



# OEB Staff Compendium for Cross Examination of Union Gas

**EB-2017-0255**

**EB-2017-0224**

**EB-2017-0275**

**TAB 1**

UNION GAS LIMITED

Answer to Interrogatory from  
School Energy Coalition ("SEC")

Reference: Exhibit 3, Tab 5

Question: Please work with Enbridge to provide a single response to this interrogatory:

- a) Please provide a table showing a comparison broken down by common categories of the 2016 actual administrative costs. Please provide an explanation of any differences +/- 10% between utilities per category.
  - b) Please provide a table showing a comparison broken down by common categories of the 2017 actual administrative costs. Please provide an explanation of any differences +/- 10% between utilities per category.
  - c) Please provide a table showing a comparison broken down by common categories for the 2018 administrative costs. Please provide an explanation of any differences +/- 10% between utilities per category.
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Response:

a) – c)

Although Union and EGD (collectively the "Utilities") have made efforts to be responsive to this question, each entity developed their Cap-and-Trade programs independently to meet their individual requirements. Accordingly, there are differences in the incremental costs associated with facilitating Cap-and-Trade. Further, the Utilities continue to operate separately, please see the response at Exhibit B.Staff.14 a).

The response to this interrogatory corresponds with SEC #20 for EGD and SEC #15 for Union.

	2016 EGD	2016 Union	% Δ	2017 EGD	2017 Union	% Δ	2018 EGD	2018 Union	% Δ
	Actuals (\$000s)	Actuals (\$000s)		Actuals (\$000s)	Actuals (\$000s)		Forecast (\$000s)	Forecast (\$000s)	
IT Billing System (Revenue Req't on capital)	(99.5)	(4)	96%	97.6	90	-8%	191	193	1%
Staffing Resources	533.3	1,682	215%	694.6	2,437	251%	1,500	2,598	73%
Market Intelligence & Consulting Support	268.2	264	-2%	156.8	236	51%	400	420	5%
Customer Education & Outreach	44.8	50	12%	12.9	2	-84%	0	8	
External Legal Counsel	93.5	135	44%	363.6	40.8	-89%	400	150	-63%
Incremental C&T Framework related GHG Reporting and Verification Audit	0	35		9.5	63	563%	40	100	-60%
Bad Debt Provision	-	-	n/a	600	141.4	-76%	960	425	126%
Low Carbon Initiative Fund ("LCIF")	-	-	n/a	-	-	n/a	2,000	2,000	0%
OEB Cap & Trade related Consultations (e.g., LTCPF, MACC, working group)	-	-	n/a	318	112.3	-65%	100	50	100%
Other	0	63		20.7	96	364%	60	60	0%
<b>Total</b>	<b>840.3</b>	<b>2,225</b>	<b>165%</b>	<b>2,273.7</b>	<b>3,218.5</b>	<b>42%</b>	<b>5,251</b>	<b>6,004</b>	<b>14%</b>

To more efficiently respond to this question, the Utilities have addressed parts a) - c) in the response following, as rationale for cost differences were similar on a year to year basis.

Incremental requirements related to Cap-and-Trade differed in several areas for each company,

and the primary differences have been highlighted below.

#### **IT Billing Cost/Revenue Requirement**

The variances in each company's IT billing system revenue requirements are primarily driven by differences in the total installed system costs, existing systems' adaptability to changes, and respective company's accounting policies and assumptions.

#### **Staffing Resources**

The Utilities incurred incremental staffing requirements as a result of the Ontario government's implementation of a Cap-and-Trade program. Each company independently assessed the program and in turn identified the number of staff necessary to successfully implement the program and sustain its operation.

EGD's incremental Full Time Equivalents ("FTE") are dedicated staff to support implementation of Cap-and-Trade. Additional EGD staff provides support to the Cap-and-Trade function, in addition to the roles that those staff members play in other areas of EGD's operations. Given that these staff members are partly performing roles that were contemplated at the time that EGD's Custom incentive regulation ("IR") model was approved, and therefore their costs are included in the Custom IR model, EGD is not seeking recovery for their costs through the Greenhouse Gas Emissions Impact Deferral Account ("GGEIDA").

Union, operating under a different IR model (40% of inflation price cap), is appropriately treating all eligible Cap-and-Trade resources as incremental.

Table 1 below highlights both the Utilities average incremental staffing requirements from 2016 through to 2017. Staffing requirements for 2018 are forecasted as per each company's respective Compliance Plan.

**Table 1: Union and EGD 2016-2018 Average Incremental Staffing Requirements**

Company	2016 average incremental staffing requirements	2017 average incremental staffing requirements	2018 incremental staffing requirements (forecasted)
EGD	2.8	4.4	8.0
Union	8.0	10.0	12.5

A detailed breakdown of Union's 2016 actual and 2018 forecast staffing requirements can be found in Union's application at Exhibit 6, p. 6, and Exhibit 3, Tab 5, Schedule 2, respectively.

In 2016, Union's costs were comprised of 13 FTE new roles and portions of existing roles totaling 0.5 full time employees. The new roles were added throughout the year, and the average incremental FTE for the year was 8.0. In addition to resources required to administer the Cap-and-Trade program (e.g. procurement, GHG reporting, compliance planning), Union forecasted up to 5.0 FTE of business development and technology and innovation roles in 2016, and began

to ramp up these activities through 2017, continuing into 2018. These resources have supported the development of the methodologies that facilitate the Initiative Funnel and pursue the technologies listed in Union's response at Exhibit B.Staff.21 a) & b).

In 2017, Union forecast that a similar 13.5 FTE roles would be required. In actuality, Union's average incremental FTE for the year was less, due to changes in Customer Contact Centre requirements (please see the response at Exhibit B.Staff.11 b)), two unfilled vacancies, and the incremental workload for one Finance role distributed across multiple roles in Finance, with no individual committing more than 25% of their time to Cap-and-Trade activities.

For 2018 Union's forecast includes one less FTE than forecast for 2017. The difference is due to the Finance role that was expected to be allocated to Cap-and-Trade on a permanent basis.

As outlined in Union's application at Exhibit 6, Union uses a decision tree and process to evaluate the requirement for FTEs on an annual basis and ensure that salaries and wage costs related to Cap-and-Trade accountabilities are properly accounted for. 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 staffing costs.

EGD's 2018 forecast, 2017 forecast and 2016 actual staff costs are available at EB-2017-0224 Exhibit D, Tab 1, Schedule 1, EB-2016-0300, Exhibit C, Tab 3, Schedule 6 and Exhibit D, Tab 1, Schedule 2, respectively.

In 2016, EGD's Cap-and-Trade team consisted of approximately 2.8 FTE with a new FTE beginning in Q1. An average of 4.4 FTEs were included on EGD's Cap-and-Trade team in 2017. As noted in EB-2016-0300, Exhibit C, Tab 3, Schedule 6, paragraph 11, EGD will draw on experience from other parts of the business to assist with the implementation and sustainment of the Cap-and-Trade program.

#### **Market Intelligence and Consulting Support**

The actual costs incurred in 2016 and forecasted 2018 costs for market intelligence and consulting support are similar between the two companies.

Due to the level of support deemed necessary by each company, market intelligence and consulting support costs differed in 2017.

#### **External Legal Counsel**

Differences in external legal costs between the Utilities can be attributed to each company's respective legal counsel providers and the individual requirements of each company. The Utilities continue to engage external legal counsel in respect of each company's Compliance Plan.

