or hereafter having jurisdiction and the Contract shall be varied and amended to comply with or conform to any valid order or direction of any board, tribunal or administrative agency which affects any of the provisions of the Contract.

SCHEDULE "A 2010"

RATE C1
GENERAL TERMS & CONDITIONS

I. DEFINITIONS

Except where the context expressly requires or states another meaning, the following terms, when used in these General Terms & Conditions and in any contract into which these General Terms & Conditions are incorporated, shall be construed to have the following meanings:

"**Authorized Overrun**" shall mean the amount by which Shipper's Authorized Quantity exceeds the Contract Demand;

"**Available Capacity**" shall mean at any time, Union's remaining available capacity to provide Transportation Services;

"**Business Day**" shall mean any day, other than Saturday, Sunday or any days on which national banks in the Province of Ontario are authorized to close;

"**Contract**" shall refer to the Contract to which these General Terms & Conditions shall apply, and into which they are incorporated;

"**Contract Year**" shall mean a period of three hundred and sixty-five (365) consecutive days; provided however, that any such period which contains a date of February 29 shall consist of three hundred and sixty-six (366) consecutive days, commencing on November 1 of each year; except for the first Contract Year which shall commence on the Commencement Date and end on the first October 31 that follows such date;

"**cricondentherm hydrocarbon dewpoint**" shall mean the highest hydrocarbon dewpoint temperature on the phase envelope;

"**cubic metre**" shall mean the volume of gas which occupies one cubic metre when such gas is at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

"**Day**" shall mean a period of twenty-four (24) consecutive hours beginning at 10:00 a.m. Eastern Clock Time. The reference date for any Day shall be the calendar date upon which the twenty-four (24) hour period shall commence;

"**delivery**" shall mean any gas that is delivered by Union into Shipper's possession, or to the possession of Shipper's agent;

"Eastern Clock Time" shall mean the local clock time in the Eastern Time Zone on any Day;

"**Expansion Facilities**" shall mean any new facilities to be constructed by Union in order to provide Transportation Services;

"**firm**" shall mean service not subject to curtailment or interruption except under Articles XI, XII and XVIII herein;

"**gas**" shall mean gas as defined in the Ontario Energy Board Act, 1998, S.O. 1998, c.15, Sch. B, as amended, supplemented or re-enacted from time to time;

"**gross heating value**" shall mean the total heat expressed in megajoules per cubic metre (MJ/m^3) produced by the complete combustion at constant pressure of one (1) cubic metre of gas with air, with the gas free of water vapour and the temperature of the gas, air and products of combustion at standard temperature and all water formed by the combustion reaction condensed to the liquid state;

"**hydrocarbon dewpoint**" shall mean temperature at a specific pressure where hydrocarbon vapour condensation begins;

"**Interruptible Service HUB Contract**" shall mean a contract between Shipper and Union under which Union provides interruptible HUB service;

"**interruptible service**" or "**Interruptible**" shall mean service subject to curtailment or interruption, after notice, at any time;

"**Interconnecting Pipeline**" shall mean a pipeline that directly connects to the Union pipeline system;

"**joule**" (J) shall mean the work done when the point of application of a force of one (1) newton is displaced a distance of one (1) metre in the direction of the force. The term "**megajoule**" (MJ) shall mean 1,000,000 joules. The term "**gigajoule**" (GJ) shall mean 1,000,000,000 joules;

"**Limited Firm**" shall mean gas service subject to interruption or curtailment on a limited number of Days as specified in the Contract;

"Loaned Quantities" shall mean those quantities of gas loaned to Shipper under the Facilitating Agreement;

"**m^3**" shall mean cubic metre of gas and "10^3m^3" shall mean 1,000 cubic metres of gas;

"**Month**" shall mean the period beginning at 10:00 a.m. Eastern Clock Time on the first day of a calendar month and ending at 10:00 a.m. Eastern Clock Time on the first day of the following calendar month;

"**NAESB**" shall mean North American Energy Standards Board;

"**OEB**" means the Ontario Energy Board;

"**Open Season**" or "**open season**" shall mean an open access auction or bidding process held by Union as a method of allocating capacity;

"**pascal**" "**(Pa)**" shall mean the pressure produced when a force of one (1) newton is applied to an area of one (1) square metre. The term "kilopascal" **"(kPa)"** shall mean 1,000 pascals;

"**receipt**" shall mean any gas that is delivered into Union's possession, or the possession of Union's agent;

"**Shipper**" shall have the meaning as defined in the Contract, and shall also include Shipper's agent(s);

"**specific gravity**" shall mean density of the gas divided by density of air, with both at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

"**Taxes**" shall mean any tax (other than tax on income or tax on property), duty, royalty, levy, license, fee or charge not included in the charges and rates as per the applicable rate schedule (including but not limited to charges under any form of cap and trade, carbon tax, or similar system) and that is levied, assessed or made by any governmental authority on the gas itself, or the act, right, or privilege of producing, severing, gathering, storing, transporting, handling, selling or delivering gas under the Contract;

"**TCPL**" means TransCanada PipeLines Limited;

"**Wobbe Number**" shall mean gross heating value of the gas divided by the square root of its specific gravity.

II. GAS QUALITY

1. Natural Gas: The minimum gross heating value of the gas delivered to/by Union hereunder, shall be thirty-six (36) megajoules per cubic metre. The maximum gross heating value of the gas delivered to/by Union hereunder shall be forty point two (40.2) megajoules per cubic metre. The gas to be delivered hereunder to Union may be a commingled supply from Shipper's gas sources of supply. The gas to be delivered by Union may be a commingled supply from Union's sources of gas supply; provided, however, that helium, natural gasoline, butane, propane and other hydrocarbons, except methane, may be removed prior to delivery to Shipper. Further, Union may subject, or permit the subjection of, the gas to compression, dehydration, cooling, cleaning and other processes.

2. Freedom from objectionable matter: The gas to be delivered to/by Union hereunder,

   a. shall be commercially free from bacteria, sand, dust, gums, crude oils, lubricating oils, liquids, chemicals or compounds used in the production, treatment, compression or dehydration of the gas or any other objectionable substance in sufficient quantity so as to render the gas toxic, unmerchantable or cause injury to, or interference with, the proper operation of the lines, regulators, meters or other appliances through which it flows,

   b. shall not contain more than seven (7) milligrams of hydrogen sulphide per cubic metre of gas, nor more than four hundred and sixty (460) milligrams of total sulphur per cubic metre of gas,

   c. shall not contain more than five (5) milligrams of mercaptan sulphur per cubic metre of gas,

   d. shall not contain more than two point zero (2.0) molar percent by volume of carbon dioxide in the gas,

   e. shall not contain more than zero point four (0.4) molar percent by volume of oxygen in the gas,

   f. shall not contain more than zero point five (0.5) molar percent by volume of carbon monoxide in the gas,

   g. shall not contain more than four point zero (4.0) molar percent by volume of hydrogen in the gas,

   h. shall not contain more than sixty-five (65) milligrams of water vapour per cubic metre of gas,

   i. shall not have a cricondentherm hydrocarbon dewpoint exceeding minus eight (-8) degrees Celsius,

   j. shall have Wobbe Number from forty seven point fifty (47.50) megajoules per cubic metre of gas to fifty one point forty six (51.46) megajoules per cubic metre of gas, maximum of one point five (1.5) mole percent by volume of butane plus (C4+) in the gas, and maximum of four point zero (4.0) mole percent by volume of total inerts in the gas in order to be interchangeable with other Interconnecting Pipeline gas.