EGD's external legal costs are inclusive of all legal costs related to OEB regulatory proceedings, which include, but are not limited to, evidence review, witness and argument preparation.

Additionally, EGD's legal costs also would include costs incurred for external regulatory interpretation and assistance.

Union's legal costs are related to interpretation of climate regulations and to ensure Union's compliance with regulatory requirements and legislation. Legal costs associated with regulatory proceedings, similar to those noted for EGD above, are included in Union's existing rates. Please also see Union's response at Exhibit B.Staff.12.

**Incremental Cap-and-Trade Framework related GHG Reporting and Verification Audit**

Beginning in 2016 Union incurred costs related to GHG Reporting and Forecasting in order to meet new regulatory GHG emissions reporting requirements associated with the implementation of Cap-and-Trade in Ontario, including O. Reg. 452. In 2016, Union's incremental costs were directly attributed to 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.<sup>1</sup>

In 2017, Union initiated a voluntary pre-audit verification process for GHG reporting related to Cap-and-Trade to assess calculations of ON.400 emissions to ensure compliance with the regulations. Union also incurred incremental consulting costs to support the consultation process for changes to the GHG Reporting Regulation and Guideline. Union plans to continue engagement of consultants to complete incremental work related to GHG reporting and forecasting in 2018.

In 2017, EGD also incurred incremental GHG reporting costs relating to a pre-audit verification process for GHG reporting related to natural gas distribution. The costs of this audit were \$9,500. These costs were incremental to the pre-existing facility related GHG verification costs, which are charged to EGD's Operations and Maintenance budget. For additional information, please refer to EB-2016-0300, Exhibit C, Tab 3, Schedule 6.

For 2018, EGD anticipates that it will incur \$40,000 related to incremental GHG reporting and verification audit costs as a result of the implementation of the Cap-and-Trade program. Please refer to EB-2017-0224, Exhibit D, Tab 1, Schedule 1.

**Customer Education and Outreach**

Prior to the Board's direction to develop consistent messaging between the Utilities, Union and EGD worked together to ensure messaging was available to customers across the Utilities' respective service areas. However, differences existed in research undertaken, communication tactics, customer numbers and frequency of communications.

EGD completed one focus group and a standalone bill insert in 2016. In 2017, the majority of

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<sup>1</sup> Guideline for Quantification, Reporting And Verification Of Greenhouse Gas Emissions-2017, <https://www.ontario.ca/page/report-greenhouse-gas-ghg-emissions>

the costs incurred in this component were associated with training requirements for the call centre staff. Throughout 2017, EGD relied primarily on non-cost communication methods, such as website, call centre, on-bill message and social media tools, to communicate with customers about Cap-and-Trade.

In 2016, Union incurred incremental costs related to the development of customer communications material including design and content for the new Cap-and-Trade section of its website, as well as two customer research studies. The first study included focus group sessions 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. 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.

#### **Bad Debt**

As explained in Union's application at Exhibit 3, Tab 5, Union used a simplified method to estimate Cap and Trade related bad debts for 2017, assuming 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. 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.

As outlined in Union's 2017 Compliance Plan interrogatory response at EB-2016-0296, Exhibit B, FRPO 1, the actual incremental bad debt amount directly related to Cap-and-Trade in 2017 was expected to be lower than the estimate in 2017 due to the implementation of Cap-and-Trade commencing January 1, 2017 and the lag time before Cap-and-Trade amounts would be included in customer accounts that were written off. Only the actual costs will be captured in a deferral account for future disposition; the forecast for 2017 of \$0.6 million was not in rates and was not in a deferral account. The amount of bad debt recognized in actuals is included in the GGEIDA. For 2017 the actual amount of bad debt included in the GGEIDA is approximately \$141,000. Union's actual bad debt write-offs are lower in 2017 due to the time lag described above, which results in only partial year impacts in 2017. For 2018, Union will realize a full year of bad debt write-offs in the GGEIDA.

As identified in paragraphs #27 through 30 of EB-2017-0224, Exhibit D, Tab 1, Schedule 1, EGD utilized the Company's total revenue requirement, total forecasted cost of compliance and corporate bad debt forecast to calculate a forecasted cost of bad debt associated with EGD's Cap-and-Trade program. In 2017, EGD forecasted \$0.9 million. Based on the actual bad debt realized in 2017, EGD incurred \$0.6 million associated with the Cap-and-Trade program.

#### **OEB Cap and Trade Related Consultations**

Both EGD and Union incurred costs related to the OEB Cap-and-Trade related consultations in



2017. The costs were allocated as per the Board's methodology. The difference between the Utilities stems from the assignment of consultation costs. EGD included the costs of the "Report of the Board – Regulatory Framework for the Assessment of Costs of Natural Gas Utilities' Cap and Trade Activities" (EB-2015-0363) ("Framework") and "Marginal Abatement Cost Curve for Assessment of Natural Gas Utilities' Cap and Trade Activities" ("MACC") (EB-2016-0359) in the 2017 OEB Cap & Trade related consultation costs component.

Union's costs incurred for the Framework and MACC were included in Union's existing rates and 2017 Cap-and-Trade related consultation costs, respectively.

Each company forecasted different amounts related to the upcoming Long Term Carbon Price Forecast refresh and any other related stakeholder work. Costs associated with the OEB Cap-and-Trade related consultations will be allocated to each company based on the Board's methodology.

In 2018, Union has forecast its portion of OEB costs to be approximately half of the cost charged in 2017 as a MACC refresh is not within scope. Similarly, EGD's forecast is based on 60% of 2017's consultation costs.

TAB 2

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
<b><u>Cap-and-Trade Team</u></b> <i>Manager, Cap-and-Trade</i> <ul style="list-style-type: none"><li>Overall responsibility for implementation and ongoing sustainment of Cap-and-Trade regulations and Compliance Plans.</li></ul> <i>Program Manager, Cap-and-Trade</i> <ul style="list-style-type: none"><li>Leads activities on establishment of process changes, governance structures, reporting and monitoring, regulatory requirements, and Compliance Plan filings.</li></ul>	3.0

<p><i>Cap-and-Trade Advisor</i></p> <ul style="list-style-type: none"> <li>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.</li> </ul>	
<p><b><u>GHG Reporting and Forecasting</u></b></p> <p><i>Principal EHS Technical Advisor</i></p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p><i>Environmental Specialist (2 roles)</i></p> <ul style="list-style-type: none"> <li>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.</li> </ul>	3.0
<p><b><u>Compliance Purchase Plan and Execution</u></b></p> <p><i>Senior Buyer, Carbon Markets</i></p> <ul style="list-style-type: none"> <li>Responsible for the development and execution of Union's compliance instrument procurement strategy and the management of Union's CITSS accounts.</li> </ul>	1.0
<p><b><u>Technology and Innovation</u></b></p> <p><i>Manager, Natural Gas Technology and Innovation and Project Manager, Natural Gas Technology and Innovation</i></p> <ul style="list-style-type: none"> <li>Assessment of emerging technologies and innovations for renewable natural gas, with the goal of increasing the technology and commercial readiness levels of those technologies.</li> <li>Evaluation and development of Cap-and-Trade's Offset Protocols and strategy around offsets.</li> </ul> <p><i>Manager, Customer Technology and Innovation</i></p> <ul style="list-style-type: none"> <li>Assessment of emerging technologies and innovations for the natural gas end-user in the residential, commercial, and industrial markets that reduce GHG emissions.</li> </ul>	3.0
<p><b><u>Distribution Business Development</u></b></p> <p><i>Director, Distribution Business Development and Strategic Accounts (25% allocated to Cap-and-Trade)</i></p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p><i>Manager, Distribution Business Development – Planning (25% allocated to Cap-and-Trade)</i></p> <ul style="list-style-type: none"> <li>Supports the development of opportunities in RNG markets by providing research, analytics and stakeholder support.</li> </ul> <p><i>Manager, Distribution Business Development - RNG</i></p> <ul style="list-style-type: none"> <li>Accountable for developing the market approach for renewable natural gas, identifying partnerships, business models and products with industry partners,</li> </ul>	2.5