3. Non-conforming Gas: In addition to any other right or remedy of a party, each party shall be entitled to refuse to accept delivery of any gas which does not conform to any of the specifications set out in this Article II.

4. Quality of Gas Received: The quality of the gas to be received by Union hereunder is to be of a merchantable quality and in accordance with the quality standards as set out by Union in this Article II, but, Union will also accept gas of a quality as set out in any other Interconnecting Pipeline's general terms and conditions, provided that all Interconnecting Pipelines accept such quality of gas. In addition to any other right or remedy of a party, each party shall be entitled to refuse to accept delivery of any gas which does not conform to any of the specifications set out in Union's C1 Rate Schedule.

III. MEASUREMENTS

1. Storage, Transportation, and/or Sales Unit: The unit of the gas delivered to Union shall be a megajoule or a gigajoule. The unit of gas transported or stored by Union shall be a megajoule or a gigajoule. The unit of gas delivered by Union shall be a megajoule, a gigajoule, a cubic metre (m^3) or one thousand cubic metres (10^3m^3) at Union's discretion.

2. Determination of Volume and Energy:

   a. The volume and energy amounts determined under the Contract shall be determined in accordance with the Electricity and Gas Inspection Act (Canada), RSC 1985, c E-4- (the "**Act**") and the Electricity and Gas Inspection Regulations, SOR 86/131 (the "**Regulations**"), and any documents issued under the authority of the Act and Regulations and any amendments thereto.

   b. The supercompressibility factor shall be determined in accordance with either the "Manual for Determination of Supercompressibility Factors for Natural Gas" (PAR Project NX-19) published in 1962 or with American Gas

Association Transmission Measurement Committee Report No. 8, Nov. 1992, at Union's discretion, all as amended from time to time.

c. The volume and/or energy of the gas delivered to/by Union hereunder shall be determined by the measurement equipment designated in Article VII herein.

d. Upon request by Union, Shipper shall obtain measurement of the total quantity of gas received by Union hereunder from the Interconnecting Pipeline. Such measurement shall be done in accordance with established practices between Union and the Interconnecting Pipeline.

IV. RECEIPT POINT AND DELIVERY POINT

1. Unless otherwise specified in the Contract, the point or points of receipt and point or points of delivery for all gas to be covered hereunder shall be on the outlet side of the measuring stations located at or near the point or points of connection specified in the Contract, where possession of the gas changes from one party to the other, and as per Schedule "C 2010".

V. POSSESSION OF AND RESPONSIBILITY FOR GAS

1. Possession of Gas: Union accepts no responsibility for any gas prior to such gas being delivered to Union at the Receipt Point or after its delivery by Union at the Delivery Point. As between the parties hereto, Union shall be deemed to be in control and possession of and responsible for all such gas from the time that such gas enters Union's system until such gas is delivered to Shipper.

2. Liability: Shipper agrees that Union is not a common carrier and is not an insurer of Shipper's gas, and that Union shall not be liable to Shipper or any third party for loss of gas in Union's possession, except to the extent such loss is caused entirely by Union's negligence or wilful misconduct.

VI. FACILITIES ON SHIPPER'S PROPERTY

Except under those conditions where Union is delivering to TCPL for TCPL or Shipper at Parkway (TCPL), or to an Interconnecting Pipeline, or where otherwise specified in the Contract, the following will apply:

1. Construction and Maintenance: Union, at its own expense may construct, maintain and operate on Shipper's property at the delivery point a measuring station properly equipped with a meter or meters and any other necessary measuring equipment for properly measuring the gas redelivered under the Contract. Shipper will grant to Union a lease and/or rights-of-way over property of Shipper as required by Union to install such facilities and to connect same to Union's pipeline.

2. Entry: Union, its servants, agents and each of them may at any reasonable time on notice (except in cases of emergency) to Shipper or his duly authorized representative enter Shipper's property for the purpose of constructing, maintaining, removing, operating and/or repairing station equipment.

3. Property: The said station and equipment will be and remain the property of Union notwithstanding it is constructed on and attached to the realty of Shipper, and Union may at its own expense remove it upon termination of the Contract and will do so if so requested by Shipper.

VII. MEASURING EQUIPMENT

1. Metering by Union: Union will install and operate meters and related equipment as required and in accordance with the Act and Regulations referenced in Article III herein.

2. Metering by Others: In the event that all or any gas delivered to/by Union hereunder is measured by a meter that is owned and operated by an Interconnecting Pipeline, then Union and Shipper agree to accept that metering for the purpose of determining the volume and energy of gas delivered to/by Union on behalf of the Shipper. The standard of measurement and tests for the gas delivered to/by Union hereunder shall be in accordance with the general terms and conditions as incorporated in that Interconnecting Pipeline company's gas tariff as approved by its regulatory body.

3. Check Measuring Equipment: Shipper may install, maintain and operate, at the redelivery point, at its own expense, such check measuring equipment as desired, provided that such equipment shall be so installed as not to interfere with the operation of Union's measuring equipment at or near the delivery point, and shall be installed, maintained and operated in conformity with the same standards and specifications applicable to Union's metering facilities.

4. Rights of Parties: The measuring equipment installed by either party, together with any building erected by it for such equipment, shall be and remain its property. However, Union and Shipper shall have the right to have representatives present at the time of any installing, reading, cleaning, changing, repairing, inspecting, testing, calibrating, or adjusting done in connection with the other's measuring equipment used in measuring or checking the measurement of deliveries of gas to/by Union under the Contract. Either party will give the other party reasonable notice of its intention to carry out the acts herein specified. The records from such measuring equipment shall remain the property of their owner, but upon request each will submit to the other its records and charts, together with calculations therefrom, for inspection and verification, subject to return within ten (10) days after receipt thereof.