TAB 3

UNION GAS LIMITED

Answer to Interrogatory from  
Ontario Energy Board Staff ("Staff")

Reference: Exhibit 3, Tab 5, pp. 4-13  
Exhibit 3, Tab 5, Schedule 2, p. 1

Preamble: Union Gas states its 2018 forecast of GGEIDA costs total \$6.0 million, including forecast administration costs of \$4.0 million (which represents approximately 1.4% of the total forecast cost of compliance) and the forecast Low Carbon Initiative Fund costs of up to \$2.0 million.

Union Gas also states that it made changes to its methodology when calculating its 2018 bad debt forecast.

Question:

a) Please complete the table below. For the 2017 Actual column, please provide year-to-date actuals and the remainder of the 2017 year as a forecast.

<b>Administrative Cost Item</b>	<b>2017 Forecast</b>	<b>2017 Actual</b>	<b>2018 Forecast</b>
Staffing Resources (Salaries and Wages)	\$2,542,000		\$2,598,000
Customer Care Centre (Salaries and Wages)	\$275,000		
Consulting	\$670,000		\$670,000
Bad debt related to cap and trade	\$600,000		\$425,000
IT Billing System Updates	\$68,000		
OEB Costs (OEB LTCPF <sup>1</sup> and related working group)			\$50,000
Revenue Requirement on Capital Costs (related to billing system changes)			\$193,000
Other (travel expenses, market research and communications)	\$68,000		\$68,000
<b>SUB-TOTAL</b>	<b>\$4,223,000</b>		<b>\$4,004,000</b>
Low Carbon Initiative Fund	n/a		\$2,000,000
<b>TOTAL</b>	<b>\$4,223,000</b>		<b>\$6,000,000</b>

b) Please explain why Union Gas' customer care centre costs went from \$275,000 in 2017 to \$0 in 2018.

<sup>1</sup> EB-2016-0359, OEB Long Term Carbon Price Forecast

- c) Please discuss the rationale and appropriateness of the difference in consulting costs proposed by Union Gas (\$670,000 in 2018) and Enbridge Gas (\$400,000 in 2018).
- d) Enbridge Gas and Union Gas filed a MAAD application<sup>2</sup> with the OEB. Please explain whether, and if so how, Union Gas will realize any economies of scale in relation to the FTEs that are working on Cap-and-Trade.
- e) For the table in a), please provide an explanation for any line item where:
- The cost difference between 2017 Forecast and 2017 Actual is greater than 10 percent.
  - The cost difference between 2017 Actual and 2018 Forecast is greater than 10 percent.

Response:

a)

<b>Administrative Cost Item</b>	<b>2017 Forecast</b>	<b>2017 Actual</b>	<b>2018 Forecast</b>
Staffing Resources (Salaries and Wages)	\$2,542,000	\$2,357,000	\$2,598,000
Customer Contact Centre (Salaries and Wages)	\$275,000	\$80,300	-
Consulting	\$670,000	\$340,000	\$670,000
Bad Debt Related to Cap & Trade	\$600,000	\$141,400	\$425,000
IT Billing System Updates	\$68,000	(see Revenue Requirement below)	(see Revenue Requirement below)
OEB Study Costs (OEB LTCPF <sup>1</sup> and related working group)	N/A	\$112,300	\$50,000
Revenue Requirements on Capital Costs (related to billing system changes)	N/A	\$90,000	\$193,000
Other (travel expenses, market research and communications)	\$68,000	\$97,500	\$68,000
<b>SUB-TOTAL</b>	<b>\$4,223,000</b>	<b>\$3,218,500</b>	<b>\$4,004,000</b>
Low Carbon Initiative Fund	N/A	N/A	\$2,000,000
<b>TOTAL</b>	<b>\$4,223,000</b>	<b>\$3,218,500</b>	<b>\$6,004,000</b>

- b) Consistent with Union's response at EB-2016-0296 Exhibit B.Staff.2, Union staffs its call centre appropriately to meet the Service Quality Requirement ("SQR") for Call Answering Service Level of 75% of calls answered in 30 seconds. Customer Care costs in 2017 were related to incremental staff hired and trained to assist in meeting the SQR based on a forecast of increased call volumes associated with Cap-and-Trade. When call volumes decreased to a normal level in Q1 2017 these call centre staff were released from the Cap-and-Trade program. Cap-and-Trade related calls are currently being addressed with existing staff and therefore are not captured in the GGEIDA.

<sup>2</sup> EB-2017-0306

- c) Of the total variance of \$270,000 in consulting costs, \$250,000 is due to a difference in how Union and EGD categorize GHG Reporting and Forecasting and external legal counsel fees. Union has included these costs in consulting, whereas EGD reflects these items as separate line items. Please also see the response at Exhibit B.SEC.15 where Union and EGD have jointly provided a more detailed breakdown of administrative costs by common component.

Union's total 2018 consulting forecast was completed early in 2017 to align with the corporate budgeting process. At this time, Union had very little experience in the live Cap-and-Trade market. Costs were therefore estimated to be similar in magnitude to the 2017 consulting forecast. Union's 2017 forecasted costs are not being recovered in this proceeding; only actual costs will be captured in the GGEIDA for disposal in a future proceeding.

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

- e)  
i. The variances in Union's 2017 forecast and 2017 actual costs are reflected in the table below. An explanation is provided for each line item with a percent difference greater than 10%.

<b>Administrative Cost Item</b>	<b>2017 Forecast</b>	<b>2017 Actual</b>	<b>±% Δ</b>
Staffing Resources (Salaries and Wages)	\$2,542,000	\$2,357,000	-7%
Customer Contact Centre (Salaries and Wages)	\$275,000	\$80,300	-71%
Consulting	\$670,000	\$340,000	-49%
Bad Debt Related to Cap & Trade	\$600,000	\$141,400	-76%
IT Billing System Updates	\$68,000	(see revenue requirement)	N/A
OEB Costs (OEB LTCPF <sup>1</sup> and related working group)	\$0	\$112,300	N/A
Revenue Requirements on Capital Costs	\$0	\$90,000	N/A
Other (travel expenses, market research and communications)	\$68,000	\$97,500	+43%
<b>SUB-TOTAL</b>	<b>\$4,223,000</b>	<b>\$3,218,500</b>	<b>-24%</b>
Low Carbon Initiative Fund	N/A	N/A	N/A
<b>TOTAL</b>	<b>\$4,223,000</b>	<b>3,218,500</b>	<b>-24%</b>

Union's forecast for 2017 was completed in early 2016, well before the Cap-and-Trade program was live. As a result, there remained significant uncertainties about the program and how it would be administered. This is an underlying factor which contributes to most of the variances identified in the above chart. Actual costs are recorded in the GGEIDA for future disposition.



Detailed explanations specific to each line item are provided below.

#### **Customer Contact Centre**

- Union forecasted the requirement of seven temporary employees to meet the SQR identified above in part b) above due to expected increases in calls to the customer contact centre as a result of Cap-and-Trade implementation and billing beginning January 1, 2017. Due to lower than anticipated call volumes, Union required only two additional temporary employees to meet increased call demands.

#### **Consulting Costs**

- Union's 2017 consulting costs were less than anticipated for services related to GHG reporting, offset scoping and investigation, legal interpretation of regulations, and implementation support. At the time of Union's 2017 forecast development Union had minimal experience in engaging consulting services for Cap-and-Trade related activities. In addition, delays in legislation and protocols (e.g. offsets) also contributed to lower costs than expected.

#### **Bad Debt**

- As explained in Union's application at Exhibit 3, Tab 5, Union used a simplified method to estimate Cap-and-Trade related bad debts for 2017, assuming 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.
- Union would like to clarify that there has been no change in methodology applied in the calculation of the bad debt forecast for 2018. The reduction to the forecast from 2017 to 2018 is a direct result of actual Cap-and-Trade effects on overall customer bills experienced during 2017. These effects combined with Union's current account write-off level result in the forecast of \$425,000 for 2018 for applicable Cap-and-Trade amounts.
- As outlined in Union's response at EB-2016-0296, Exhibit B.FRPO.1, the actual incremental bad debt amount directly related to Cap-and-Trade in 2017 was expected to be lower than the estimate in 2017 due to the implementation of Cap-and-Trade commencing January 1, 2017 and the lag time before Cap-and-Trade amounts would be included in customer accounts that were written off. Only the actual costs will be captured in a deferral account for future disposition; the forecast for 2017 of \$0.6 million was not in rates and was not in a deferral account. The amount of bad debt recognized in actuals is included in the Greenhouse Gas Emissions Impact Deferral Account ("GGEIDA"). For 2017 the actual amount of bad debt included in the GGEIDA is approximately \$141,000. Union's actual bad debt write-offs are lower in 2017 due to the time lag

described above, which results in only partial year impacts in 2017. For 2018, Union will realize a full year of bad debt write-offs in the GGEIDA.

#### **OEB Study Costs**

- At the time the 2017 Forecast was completed, it was not yet known that the OEB would publish a LTCPF and MACC; therefore, these costs were not included in the forecast.

#### **Revenue Requirement (IT Billing)**

- Union's revenue requirement on capital costs increased in 2017 as these capital assets became available for use and were placed into service.

#### **Other**

- Union's employee expenses were higher than forecast due to activities related to knowledge building in support of the Cap-and-Trade program. As noted in Union's application at Exhibit 3, Tab 2, p. 10, Union attends 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. Knowledge of these events was minimal at the time of 2017 forecast development.

- ii. The variances in Union's 2017 actual costs and 2018 forecasts are reflected in the table below. An explanation is provided for each line item with a percent difference greater than 10%.

<b>Administrative Cost Item</b>	<b>2017 Actual</b>	<b>2018 Forecast</b>	<b>±% Δ</b>
Staffing Resources (Salaries and Wages)	\$2,357,000	\$2,598,000	+10%
Customer Contact Centre (Salaries and Wages)	\$80,300	\$0	-100%
Consulting	\$340,000	\$670,000	+97%
Bad Debt Related to Cap & Trade	\$141,400	\$425,000	+301%
IT Billing System Updates	(see revenue requirement)	(see revenue requirement)	N/A
OEB Costs (OEB LTCPF <sup>1</sup> and related working group)	\$112,300	\$50,000	-55%
Revenue Requirements on Capital Costs	\$90,000	\$193,000	+214%
Other (travel expenses, market research and communications)	\$97,500	\$68,000	-30%
<b>SUB-TOTAL</b>	<b>\$3,218,500</b>	<b>\$4,004,000</b>	<b>+24%</b>
Low Carbon Initiative Fund	\$0	\$2,000,000	N/A
<b>TOTAL</b>	<b>3,218,500</b>	<b>\$6,004,000</b>	<b>+87%</b>

It should also be noted that Union completes its annual budget forecast in the second quarter of each year. At the time of 2018 forecast was developed, Union had not yet incurred two full quarters of expenses related to the Cap-and-Trade program. Therefore, the 2018 forecast was based largely on the 2017 forecast. This is an underlying factor which contributes to most of the variances identified in the above table. Actual costs for 2018 will be recorded in the GGEIDA for future disposition.

Detailed explanations specific to each item are provided below:

**Customer Contact Centre**

- Please see the response in part b) above.

**Consulting**

- The 2018 forecast is consistent with Union's 2017 consulting forecast as it was developed in the second quarter of 2017 to align with annual budget timelines. In addition, 2017 consulting costs were lower than expected due to the delay in the release of some regulations and protocols (e.g. offsets). Union plans to continue to engage consulting services in the areas of procurement, offsets, carbon market dynamics, legal, and GHG reporting and forecasting. However, in some cases specific vendor arrangements have not yet been defined and scopes of work have not yet been completed.

**Bad Debt**

- An explanation of Union's 2017 actuals is provided in the response to part e) i) above. For 2018, Union's forecast reflects that it will realize a full year of bad debt write-offs in the GGEIDA.

**OEB Study Costs**

- The 2018 forecast represent expectations for the annual LTCPF and related Working Group. 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. Costs to complete the MACC in 2017 are not expected to be repeated in 2018 since the OEB has identified that the MACC will be completed for each compliance period rather than annually.

**Revenue Requirements 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.

**Other**

- Employee travel expenses, market research, and internal and external communications for 2018 were based on Union's 2017 forecast.

**Low Carbon Initiative Fund**

- The Low Carbon Initiative Fund is a new fund proposed for 2018 in order to support the advancement of new technologies that contribute to future customer and facilities abatement initiatives. Please see Union's application at Exhibit 3, Tab 5, p. 12 for further detail.

TAB 4

UNION GAS LIMITED

Answer to Interrogatory from  
Ontario Energy Board Staff ("Staff")

Reference: Exhibit 3, Tab 5, pp. 8-9  
Exhibit 3, Tab 2, pp. 8-9

Preamble: Union Gas states that in 2018, it 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 Gas also states that these consulting services "are forecast to cost \$670,000 in 2018 for work supporting the development and execution of Union Gas' Compliance Plan, in a similar manner to 2017.

Union Gas indicates that it will continue to retain ClearBlue and it has also engaged other consultants for various other Cap-and-Trade related services, including BlueSource, ICF and Ortech Environmental.

Question:

a) Please complete the table below:

<b>Consultant</b>	<b>2018 Costs</b>
ClearBlue	
BlueSource	
ICF	
Ortech Environmental	
Other	
<b>Total</b>	<b>\$670,000</b>

- b) Has Union Gas engaged additional consultants than the ones listed above? Please explain.  
i. If so, please provide the 2018 costs.
- c) Please explain whether Union Gas used a competitive procurement process when selecting BlueSource, ICF and Ortech Environmental?
- d) Please explain the scope of work for each of the consultants listed in a). Please compare their scope of work with ClearBlue's scope of work.
- e) Enbridge Gas and Union Gas filed a MAAD application<sup>1</sup> with the OEB. Please explain whether, and if so how, Union Gas will realize any economies of scale in relation to external consultants working on issues related to cap and trade.