5. Calibration and Test of Measuring Equipment: The accuracy of Union's measuring equipment shall be verified by Union at reasonable intervals, and if requested, in the presence of representatives of Shipper, but Union shall not be required to verify the accuracy of such equipment more frequently than once in any thirty (30) day period. In the event either party notifies the other that it desires a special test of any measuring equipment, the parties shall co-operate to secure a prompt verification of the accuracy of such equipment. The expense of any such special test, if called for by Shipper, shall be borne by Shipper if the measuring equipment tested is found to be in error by not more than two per cent (2%). If, upon test, any measuring equipment is found to be in error by not more than two per cent (2%), previous recordings of such equipment shall be considered accurate in computing receipts and deliveries of gas, but such equipment shall be adjusted at once to record as near to absolute accuracy as possible. If the test conducted shows a percentage of inaccuracy greater than two percent (2%), the financial adjustment, if any, shall be calculated in accordance with the Act and Regulations, as may be amended from time to time and in accordance with any successor statutes and regulations.

6. Preservation of Metering Records: Union and Shipper shall each preserve for a period of at least six (6) years all test data, and other relevant records.

7. Error in Metering or Meter Failure: In the event of an error in metering or a meter failure, (such error or failure being determined through check measurement by Union or any other available method), then Shipper shall enforce its rights as Shipper with the Interconnecting Pipeline(s) to remedy such error or failure including enforcing any inspection and/or verification rights and procedures.

VIII. BILLING

1. Monthly Billing Date: Union shall render bills on or before the tenth (10^{th}) day of each month for all Transportation Services furnished during the preceding Month. Such charges may be based on estimated quantities, if actual quantities are unavailable in time to prepare the billing. Union shall provide, in a succeeding Month's billing, an adjustment based on any difference between actual quantities and estimated quantities, without any interest charge. If presentation of a bill to Shipper is delayed after the tenth (10^{th}) day of the month, then the time of payment shall be extended accordingly, unless Shipper is responsible for such delay.

2. Right of Examination: Both Union and Shipper shall have the right to examine at any reasonable time the books, records and charts of the other to the extent necessary to verify the accuracy of any statement, chart or computation made under or pursuant to the provisions of the Contract.

3. Amendment of Statements: For the purpose of completing a final determination of the actual quantities of gas handled in any of the Transportation Services to Shipper, the parties shall have the right to amend their statement for a period equal to

the time during which the Interconnecting Pipeline retains the right to amend their statements, which period shall not exceed three (3) years from the date of termination of the Contract.

IX. PAYMENTS

1. Monthly Payments: Shipper shall pay the invoiced amount directly into Union's bank account as directed on the invoice on or before the twentieth (20^{th}) day of each month. If the payment date is not a Business Day, then payment must be received in Union's account on the first Business Day preceding the twentieth (20th) day of the month.

2. Remedies for Non-payment: Should Shipper fail to pay all of the amount of any bill as herein provided when such amount is due,

   a. Shipper shall pay to Union interest on the unpaid portion of the bill accruing at a rate per annum equal to the minimum commercial lending rate of Union's principal banker in effect from time to time from the due date until the date of payment; and,

   b. If such failure to pay continues for thirty (30) days after payment is due, Union, in addition to any other remedy it may have under the Contract, may suspend Services until such amount is paid. Notwithstanding such suspension, all demand charges shall continue to accrue hereunder as if such suspension were not in place.

   If Shipper in good faith disputes the amount of any such bill or part thereof Shipper shall pay to Union such amounts as it concedes to be correct. At any time thereafter, within twenty (20) days of a demand made by Union, Shipper shall furnish financial assurances satisfactory to Union, guaranteeing payment to Union of the amount ultimately found due upon such bill after a final determination. Such a final determination may be reached either by agreement, arbitration decision or judgement of the courts, as may be the case. Union shall not be entitled to suspend Services because of such non-payment unless and until default occurs in the conditions of such financial assurances or default occurs in payment of any other amount due to Union hereunder.

   Notwithstanding the foregoing, Shipper is not relieved from the obligation to continue its deliveries of gas to Union under the terms of any agreement, where Shipper has contracted to deliver specified quantities of gas to Union.

3. Billing Adjustments: If it shall be found that at any time or times Shipper has been overcharged or undercharged in any form whatsoever under the provisions of the Contract and Shipper shall have actually paid the bills containing such overcharge or undercharge, Union shall refund the amount of any such overcharge and interest shall accrue from and including the first day of such overcharge as paid to the date of refund and shall be calculated but not compounded at a rate per annum determined each day during the calculation period to be equal to the minimum commercial lending rate of Union's principal banker, and the Shipper shall pay the amount of any such undercharge, but without interest. In the event Union renders a bill to Shipper based upon measurement estimates, the required adjustment to reflect actual measurement shall be made on the bill next following the determination of such actual measurement, without any charge of interest. In the event an error is discovered in the amount billed in any statement rendered by Union, such error shall be adjusted by Union. Such overcharge, undercharge or error shall be adjusted by Union on the bill next following its determination (where the term "**bill next following**" shall mean a bill rendered at least fourteen (14) days after the day of its determination), provided that claim therefore shall have been made within three (3) years from the date of the incorrect billing. In the event any refund is issued with Shipper's bill, the aforesaid date of refund shall be deemed to be the date of the issue of bill.

4. Taxes: In addition to the charges and rates as per the applicable rate schedules and price schedules, Shipper shall pay all Taxes which are imposed currently or subsequent to the execution of the Contract by any legal authority having jurisdiction and any amount in lieu of such Taxes paid or payable by Union.

   Shipper shall make reasonable efforts to eliminate/minimize the withholding tax related to the fees/payments paid to Union, including but not limited to requesting from Union the relevant documentation necessary to determine the appropriate withholding, if any, for tax purposes. In the event taxes are withheld from the fees/payment paid by Shipper, Shipper shall remit such withheld taxes to the applicable taxing authority and Shipper will provide Union, after the calendar year end, Union's Federal Form 1042-S and a comparable state/international form, if applicable, within the applicable statutory time frame.

5. Set Off: If either party shall, at any time, be in arrears under any of its payment obligations to the other party under the Contract, then the party not in arrears shall be entitled to reduce the amount payable by it to the other party in arrears under the Contract, or any other contract, by an amount equal to the amount of such arrears or other indebtedness to the other party. In addition to the foregoing remedy, Union may, upon forty-eight (48) hours verbal notice, to be followed by written notice, take possession of any or all of Shipper’s gas under the Contract or any enhancement to the Contract, which shall be deemed to have been assigned to Union, to reduce such arrears or other indebtedness to Union.

X. ARBITRATION

If and when any dispute, difference or question shall arise between the parties hereto touching the Contract or anything herein contained, or the construction hereof, or the rights, duties or liabilities of the parties in relation to any matter hereunder, the matter in dispute shall be submitted and referred to arbitration within ten (10) days after written request of either party. Upon such request each party shall appoint an arbitrator, and the two so appointed shall appoint a third. A majority decision of the arbitrators shall be final and binding upon both parties. In all other respects the provisions of the Arbitration Act, 1991, or any act passed in amendment thereof or substitution therefore, shall apply to each such submission. Operations under the Contract shall continue, without prejudice, during any such arbitration and the costs attributable to such arbitration shall be shared equally by the parties hereto.

XI. FORCE MAJEURE

1. Definition: The term "**force majeure**" as used herein shall mean acts of God, strikes, lockouts or any other industrial disturbance, acts of the public enemy, sabotage, wars, blockades, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, storms, floods, washouts, arrests and restraints of governments and people, civil disturbances, explosions, breakage or accident to machinery or lines of pipe, freezing of wells or lines of pipe, inability to obtain materials, supplies, permits or labour, any laws, orders, rules, regulations, acts or restraints of any governmental body or authority (civil or military), any act or omission that is excused by any event or occurrence of the character herein defined as constituting force majeure, any act or omission by parties not controlled by the party having the difficulty and any other similar cases not within the control of the party claiming suspension and which by the exercise of due diligence such party is unable to prevent or overcome.

2. Notice: In the event that either the Shipper or Union is rendered unable, in whole or in part, by force majeure, to perform or comply with any obligation or condition of the Contract, such party shall give notice and full particulars of such force majeure in writing delivered by hand, fax or other direct written electronic means to the other party as soon as possible after the occurrence of the cause relied on and subject to the provision of this Article.

3. Exclusions: Neither party shall be entitled to the benefit of the provisions of force majeure hereunder if any or all of the following circumstances prevail: the failure resulting in a condition of force majeure was caused by the negligence of the party claiming suspension; the failure was caused by the party claiming suspension where such party failed to remedy the condition by making all reasonable efforts (short of litigation, if such remedy would require litigation); the party claiming suspension failed to resume the performance of such condition obligations with reasonable dispatch; the failure was caused by lack of funds; the party claiming suspension did not, as soon as possible after determining, or within a period within which it should acting reasonably have determined, that the occurrence was in the nature of force majeure and would affect its ability to observe or perform any of its conditions or obligations under the Contract, give to the other party the notice required hereunder.

4. Notice of Remedy: The party claiming suspension shall likewise give notice as soon as possible after the force majeure condition is remedied, to the extent that the same has been remedied, and that such party has resumed or is then in a position to resume the performance of the obligations and conditions of the Contract.

5. Obligation to Perform: An event of force majeure on Union’s system will excuse the failure to deliver gas by Union or the failure to accept gas by Union hereunder, and both parties shall be excused from performance of their obligations hereunder, except for payment obligations, to the extent of and for the duration of the force majeure.

6. Upstream or Downstream Force Majeure: An event of force majeure upstream or downstream of Union's system shall not relieve Shipper of any payment obligations.

7. Delay of Firm Transportation Services: Despite Article XI herein, if Union is prevented, by reason of an event of force majeure on Union's system from delivering gas on the Day or Days upon which Union has accepted gas from Shipper, Union shall thereafter make all reasonable efforts to deliver such quantities as soon as practicable and on such Day or Days as are agreed to by Shipper and Union. If Union accepts such gas on this basis, Shipper shall not receive any demand charge relief as contemplated under Article XI herein.

8. Demand Charge Relief for Firm Transportation Services: Despite Article XI herein, if on any Day Union fails to accept gas from Shipper by reason of an event of force majeure on Union's system and fails to deliver the quantity of gas nominated hereunder by Shipper up to the firm Contract Demand for that Contract, then for that Day the Monthly demand charge shall be reduced by an amount equal to the applicable Daily Demand Rate, as defined in this paragraph, multiplied by the difference between the quantity of gas actually delivered by Union during such Day and the quantity of gas which Shipper in good faith nominated on such Day. The term "**Daily Demand Rate**" shall mean the Monthly demand charge or equivalent pursuant to the C1 Rate Schedule divided by the number of days in the month for which such rate is being calculated.

9. Proration of Firm Transportation Service: If, due to the occurrence of an event of force majeure as outlined above, the capacity for gas deliveries by Union is impaired, it will be necessary for Union to curtail Shipper's gas receipts to Union hereunder, via proration based on utilization of such facilities for the Day. This prorating shall be determined by multiplying the capability of such facilities as available downstream of the impairment on the Day, by a fraction where the numerator is Shipper's nominated firm quantity and the denominator is the total of all such nominated firm quantities for nominated services and planned consumption for in-franchise customers on the Day. For the purposes of this Article XI, firm services shall mean all firm services provided by Union to in-franchise customers and ex-franchise shippers.

XII. DEFAULT AND TERMINATION

In case of the breach or non-observance or non-performance on the part of either party hereto of any covenant, proviso, condition, restriction or stipulation contained in the Contract (but not including herein failure to take or make delivery in whole or in part of the gas delivered to/by Union hereunder occasioned by any of the reasons provided for in Article XI herein) which has not been waived by the other party, then and in every such case and as often as the same may happen, the non-defaulting party may give written notice to the defaulting party requiring it to remedy such default and in the event of the defaulting party failing to remedy the same within a period of thirty (30) days from receipt of such notice, the non-defaulting party may at its sole option declare the Contract to be terminated and thereupon the Contract shall be terminated and be null and void for all purposes other than and except as to any liability of the parties under the same incurred before and subsisting as of termination. The right hereby conferred upon each party shall be in addition to, and not in derogation of or in substitution for, any other right or remedy which the parties respectively at law or in equity shall or may possess.

XIII. AMENDMENT

Subject to Article XV herein and the ability of Union to amend the applicable rate schedules and price schedules, with the approval of the OEB (if required), no amendment or modification of the Contract shall be effective unless the same shall be in writing and signed by each of the Shipper and Union.

XIV. NON-WAIVER AND FUTURE DEFAULT

No waiver of any provision of the Contract shall be effective unless the same shall be in writing and signed by the party entitled to the benefit of such provision and then such waiver shall be effective only in the specific instance and for the specified purpose for which it was given. No failure on the part of Shipper or Union to exercise, and no course of dealing with respect to, and no delay in exercising, any right, power or remedy under the Contract shall operate as a waiver thereof.

XV. LAWS, REGULATIONS AND ORDERS

The Contract and the respective rights and obligations of the parties hereto are subject to all present and future valid laws, orders, rules and regulations of any competent legislative body, or duly constituted authority now or hereafter having jurisdiction and the Contract shall be varied and amended to comply with or conform to any valid order or direction of any board, tribunal or administrative agency which affects any of the provisions of the Contract.

XVI. ALLOCATION OF CAPACITY

1. Requests for Transportation Service: A potential shipper may request transportation service on Union's system at any time. Any request for C1 transportation service must include: potential shipper's legal name, Receipt Point(s), Delivery Point(s), Commencement Date, Initial Term, Contract Demand, proposed payment, and type of transportation service requested.

2. Expansion Facilities: If requests for firm transportation services cannot be met through existing capacity such that the only way to satisfy the requests for transportation service would require the construction of Expansion Facilities which create new capacity, Union shall allocate any such new capacity by open season, subject to the terms of the open season, and these General Terms and Conditions.