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Response:

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<sup>1</sup> EB-2017-0306

a) & b)

The table provided in part a) above presumes that Union will use all previous consultants in 2018. While that is possible, it has not been confirmed. Union has provided below the 2018 forecast cost by type of consulting,<sup>2</sup> and identified consultants that have previously completed such work. Actual costs for 2018 will be recorded in the GGEIDA for future disposition.

Particulars	2018 Cost Forecast (\$000)	Previous Consultant
Compliance Planning/Implementation	200	ClearBlue Markets
Carbon Strategy and Analysis	120	ICF, Torys LLP
GHG Reporting and Forecasting	100	ORTECH Environmental, GHD
Offset Consulting	100	BlueSource
Legal Interpretation and Review	150	Torys LLP
Total	670	

c) Union used a competitive procurement process when selecting BlueSource and ClearBlue Markets. Due to tight timelines, unique requirements and proven pre-existing service agreements, Union did not use a competitive procurement process for ICF or ORTECH Environmental. Additionally, ORTECH Environmental has been completing emissions-related work for a number of years and is uniquely familiar with Union's specific operations and emission sources.

d) The following table lists the scope of work for each consultant listed in part b) above.

Consultant	Scope of Work
GHD	Completion of Verification Audits in accordance with GHG Reporting Regulation.
ORTECH Environmental	Provide technical support for GHG emission measurements and calculations in order meet GHG Reporting compliance requirements.
BlueSource	Provide expertise on the offsets market, interpretation of offset protocols and regulations, and insights with respect to the developing offset market in Ontario and WCI.
Torys LLP	Legal support to interpret climate regulations and ensure Union's compliance with regulatory requirements and legislation.
ClearBlue Markets	Advise on procurement strategy including analysis of instruments, risks, and benefits.
ICF	Provide analytics on supply, demand, and pricing as well as electrification impacts and customer cost impacts.

<sup>2</sup> Exhibit 3, Tab 5, Table 2

ClearBlue costs relate directly to the ongoing development of Union's Cap-and-Trade strategy with direct input to Union's Compliance Plans. Union 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.

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



TAB 5

UNION GAS LIMITED

Undertaking of Mr. Ginis  
To Mr. Wasylyk

Reference: Tr.1, p.53

TO PROVIDE THE END USE ANALYSIS / FORECAST POTENTIAL OF CURRENT DSM PROGRAMS COMPARED TO THE OPPORTUNITY THAT'S BEEN PRESENTED IN THE MACC AT TABLE 3, p. 15 FOR THE FOLLOWING END-USE CATEGORIES:

- RESIDENTIAL SPACE HEATING
- COMMERCIAL SPACE HEATING
- INDUSTRIAL HVAC
- INDUSTRIAL DIRECT HEATING
- INDUSTRIAL HOT WATER SYSTEMS

Response:

Residential:

Union is not able to separate residential space heating from residential domestic hot water within its DSM forecasts, as the forecasts from Union's home retrofit programs are determined at a whole-home level and not by measure or end-use. For the purpose of this analysis, Union is comparing the total end-use abatement opportunity identified in the MACC for both residential space heating and residential domestic hot water to Union's residential Home Reno Rebate offering, Low-Income Home Weatherization offering, Furnace End-of-Life offering, and Indigenous offering.

**Table 1**

MACC End-Use Category	MACC Estimated 2018-2020 Abatement (million m3)	MACC Estimated Cost Effective Abatement (%)	MACC 2018-2020 Cost Effective Abatement (million m3)	Net-to-Gross Adjustment	Franchise Area Adjustment	MACC UG-specific 2018-2020 Cost Effective Abatement (million m <sup>3</sup> )
(a)	(b)	(c)	(d) = (b) x (c)	(e)	(f)	(g) = (d) x (e) x (f)
Residential Space Heating	122	65%	79	0.95	38%	29
Residential Domestic Hot Water	7	57%	4	0.95	38%	1
<b>TOTAL</b>	<b>129</b>	<b>N/A</b>	<b>83</b>	<b>N/A</b>	<b>N/A</b>	<b>30</b>

The total Union-specific end-use abatement opportunity identified in the MACC for both residential space heating and residential domestic hot water is 30 million m<sup>3</sup> for 2018-2020. This is comparable to Union's 2018-2020 DSM forecast of 20 million m<sup>3</sup> for 2018-2020 provided at Exhibit B.Staff.31 c) ii).

It should be noted that for the purpose of this analysis, Union assumed 100% achievement of its DSM forecasts for the residential Home Reno Rebate offering, which was set at 5,000 homes in Union's 2015-2020 DSM Plan (Exhibit A, Tab 3, Appendix A, p. 14, Table 3). Since Union's 2015-2020 DSM Plan was filed:

- Union has been able to drive increased levels of participation, and therefore increased levels of savings, beyond the company's original 2015-2020 DSM Plan forecasts, which is expected to continue into 2018, 2019 and 2020.
- The provincial government is expected to fund energy conservation programs at an estimated value of \$2 billion to \$4 billion from 2017 to 2020, of which at least two programs have already been launched in the residential sector, targeting the residential space heating end-use segment.

#### Commercial/Industrial:

Approximately 75% of Union's forecasted Commercial/Industrial DSM savings for 2018-2020 is expected to be driven from custom projects, which are not forecasted by measure or end-use. Therefore an analysis by end-use category is not possible for this segment. Please refer to Exhibit B.Staff.31 b) for the overall Commercial/Industrial segment savings comparison, and the Commercial/Industrial measure list comparison.

TAB 6

UNION GAS LIMITED

Answer to Interrogatory from  
Green Energy Coalition ("GEC")

Reference: Exhibit 3, Tab 4, p. 41

Preamble: At Exhibit 3, Tab 4, p. 41, Union states that it "believes that any cost-effective opportunity identified through the CPA and/or MACC analysis should not be pursued via the 2018 Compliance plan", but instead through the DSM framework.

Question: Why couldn't or shouldn't additional energy efficiency that is less expensive than other compliance options be included in the Company's Compliance plan?

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Response:

Opportunities to abate carbon such as those identified through the CPS and/or MACC analysis should be considered within the appropriate regulatory framework. The DSM framework is proven and offers best practices in delivery of cost effective energy efficiency measures to the market. The existing approved DSM Framework:

- Allows the utility to propose and deliver energy conservation programs which meet principles established through a public regulatory process;
- Allows the OEB and interested stakeholders the opportunity to assess and provide comments on the utility's proposed energy conservation programs;
- Facilitates oversight by the regulator; the OEB can approve or reject the utility's proposed energy conservation programs; and,
- Ensures continued monitoring and verification of results; the OEB and interested stakeholders can assess the results of a utility's OEB-approved natural gas conservation programs.

It should be noted that cost-effectiveness is one of many factors used by utilities, the OEB, and stakeholders to assess the appropriateness of offering ratepayer-funded energy conservation programs. In other words, a simplified carbon cost-effectiveness test should not be the only tool used to determine whether an energy conservation program should be offered. Instead, the program should be assessed based on several factors as is the case within the DSM Framework. Other factors may include determining whether the program will provide value to customers or consider the potential success of the program given the technology's market saturation.

For example, within Union's 2015-2020 DSM Plan, Union proposed a residential behavioural offering and an energy savings kit offering within the residential segment. Upon OEB and stakeholder review of the offerings, both were denied by the OEB. Regarding the behavioural offering, the OEB stated it "is not convinced, based on the evidence filed, that the proposed

budgets are a good use of customer funds or that the programs provide value for money.”<sup>1</sup> Similarly, regarding the energy saving kit offering, the OEB stated that it “is of the view that the market for ESK measures is saturated.”<sup>2</sup> Although the behavioural and energy savings kit measures were identified as cost-effective within the CPS and the MACC, it would not be appropriate to propose and assess the programs again through the Cap-and-Trade Framework given the OEB’s decision.

In addition to the regulatory inefficiency and associated financial burden to ratepayers that would result from assessing energy conservation programs within two OEB frameworks, if the utility were to deliver separate energy conservation programs to the same customer, it could result in customer confusion.

Rather than duplicating the assessment and delivery of energy conservation programs within two OEB frameworks, the DSM Framework should be enhanced to ensure that any energy conservation opportunity that is cost-effective relative to the cost of carbon is included for assessment within the DSM Framework.

Enhancing the DSM Framework, rather than assessing and delivering energy conservation programs within two separate OEB frameworks, would facilitate:

- Leveraging the existing DSM Framework, which is robust and effective, to assess and deliver any additional energy conservation programs that are deemed cost-effective relative to the cost of carbon.
- Ratepayers would avoid funding two regulatory processes for the assessment of energy conservation programs.

In order to ensure that energy conservation opportunities that are cost-effective relative to the cost of carbon are included for assessment within the DSM Framework, enhancements to the DSM Framework could include:

- Adding the LTCPF to the DSM Framework cost-effectiveness test (i.e. the TRC-Plus test), to ensure the benefits of the avoided cost of carbon is captured within the DSM Framework cost-effectiveness test.
- Adding the cost-effectiveness test from the Cap-and-Trade Framework (i.e. comparing the cost of energy conservation programs to the avoided cost of carbon) to the DSM Framework, to ensure opportunities that are cost-effective within the Cap-and-Trade Framework are included for assessment within the DSM Framework.

Further details and assessments of the specific enhancements to the DSM Framework should be part of the OEB’s development of the next DSM Framework, should include stakeholder and utility input, and should begin as soon as possible.

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<sup>1</sup> EB-2015-0029, Decision, p. 37.

<sup>2</sup> EB-2015-0029, Decision, p. 15.

TAB 7

UNION GAS LIMITED

Answer to Interrogatory from  
Ontario Energy Board Staff ("Staff")

Reference: Exhibit 3, Tab 4, pp. 10-12  
Exhibit 3, Tab 4, p. 14

Preamble: Union Gas states that each stage of Initiative Funnel activity will have associated resourcing requirements.

Union Gas also states that a Low Carbon Initiative Fund (LCIF), consisting of available funds of up to \$2 million per year, will provide funding to identify abatement ideas and move them through the stages of the Funnel, as well as enable the development of ideas that may require multiple years to reach commercialization. Union Gas indicates that the LCIF will be used for activities such as consulting, pilot programs, testing, data analysis, and measurement and verification.

Question:

- a) How does Union Gas currently identify abatement activities to pursue? What would change if the LCIF is approved? Please explain.
  - i. In 2017, did Union Gas undertake any activities that would, in 2018, fall within the ambit of the LCIF?
    1. If yes, please provide: a description of each activity; amounts spent on each activity in 2017; and whether those amounts are included in Union Gas' 2017 admin costs.
- b) Please explain what work Union Gas intends to undertake in 2018 with the LCIF, if approved.
  - i. Please explain how this work is related to the abatement activities proposed in the Initiative Funnel.
- c) Please provide details of expected resourcing requirements and costs associated with each stage of the Funnel, including implementation, for 2018.
  - i. Please explain whether these costs are incremental to Union Gas' forecast 2018 administrative costs.
  - ii. Please explain whether these costs are included in the proposed \$2M LCIF.
- d) Enbridge Gas and Union Gas filed a MAAD application (EB-2017-0306) with the OEB. Please explain whether, and if so how, Union Gas will realize any economies of scale in relation to resourcing requirements for activities being undertaken in relation to GHG abatement and activities funded by the LCIF.
- e) Please explain what will happen if the OEB does not approve the \$2M LCIF that Union Gas is requesting.



- f) Please provide references to specific cases and/or policy from the OEB and from any other authorities where research and development activities such as consulting, pilot programs, testing, market research, and data analysis is funded by ratepayers.
  - g) In the event that Union Gas' research undertaken through the LCIF leads to new technologies that could be marketed resulting in a financial value, would that financial value be shared with ratepayers?
    - i. If yes, please explain how.
    - ii. If no, please explain why not.
- 

Response:

- a) Union is committed to supporting Ontario's transition to a low-carbon economy by developing integrated energy solutions that balance emissions reductions with affordability at the customer level.

Consistent with this, Union has developed the Abatement Construct and the Initiative Funnel, as described in Union' application at Exhibit 3, Tab 4. In order to facilitate the development of ideas through the Initiative Funnel, Union has developed rigorous selection and project management approach. The selection approach applies to "Stage 1: Conceptual" of the Initiative Funnel and the project management phase applies to "Stage 2: Formulate". Steps within each phase may vary depending on whether it is a customer or facility abatement opportunity.

Selection starts with a market scan of emerging technologies enabling the identification of potential technologies and services aligned with the guiding principles. Selection is a stepped process which begins with pre-screening of technologies assessed against criteria such as environmental performance and GHG emissions, energy efficiency, market segments, economics and more. Potential technology providers are also assessed against established criteria including financial viability, design capability, management experience, etc. The selection concludes with a go/no-go decision regarding which technologies will be pursued for further development and implementation, initiating the project management phase for Stage 2 for each technology and/or abatement opportunity selected.

Project management begins with a project specific feasibility assessment during which a project execution plan is developed, which addresses the different phases of the project. Phases include planning, design and procurement through to construction and installation, measurement, verification, close-out and recommendation. This recommendation concludes the project management phase and constitutes the trigger that would move the opportunity to the Stage 3 of the funnel.

If the LCIF is approved, Union will be in a position to increase the number and the diversity of projects it pursues and accelerate the transition to a low-carbon economy.

Union undertook the following activities in 2017:

Activity	Overview of 2017 Work	Approximate Spend	Included in GGEIDA Costs
<u>Carbon Capture</u>	Technology demonstrating GHG reduction, energy recovery and savings and overall performance of system. The work completed included a technology scan, pre-screening and assessment, initial risk assessment, lessons learned review and residential stakeholder identification.	N/A	No
<u>Building Skins</u>	Working with MaRS Advanced Energy Center to develop a workshop around creating a building envelope system for retrofit application on low-income housing. The work included planning of workshop, preliminary energy modeling and the execution of the workshop and the development of the RFP.	\$90,000	No
<u>Integrated ASHP/NG Solution</u>	Two pilot projects to demonstrate hybrid heating efficiencies and optimal switch-points for GHG savings and cost savings. Pilots will also include a study of home energy management system (“EMS”) for integrated control.	\$10,000	No
<u>Ground Source Heat Pump</u>	Technology demonstrating GHG reduction, energy savings and overall performance of system. The work included a technology scan, pre-screening and an initial risk assessment.	\$31,000	No
<u>Micro Generation</u>	Pilot projects demonstrating hybrid heating efficiencies, GHG savings, system resilience, integration with net-zero homes and customer cost savings. Technology Scan, pre-screening, assessment and installation of 2 units at pilot sites M&V for both units.	\$117,500	No

- b) In 2017, Union was able to leverage a modest existing budget and incremental FTE in order to initiate work on new technologies.<sup>1</sup> Specifically, Union was able to initiate work advancing the Abatement Construct and Initiative Funnel. As such, Union established its selection and project management approach, developed relationships with key stakeholders

<sup>1</sup> 3.0 incremental roles for Technology and Innovation were identified in the Cap-and-Trade forecast administration costs for 2017 and 2018. Actual costs for these roles are captured in the GGEIDA.