3. Open Seasons: If requests for long-term transportation service can be met through existing facilities upon which long-term capacity is becoming available, Union shall allocate such long-term capacity by open season, subject to the terms of the open season, and these General Terms and Conditions. "**Long-term**", for the purposes of this Article XVI, means, in the case of a transportation service, a service that has a term of one year or greater.

4. Awarding Open Season Capacity: Capacity requests received during an open season shall be awarded starting with those bids with the highest economic value. If the economic values of two or more independent bids are equal, then service shall be allocated on a pro-rata basis. The economic value shall be based on the net present value which shall be calculated based on the proposed per- unit rate and the proposed term of the contract and without regard to the proposed Contract Demand ("**NPV**").

5. Available Capacity Previously Offered in Open Season: Union may at any time allocate capacity to respond to any C1 transportation service request through an open season. If a potential shipper requests C1 transportation service that can be provided through Available Capacity that was previously offered by Union in an open season but was not awarded, then:

   a. Any such request must conform to the requirements of Section 1 of this Article XVI;

   b. Union shall allocate capacity to serve such request pursuant to this Section 5, and subject to these General Terms and Conditions and Union's standard form C1 transportation contract;

   c. Union may reject a request for C1 transportation service for any of the following reasons:

      i) if there is insufficient Available Capacity to fully meet the request, but if that is the only reason for rejecting the request for service, Union must offer to supply the Available Capacity to the potential shipper;

      ii) if the proposed monthly payment is less than Union's Monthly demand charge plus fuel requirements for the applicable service;

      iii) if prior to Union accepting the request for transportation service Union receives a request for transportation service from one or more other potential shippers and there is, as a result, insufficient Available Capacity to service all the requests for service, in which case Union shall follow the procedure in Section 5 d hereof;

      iv) if Union does not provide the type of transportation service requested; or

      v) if all of the conditions precedent specified in Article XXI Sections 1 and 2 herein have not been satisfied or waived.

d. Union will advise the potential shipper in writing whether Union accepts or rejects the request for service, subject to Article XVI 5(c) within 5 calendar days of receiving a request for C1 transportation service. If Union rejects a request for service, Union shall inform the potential shipper of the reasons why its request is being rejected; and

e. If Union has insufficient Available Capacity to service all pending requests for transportation service Union may:

i) Reject all the pending requests for transportation service and conduct an open season; or

ii) Union shall inform all the potential shippers who have submitted a pending request for transportation service that it does not have sufficient capacity to service all pending requests for service, and Union shall provide all such potential shippers with an equal opportunity to submit a revised request for service. Union shall then allocate the Available Capacity to the request for transportation service with the highest economic value to Union. If the economic values of two or more requests are equal, then service shall be allocated on a pro-rata basis. The economic value of any request shall be based on the NPV.

XVII. RENEWALS

1. Contracts with an Initial Term of five (5) years or greater, with Receipt Points and Delivery Points of Parkway or Kirkwall or Dawn (Facilities), will continue in full force and effect beyond the Initial Term, automatically renewing for a period of one (1) year, and every one (1) year thereafter. Shipper may reduce the Contract Demand or terminate the Contract with notice in writing by Shipper at least two (2) years prior to the expiration thereof.

For all other contracts, the Contract will continue in full force and effect until the end of the Initial Term, but shall not renew.

XVIII. SERVICE CURTAILMENT

1. Right to Curtail: Union shall have the right to curtail or not to schedule part or all of Transportation Services, in whole or in part, on all or a portion of its pipeline system at any time for reasons of Force Majeure or when, in Union sole discretion, acting reasonably, capacity or operating conditions so require or it is desirable or necessary to make modifications, repairs or operating changes to its pipeline system. Union shall provide Shipper such notice of such curtailment as is reasonable under the circumstances. If due to any cause whatsoever Union is unable to receive or deliver the quantities of Gas which Shipper has requested, then Union shall order curtailment by all Shippers affected and to the extent necessary to remove the effect of the disability. Union has a priority of service policy to determine the order of service curtailment. In order to place services on the priority of service list, Union considers the following business principles: appropriate level of access to core services, customer commitment, encouraging appropriate contracting, materiality, price and term, and promoting and enabling in-franchise consumption.

The Priority ranking for all services utilizing Union Gas' storage, transmission and distribution system as applied to both in-franchise and ex-franchise services are as follows; with number 1 having the highest priority and the last interrupted.

1. Firm In-franchise Transportation and Distribution services and firm Ex-franchise services (Note 1)
2. In-franchise Interruptible Distribution services
3. C1/M12 IT Transport and IT Exchanges with Take or Pay rates
4. Balancing (Hub Activity) < = 100 GJ/d; Balancing (Direct Purchase) < = 500 GJ/d; In-franchise distribution authorized overrun (Note 3)
5. C1/M12 IT Transport and IT Exchanges at premium rates
6. C1/M12 Overrun < = 20% of CD (Note 4)
7. Balancing (Direct Purchase) > 500 GJ/d
8. Balancing (Hub Activity) > 100 GJ/d; C1/M12 IT Transport and IT Exchanges
9. C1/M12 Overrun > 20% of CD
10. C1/M12 IT Transport and IT Exchanges at a discount
11. Late Nominations

Notes:

1. Nominated services must be nominated on the NAESB Timely Nomination Cycle otherwise they are considered to be late nomination and are therefore interruptible.
2. Higher value or more reliable IT is contemplated in the service and contract, when purchase at market competitive prices.
3. Captures the majority of customers that use Direct Purchase balancing transactions.
4. Captures the majority of customers that use overrun.

2. Capacity Procedures: Union reserves the right to change its procedures for sharing interruptible capacity and will provide Shipper with two (2) months prior notice of any such change.

3. Maintenance: Union's facilities from time to time may require maintenance or construction. If such maintenance or construction is required, and in Union's sole opinion, acting reasonably, such maintenance or construction may impact Union's ability to meet Shipper's requirements, Union shall provide at least ten (10) days notice to Shipper, except in the case of an emergency. In the event the maintenance impacts Union's ability to meet Shipper's requirements, Union shall not be liable for any damages and shall not be deemed in breach of the Contract. To the extent that Union's ability to accept and/or deliver Shipper's gas is impaired, the Monthly demand charge shall be reduced in accordance with Article XI Section 8 and available capacity allocated in accordance with Article XI Section 9 herein.

   Union shall use reasonable efforts to determine a mutually acceptable period during which such maintenance or construction will occur and also to limit the extent and duration of any impairments. Union will endeavour to schedule and complete the maintenance and construction, which would normally be expected to impact on Union's ability to meet Shipper's requirements, during the period from April 1 through to November 1.