(e.g. industry, technology partners, and academia) and began the identification of potential technologies and services aligned with the guiding principles. This budget allows for early and lower cost activities such as limited technology scans, early stage development of roadmaps, and identification of technology providers. However, the existing budget is not adequate to fully develop existing initiatives, to initiate new initiatives, or to pursue pilot projects at the level necessary, please also see Union's response at part e) below. Therefore, approval of the LCIF is needed to enable Union to advance new and existing initiatives in 2018 not limited to the following:

<b>Union Gas Breakdown of Proposed 2018 LCIF Budget of up to \$2 million</b>			
<b>Stage 1 - Conceptualize</b>			
<b>Initiative</b>	<b>Description of work</b>	<b>2018 Estimate</b>	<b>Reference to evidence</b>
<u>Building Skins</u>	Working with MaRS Advanced Energy Center to develop a workshop around creating a building envelope system for retrofit application on low-income housing. Planned work: Pilot Project Initiation, execution, M&V*	\$100,000	Exhibit 3, Tab 4 Page 35-36
<u>Micro Generation</u>	Pilot projects demonstrating hybrid heating efficiencies, GHG savings, system resilience, and customer cost savings. Planned work: Pre-screening and Assessment of new technologies	\$192,000	Exhibit 3, Tab 4 Page 32-34
<u>Biomass Conversion (Thermochemical) to RNG</u>	Understand technologies and feedstocks converting biomass to RNG, through the completion of a Technology Scan. Planned work: Technology scan and feedstock studies	\$110,000	Exhibit 3, Tab 4 Page 36-37
<u>Automatic Meter Reading</u>	Exploring integration with technologies to collect and utilize customer data in support of future developments which drive abatement opportunities	N/A	Exhibit 3, Tab 4 Page 37-38
<u>Portable Blowdown Recovery</u>	Exploring applicability to Union's facilities and refining economic and GHG emissions reduction estimates	N/A	Exhibit 3, Tab 4 Page 53
<u>Federal Methane Regulations (possible projects)</u>	Exploring possible projects to Union's facilities and refining economic and GHG emissions reduction estimates	N/A	Exhibit 3, Tab 4 Page 54-56

<b>Union Gas Breakdown of Proposed 2018 LCIF Budget of up to \$2 million</b>			
<b>Stage 2 - Formulate</b>			
<u>Residential scale Carbon Capture</u>	Pilot project demonstrating GHG reduction, energy recovery and savings and overall performance of system. Planned work: Commercial pilot project initiation and execution	\$51,000	Exhibit 3, Tab 4 Page 35
<u>Ground Source Heat Pump</u>	Pilot project demonstrating GHG reduction, energy savings and overall performance of system. Planned work: Development of GSHP Roadmap and MURB Pilot Project Initiation (site selection and assessment)	\$71,000	Exhibit 3, Tab 4 Page 27-28
<u>Hydrogen and Power to Gas</u>	Completion of P2G technology roadmap Planned work: Monitoring of Enbridge's Power to Gas pilot project and a pre-feasibility assessment and studies of potential demonstration concepts	\$100,000	Exhibit 3, Tab 4 Page 30-31
<u>Micro Generation</u>	Pilot projects demonstrating hybrid heating efficiencies, GHG savings, system resilience, integration with net zero homes and customer cost savings. Planned work: Pilot Project Initiation and phased execution (9 sites) M&V	\$535,000	Exhibit 3, Tab 4 Page 32-34
<u>Fugitive Emissions Management</u>	Exploring applicability to Union's facilities and refining economic and GHG emissions reduction estimates	N/A	Exhibit 3, Tab 4 Page 51-52
<u>Station Heating Equipment (London North Gate Station)</u>	Evaluation of newer and more efficient technology improving fuel consumption on a cost effective basis.	N/A	Exhibit 3, Tab 4 Page 52-53

- c) Please see the response to part b) above.
- d) Please see the response at Exhibit B.Staff.14 a).
- e) The existing budget is limited and does not adequately support next-level investigation or pilot demonstrations across a range of initiatives. For example, Union may be in a position to conduct a pilot at a single site, but not multiple pilots which are required to prove the technology for different applications and market segments (such as residential vs. commercial, new home vs. existing home, or multi-family vs. single family homes).

Union cannot commit to incurring costs to pursue new technologies without OEB approval. If the OEB does not approve Union's proposed LCIF, this will impact Union's ability to pursue new technologies and could result in certain initiatives not being pursued or taking longer to develop, depending on the availability of alternative funding. As outlined in the response at Exhibit B.Staff.18 c)-d), Union is in a unique position to leverage its expertise and relationships with customers to advance new technologies for abatement. Union feels that if the LCIF is not approved this will be a missed opportunity to align with other jurisdictional leaders (as outlined in the response at part f) below) in the interest of supporting the government's policies related to GHG reduction.

If the LCIF is approved, it will provide for a consistent, stable, and sufficient budget for Union to pursue a range of abatement initiatives and gather meaningful data to support deployment of such initiatives within its franchise.

- f) Union is aware of the following instances where utilities are evaluating new technologies to support potential abatement initiatives:
- In the 2015-2020 DSM Plan proceeding (EB-2015-0029), the Collaboration and Innovation Fund was approved by the OEB to promote innovation or collaborative research and pilots within the realm of energy efficiency.
  - In 2012, the California Public Utilities Commission approved the establishment of the Electric Program Investment Charge ("EPIC") to assist the development of non-commercialized new and clean emerging technologies in California. All EPIC activities are to provide ratepayer benefits for San Diego Gas & Electric, Pacific Gas & Electric and Southern California Edison customers.
  - In its Energy Efficiency and Conservation Application (May 28, 2008), Terasen Gas and Terasen Gas Vancouver Island applied for spending related to Innovative Technologies, Natural Gas Vehicles ("NGV") and Measurement. Terasen was ultimately approved for Energy Efficiency and Conservation funding amounts for innovative technologies of \$2.3 million for 2010 and \$4.669 million for 2011. Terasen's Energy Efficiency and Conservation program is their energy conservation program.
  - In 2008, the Louisiana Public Service Commission approved the development of a funding mechanism for natural gas utilities for research and development programs. The Louisiana Research and Development Committee ("RDC") was created and tasked with selecting and reviewing projects while determining which projects would have a reasonable chance to benefit Louisiana natural gas customers. The selected projects would be funded via a \$0.90 per meter per year surcharge.
  - Union is also aware of a discussion paper prepared by Concentric Energy Advisors that , based on analysis of utility innovation models from around the world, recommended that

Canadian utilities and regulators establish an innovation model for utilities that authorizes multi-year funding (at least three years), and is fully ratepayer funded.<sup>2,3</sup>

- g) The purpose of Union's LCIF is to support the advancement of new technologies that contribute to future customer and facilities abatement initiatives. Currently, Union has no Initiative Funnel Stage 3 projects which represent a financial value. Union's RNG proposal, which is dependent on government funding, is a cost pass-through to ratepayers which leaves them indifferent.