XIX. SHIPPER'S REPRESENTATIONS AND WARRANTIES

1. Shipper's Warranty: Shipper warrants that it will, if required, maintain, or have maintained on its behalf, all external approvals including the governmental, regulatory, import/export permits and other approvals or authorizations that are required from any federal, state or provincial authorities for the gas quantities to be handled under the Contract. Shipper further warrants that it shall maintain in effect the Facilitating Agreements.

2. Financial Representations: Shipper represents and warrants that the financial assurances (including the Initial Financial Assurances and Security) (if any) shall remain in place throughout the term hereof, unless Shipper and Union agree otherwise. Shipper shall notify Union in the event of any change to the financial assurances throughout the term hereof. Should Union have reasonable grounds to believe that Shipper will not be able to perform or continue to perform any of its obligations under the Contract as a result of one of the following events ("**Material Event**");

   a. Shipper is in default, which default has not been remedied, of the Contract or is in default of any other material contract with Union or another party; or,

   b. Shipper's corporate or debt rating falls below investment grade according to at least one nationally recognized rating agency; or,

   c. Shipper ceases to be rated by a nationally recognized agency; or,

   d. Shipper has exceeded credit available as determined by Union from time to time,

   then Shipper shall within fourteen (14) days of receipt of written notice by Union, obtain and provide to Union a letter of credit or other security in the form and amount reasonably required by Union (the "**Security**"). The Security plus the Initial Financial Assurances shall not exceed twelve (12) months of Monthly demand charges (in accordance with Article IX herein) multiplied by Contract Demand. In the event that Shipper does not provide to Union such Security within such fourteen (14) day period, Union may deem a default under the Default and Termination provisions of Article XII herein.

   In the event that Shipper in good faith, reasonably believes that it should be entitled to reduce the amount of or value of the Security previously provided, it may request such a reduction from Union and to the extent that the Material Event has been mitigated or eliminated, Union shall return all or a portion of the Security to Shipper within fourteen (14) Business Days after receipt of the request.

XX. MISCELLANEOUS PROVISIONS

1. Permanent Assignment: Shipper may assign the Contract to a third party ("Assignee"), up to the Contract Demand, (the "Capacity Assigned"). Such assignment shall require the prior written consent of Union and release of obligations by Union for the Capacity Assigned from the date of assignment. Such consent and release shall not be unreasonably withheld and shall be conditional upon the Assignee providing, amongst other things, financial assurances as per Article XXI herein. Any such assignment will be for the full rights, obligations and remaining term of the Contract as relates to the Capacity Assigned.

2. Temporary Assignment: Shipper may, upon notice to Union, assign all or a part of its service entitlement under the Contract (the "Assigned Quantity") and the corresponding rights and obligations to an Assignee on a temporary basis for not less than one calendar month. Such assignment shall not be unreasonably withheld and shall be conditional upon the Assignee executing the Facilitating Agreement as per Article XXI herein. Notwithstanding such assignment, Shipper shall remain obligated to Union to perform and observe the covenants and obligations contained herein in regard to the Assigned Quantity to the extent that Assignee fails to do so.

3. Title to Gas: Shipper represents and warrants to Union that Shipper shall have good and marketable title to, or legal authority to deliver to Union, all gas delivered to Union hereunder. Furthermore, Shipper hereby agrees to indemnify and save Union harmless from all suits, actions, debts, accounts, damages, costs, losses and expenses arising from or out of claims of any or all third parties to such gas or on account of Taxes, or other charges thereon.

XXI. PRECONDITIONS TO TRANSPORTATION SERVICES

1. Union Conditions: The obligations of Union to provide Transportation Services hereunder are subject to the following conditions precedent, which are for the sole benefit of Union and which may be waived or extended in whole or in part in the manner provided in the Contract:

    a. Union shall have obtained, in form and substance satisfactory to Union, and all conditions shall have been satisfied under, all governmental, regulatory and other third party approvals, consents, orders and authorizations, that are required to provide the Transportation Services; and,

    b. Union shall have obtained all internal approvals that are necessary or appropriate to provide the Transportation Services; and,

    c. Union shall have received from Shipper the requisite financial assurances reasonably necessary to ensure Shipper's ability to honour the provisions of the Contract (the "**Initial Financial Assurances**"). The Initial Financial Assurances, if required, will be as determined solely by Union; and,

    d. Shipper and Union shall have entered into the Interruptible Service HUB Contract or equivalent (the "**Facilitating Agreement**") with Union.

2. Shipper Conditions: The obligations of Shipper hereunder are subject to the following conditions precedent, which are for the sole benefit of Shipper and which may be waived or extended in whole or in part in the manner provided in the Contract:

    a. Shipper shall, as required, have entered into the necessary contracts with Union and/or others to facilitate the Transportation Services contemplated herein, including contracts for upstream and downstream transportation, and shall specifically have an executed and valid Facilitating Agreement; and shall, as required, have entered into the necessary contracts to purchase the gas quantities handled under the Contract; and,

b. Shipper shall have obtained, in form and substance satisfactory to Shipper, and all conditions shall have been satisfied under, all governmental, regulatory and other third party approvals, consents, orders and authorizations, that are required from federal, state, or provincial authorities for the gas quantities handled under the Contract; and,

c. Shipper shall have obtained all internal approvals that are necessary or appropriate for the Shipper to execute the Contract.

3. <u>Satisfaction of Conditions:</u> Union and Shipper shall each use due diligence and reasonable efforts to satisfy and fulfil the conditions precedent specified in this Article XXI Section 1 a, c, and d and Section 2 a and b. Each party shall notify the other forthwith in writing of the satisfaction or waiver of each condition precedent for such party's benefit. If a party concludes that it will not be able to satisfy a condition precedent that is for its benefit, such party may, upon written notice to the other party, terminate the Contract and upon the giving of such notice, the Contract shall be of no further force and effect and each of the parties shall be released from all further obligations thereunder.

4. <u>Non-Satisfaction of Conditions:</u> If any of the conditions precedent in this Article XXI Section 1 c or Section 2 are not satisfied or waived by the party entitled to the benefit of that condition by the Conditions Date as such term is defined in the Contract, then either party may, upon written notice to the other party, terminate the Contract and upon the giving of such notice, the Contract shall be of no further force and effect and each of the parties shall be released from all further obligations hereunder, provided that any rights or remedies that a party may have for breaches of the Contract prior to such termination and any liability a party may have incurred before such termination shall not thereby be released.

SCHEDULE "B"

RATE C1
NOMINATIONS

a) For Services provided either under this rate schedule or referenced to this rate schedule:

i) For Services required on any day Shipper shall provide Union with details regarding the quantity it desires to be handled at the applicable Receipt Point(s) and/or Delivery Point(s), and such additional information as Union determines to be necessary (a “**Nomination**”).

ii) All Nominations shall be submitted by electronic means via *Unionline*. Union, in its sole discretion, may amend or modify the nominating procedures or *Unionline* at any time. Nominations shall be submitted so as to be received by Union in accordance with timelines established by Union, which reflect the NAESB standard nomination cycles. Union will accept all Nominations on each of the nomination cycles. Nominations made after the applicable deadline shall not be accepted except at the sole discretion of Union. The nomination cycle timelines are posted on Union’s website and the nomination deadlines are provided in *Unionline*.

iii) For customers electing firm all day transportation, nominations shall be provided to Union’s Gas Management Services as outlined in the F24 –T Agreement.

b) Union shall determine whether or not all or any portion of the Nomination will be accepted. In the event Union determines that it will not accept such Nomination, Union shall advise Shipper of the reduced quantity (the "**Quantity Available**") for Services at the applicable points as outlined in each nomination cycle. After receiving such advice from Union but no later than one half hour after the Quantities Available deadline as outlined in each nomination cycle, Shipper shall provide a "**Revised Nomination**" to Union which shall be no greater than the Quantity Available. If such Revised Nomination is not provided within the time allowed as required above or such Revised Nomination is greater than the Quantity Available, then the Revised Nomination shall be deemed to be the Quantity Available. If the Revised Nomination (delivered within the time allowed as required above) is less than the Quantity Available, then such lesser amount shall be the Revised Nomination.

c) That portion of a Shipper's Nomination or Revised Nomination, as set out in (a) and (b), above, which Union shall accept for Services hereunder, shall be known as Shipper's "**Authorized Quantity**".

d) If on any day the actual quantities handled by Union, for each of the Services authorized, exceed Shipper's Authorized Quantity, and such excess was caused by either Shipper's incorrect nomination or by its delivering or receiving too much gas, then the amount by which the actual quantities handled for each of the Services exceed Shipper's Authorized Quantity, such excess shall be deemed "**Unauthorized Overrun**".

e) The daily quantity of gas nominated by Shipper will be delivered by Shipper at rates of flow that are as nearly constant as possible, however, Union shall use reasonable efforts to take receipt of gas on any day at an hourly rate of flow up to one twentieth (1/20) of the quantity received for that day. Union shall have the right to limit Services when on any day the cumulative hourly imbalance between receipts and deliveries exceeds one twentieth (1/20) of the quantity handled for that day, for each applicable Service.

f) A nomination for a daily quantity of gas on any day shall remain in effect and apply to subsequent days unless and until Union receives a new nomination from the Shipper or unless Union gives Shipper written notice that it is not acceptable in accordance with either (a) or (b) of this schedule.

g) Except for periods of gas or quantity balancing as provided in the Contract, nominations by Shipper for deliveries to Union and redeliveries by Union shall be the same delivery of gas by Union either to Shipper or a Shipper’s Account with Union.

SCHEDULE "B 2010"

RATE C1
NOMINATIONS

1. For Transportation Services required on any Day under the Contract, Shipper shall provide Union with details regarding the quantity of Gas it desires to be handled at the applicable Receipt Points(s) and/or Delivery Point(s), and such additional information as Union determines to be necessary (a "**Nomination**").

2. All Nominations shall be submitted by electronic means via *Unionline*. Union, in its sole discretion, may amend or modify the nominating procedures or *Unionline* at any time. Nominations shall be submitted so as to be received by Union in accordance with timelines established by Union, which reflect the NAESB standard nomination cycles. Union will accept all Nominations on each of the nomination cycles. Nominations made after the applicable deadline shall not be accepted except at the sole discretion of Union. The nomination cycle timelines are posted on Union's website and the nomination deadlines are provided in *Unionline*.

3. Union shall determine whether or not all or any portion of the Nomination will be scheduled at each nomination cycle. With respect to each nomination cycle, in the event Union determines that it will not schedule such Nomination, Union shall advise Shipper of the reduced quantity (the "**Quantities Available**") for Transportation Services at the applicable points as outlined in each nomination cycle. After receiving such advice from Union, but no later than one half hour after the Quantities Available deadline as outlined in each nomination cycle, Shipper shall provide a revised nomination ("**Revised Nomination**") to Union which shall be no greater than the Quantity Available. If such Revised Nomination is not provided within the time allowed as required above or such Revised Nomination is greater than the Quantities Available, then the Revised Nomination shall be deemed to be the Quantities Available. If the Revised Nomination (delivered with the time allowed as required above) is less than the Quantity Available, then such lessor amount shall be the Revised Nomination.

4. For Shippers electing firm all day transportation service, nominations shall be provided to Union's Gas Management Services as outlined in the F24 –T Agreement.

5. For Transportation Services requiring Shipper to provide compressor fuel in kind, the nominated fuel requirements will be calculated by rounding to the nearest whole GJ.

6. All Timely Nominations shall have rollover options. Specifically, Shippers shall have the ability to nominate for several days, months or years, provided the Nomination start date and end date are both within the term of the Transportation Agreement.

7. Nominations received after the nomination deadline shall, if accepted by Union, be scheduled after Nominations received before the nomination deadline.

8. All Services are required to be nominated in whole Gigajoules (GJ).

9. To the extent Union is unable to complete a Nomination confirmation due to inaccurate, untimely or incomplete data involving an Interconnecting Pipeline entity, Union shall undertake reasonable efforts to confirm the transaction on a non-discriminatory basis until such time that the transaction is adequately verified by the parties, or until such time that Union determines that the Nomination is invalid at which time the Union shall reject the Nomination.

10. That portion of a Shipper's Nomination or Revised Nomination, as set out in paragraphs 1 and 3 above, which Union shall schedule for Transportation Services hereunder, shall be known as Shipper's "**Authorized Quantity**".

11. If on any day the actual quantities handled by Union, for each of the Transportation Services authorized, exceed Shipper's Authorized Quantity, and such excess was caused by either Shipper's incorrect nomination or by its delivering or receiving too much gas, then the amount by which the actual quantities handled for each of the Transportation

Services exceed Shipper's Authorized Quantity shall be deemed "**Unauthorized Overrun**".

12. The daily quantity of gas nominated by Shipper will be delivered by Shipper at rates of flow that are as nearly constant as possible, however, Union shall use reasonable efforts to take receipt of gas on any day at an hourly rate of flow up to one twentieth (1/20th) of the quantity received for that day. Union shall have the right to limit Transportation Services when on any day the cumulative hourly imbalance between receipts and deliveries exceeds one twentieth (1/20th) of the quantity handled for that day, for each applicable Transportation Service.

13. The parties hereto recognize that with respect to Transportation Services, on any day, receipts of gas by Union and deliveries of gas by Union may not always be exactly equal, but each party shall cooperate with the other in order to balance as nearly as possible the quantities transacted on a daily basis, and any imbalances arising shall be allocated to the Facilitating Agreement and shall be subject to the respective terms and charges contained therein, and shall be resolved in a timely manner.

14. Shipper may designate via *Unionline* access request form, a third party as agent for purposes of providing a Nomination, and for giving and receiving notices related to Nominations, and Union shall only accept nominations from the agent. Any such designation, if acceptable to Union, shall be effective following the receipt and processing of the written notice and will remain in effect until revoked in writing by Shipper.

SCHEDULE "C 2010"

RATE C1
RECEIPT AND DELIVERY POINTS AND PRESSURES

1. Receipt and Delivery Points:

The following defines each Receipt Point and/or Delivery Point, as indicated (R= Receipt Point; D= Delivery Point)

R, D	**DAWN (FACILITIES):**	Union's Compressor Station site situated in the northwest corner of Lot Twenty-Five (25), Concession II, in the Township of Dawn-Euphemia, in the County of Lambton. This point is applicable for quantities of gas that have been previously transported or stored under other contracts that Shipper may have in place with Union.
R, D	**DAWN (TCPL):**	At the junction of Union's and TCPL's facilities, at or adjacent to Dawn (Facilities).
R, D	**DAWN (TECUMSEH):**	At the junction of Union's and Enbridge Gas Distribution Inc.'s (Enbridge) Tecumseh Gas Storage's facilities, at or adjacent to Dawn (Facilities).
R, D	**DAWN (TSLE):**	At the junction of Union's and Enbridge Gas Distribution Inc.'s ("**Enbridge**") NPS 16 Tecumseh Sombra Line Extension facilities; at or adjacent to Dawn (Facilities)
R, D	**DAWN (VECTOR):**	At the junction of Union's and Vector Pipeline Limited Partnership ("**Vector**") facilities, at or adjacent to Dawn (Facilities).
R, D	**PARKWAY (TCPL):**	At the junction of Union's and TCPL's facilities, at or adjacent to Union's facilities situated in the Part Lot 9 and Part Lot 10, Concession IX, New Survey, Town of Milton, Regional Municipality of Halton (now part of City of Mississauga)
R, D	**KIRKWALL:**	At the junction of Union's and TCPL's facilities at or adjacent to Union's facilities situated in Part Lot Twenty-Five (25), Concession 7, Town of Flamborough.
D	**PARKWAY (CONSUMERS):**	At the junction of Union's and Enbridge's facilities, at or adjacent to Union's facilities situated in Part Lot 9 and Part Lot 10, Concession IX, New Survey, Town of Milton, Regional Municipality of Halton (now part of City of Mississauga)
D	**LISGAR:**	At the junction of the facilities of Union and Enbridge situated at 6620 Winston Churchill Boulevard, City of Mississauga.
R, D	**OJIBWAY:**	At the junction of Union's and Panhandle Eastern Pipe Line Company, LP's ("**Panhandle**") facilities, located at the International Border between Canada and the United States in the St. Clair River.
R, D	**ST.CLAIR (MICHCON):**	At the junction of Michigan Consolidated Gas Company's ("**MichCon**") and St. Clair Pipelines L.P.'s facilities, located at the International Border between Canada and the United States in the St. Clair River.

R, D **BLUEWATER:** At the junction of Bluewater Gas Storage, LLC ("**Bluewater**") and St. Clair Pipelines L.P.'s facilities, located at the International Border between Canada and the United States in the St. Clair River.

2. Receipt and Delivery Pressures:

(a) All Gas tendered by or on behalf of Shipper to Union shall be tendered at the Receipt Point(s) at Union's prevailing pressure at that Receipt Point, or at such pressure as per operating agreements between Union and the applicable Interconnecting Pipeline as amended or restated from time to time.

(b) All Gas tendered by or on behalf of Union to Shipper shall be tendered at the Delivery Point(s) at Union's prevailing pressure at that Delivery Point or at such pressure as per agreements between Union and the applicable Interconnecting Pipeline as amended or restated from time to time.

(c) Under no circumstances shall Union be obligated to receive or deliver gas hereunder at pressures exceeding the maximum allowable operating pressures prescribed under any applicable governmental regulations; nor shall Union be required to make any physical deliveries or to accept any physical receipts which its existing facilities cannot accommodate.

UNION GAS LIMITED
Infranchise Customers
Summary of Average Interruptible Rate and Price Adjustment Changes for Rates 25, M4, M5A, M7, T1 and T2
Effective January 1, 2018

Line No.	Particulars (cents / m³)	Monthly Charge Increase / (Decrease)	Delivery Commodity Charge Increase / (Decrease)	Delivery - Price Adjustment Increase / (Decrease)	Cap-and-Trade Charges Increase / (Decrease)	Gas Commodity Price Adjustment Rate (1)
		(a)	(b)	(c)	(d)	(e)
	Cap-and-Trade Charges (2)					
1	Cap-and-Trade Customer-Related Charge				0.2418	
2	Cap-and-Trade Facility-Related Charge				(0.0021)	
	Rate 25					
3	All Zones		-			(0.2720)
	Rate M4					
4	Interruptible		-			
	Rate M5A					
5	Interruptible		-			
	Rate M7					
6	Interruptible		-			
7	Seasonal		-			
	Rate T1 - Interruptible					
8	Transportation - Union supplies fuel		-			
9	Transportation - Customer supplies fuel		-			
	Rate T2 - Interruptible					
10	Transportation - Union supplies fuel		-			
11	Transportation - Customer supplies fuel		-			

Notes:
(1) Applies to sales service customers only.
(2) Changes in the Cap-and-Trade Charges apply to Rate 25, M4, M5A, M7, T1, and T2.

Appendix D

UNION GAS LIMITED
Miscellaneous Non-Energy Charges

Line No.	Service	Fee
	Residential Customer Class Service	
1	Connection Charge	$35
2	Temporary Seal - Turn-off (Seasonal)	$22
3	Temporary Seal - Turn-on (Seasonal)	$35
4	Landlord Turn-on	$35
5	Disconnect/Reconnect for Non-Payment	$65
	Commercial/Industrial Customer Class Service	
6	Connection Charge	$38
7	Temporary Seal - Turn-off (Seasonal)	$22
8	Temporary Seal - Turn-on (Seasonal)	$38
9	Landlord Turn-on	$38
10	Disconnect/Reconnect for Non-Payment	$65
	Statement of Account/History Statements	
11	History Statement (previous year)	$15/statement
12	History Statement (beyond previous year)	$40/hour
13	Duplicate Bills * (if processed by system)	No charge
14	Duplicate Bills * (if manually processed)	$15/statement
	Dispute Meter Test Charges	
15	Meter Test - Residential Meter	$50 flat fee for removal and test
16	Meter Test - Commercial/Industrial Meter	Hourly charge based on actual costs
	Direct Purchase Administration Charges	
17	Monthly fee per bundled t-service contract or unbundled U2 contract	$75.00
18	Monthly per customer fee	$0.19
19	Invoice Vendor Adjustment (IVA) fee (for each successfully submitted IVA transaction)	$1.09

Notes:

* Duplicate bill charges only apply when customer wants two copies of a bill. Lost bills from the last billing period will be replaced free of charge.