Other initiatives at the earlier stages of the Initiative Funnel are still under development and it is too soon to determine if there is any financial value that will result. The treatment of any financial value associated with an initiative will be determined at the time the initiative is brought forward for OEB review.

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<sup>2</sup> Stimulating Innovation on Behalf of Canada's Electricity and Natural Gas Consumers, August 21 2014, Concentric Energy Advisors Inc., p. 9, [http://44f0gi3luy7z39sz523bbcjn.wpengine.netdna-cdn.com/wp-content/uploads/2015/10/CGA\\_CEA-Report.pdf](http://44f0gi3luy7z39sz523bbcjn.wpengine.netdna-cdn.com/wp-content/uploads/2015/10/CGA_CEA-Report.pdf)

<sup>3</sup> Stimulating Innovation on Behalf of Canada's Electricity and Natural Gas Consumers, August 21 2014, Concentric Energy Advisors Inc., p. 16, [http://44f0gi3luy7z39sz523bbcjn.wpengine.netdna-cdn.com/wp-content/uploads/2015/10/CGA\\_CEA-Report.pdf](http://44f0gi3luy7z39sz523bbcjn.wpengine.netdna-cdn.com/wp-content/uploads/2015/10/CGA_CEA-Report.pdf)

TAB 8

**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")<sup>1</sup>.

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.

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<sup>1</sup> Framework, p. 31.

1 Union proposes to use the annual carbon price forecast, as outlined in the Framework<sup>2</sup>, as the  
2 proxy carbon price for setting Cap-and-Trade charges. Union has calculated the 2018 annual  
3 carbon price forecast to be \$18.99/tonne CO<sub>2</sub>e (calculated using a foreign exchange rate of 1.23)  
4 as provided at Exhibit 2, Schedule 2, p.1.

5  
6 The use of a proxy carbon price for all compliance instruments is consistent with rate setting by  
7 California gas utilities, as acknowledged in the Framework, and reflects the evolution of  
8 Ontario's Cap-and-Trade program while consistently applying the guiding principles of the  
9 Framework. In its Decision and Order on Union's 2017 Compliance Plan, the OEB indicated that  
10 as of January 1, 2018, all three Gas Utilities shall use the Ontario auction reserve price for the  
11 purpose of carbon price forecasting in the absence of linkage to the WCI<sup>3</sup>. On September 22, the  
12 MOECC formally announced Ontario's intention to link to the WCI on January 1, 2018. As a  
13 result of Ontario linking to the WCI, the Ontario auction reserve price is no longer a better  
14 indicator of 2018 carbon prices than the annual carbon price forecast methodology outlined in  
15 the Framework. Union has used the annual carbon price forecast as the proposed proxy carbon  
16 price to reflect the expectation that Ontario will link with the WCI effective January 1, 2018, and  
17 that the Utilities' current compliance plans will be largely based on compliance instruments and  
18 not abatement. In future years, as abatement comprises a more significant component of Union's  
19 compliance plan, further review of the rate setting methodology may be required.

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<sup>2</sup> Framework, p. 19.

<sup>3</sup> EB-2016-0296 Decision and Order, p. 21.

1 Variances between the 2018 proxy carbon price used to set Cap-and-Trade charges and the actual  
2 costs of the 2018 Compliance Plan will accrue to Union's Greenhouse Gas Emissions  
3 Compliance Obligation – Customer-Related Deferral Account and the Greenhouse Gas  
4 Emissions Compliance Obligation – Facility-Related Deferral Account. Union will bring forward  
5 the 2018 balance in these accounts for disposition following the end of the compliance year.  
6

7 **2. CUSTOMER-RELATED OBLIGATION COSTS**

8 Union is responsible for the GHG emissions obligation for most of its end-use distribution  
9 customers, with the exception of mandatory, voluntary participants and wholesale customers<sup>4</sup>.

10 Union proposes to apply the proxy carbon price to the forecast customer-related emissions to  
11 reflect the approximate cost of the customer-related obligation for recovery from these  
12 customers. Union is proposing to increase the Cap-and-Trade customer-related volumetric unit  
13 rate from 3.3181 cents/m<sup>3</sup> to 3.5599 cents/m<sup>3</sup>, effective January 1, 2018. The increase to the  
14 customer-related charge is caused by an increase to the proxy carbon price. The proxy carbon  
15 price has increased as a result of a higher 21-day CCA strip forecast price net of a decrease in the  
16 foreign exchange rate.  
17

18 Details of the customer-related obligation total cost and unit rate can be found at Exhibit 7, Tab  
19 1, Schedule 1, p.1.

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<sup>4</sup> 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.

1    **3. FACILITY-RELATED OBLIGATION COSTS**

2    Union is also responsible for the GHG emissions obligation associated with its own operations.  
3    Union's facility-related obligation is generated largely from GHG emissions associated with  
4    UFG, compressor fuel and blowdowns, and buildings and line heaters (company use gas). Union  
5    proposes to apply the proxy carbon price to the forecast facility-related emissions to reflect the  
6    approximate cost of the facility-related obligation for recovery from customers. Union is  
7    proposing to decrease the facility-related costs for recovery included in rates from \$9.926 million  
8    to \$8.584 million, effective January 1, 2018. The decrease to the facility-related costs is caused  
9    by a decrease to the facility emissions described at Exhibit 2, which is partly offset by an  
10   increase to the proxy carbon price. The change to the facility-related obligation and the  
11   allocation of facility-related obligation costs is summarized at Exhibit 7, Tab 1, Schedule 1.

12  
13   In the 2017 Compliance Plan Decision and Order, the OEB found that the Utilities should  
14   allocate compliance obligation costs in a manner consistent with the Framework. The  
15   Framework states that facility-related obligation costs should be recovered from all customers, as  
16   they directly relate to the delivery of natural gas to customers. It further states that, similar to  
17   customer-related charges, facility-related charges should be allocated to rate classes based on  
18   consumption and recovered through a volumetric charge (\$/m<sup>3</sup>).<sup>5,6</sup> Consistent with this direction,  
19   Union has allocated the facility-related obligation costs to rate classes based on in-franchise  
20   delivery volumes and ex-franchise transportation volumes. This allocation methodology is  
21   consistent with the Framework and the 2017 Compliance Plan Decision and Order. The

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<sup>5</sup> EB-2016-0296 Decision and Order, p. 39.

<sup>6</sup> 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

1 compliance obligation. Accordingly, it is not necessary for Union to provide the option for the  
2 customer-related Cap-and-Trade unit rate on these rate schedules.

3  
4 Union has also updated the Rate C1 rate schedule to remove the facility-related Cap-and-Trade  
5 unit rates for interruptible transportation and short-term firm transportation under Rate C1. The  
6 Rate C1 rate schedule allows for interruptible and short-term (1 year or less) firm transportation  
7 service pricing up to a maximum of \$75/GJ. Facility-related Cap-and-Trade unit rates for these  
8 services are not required on the Rate C1 rate schedule, as the pricing for the services is either  
9 negotiated or provided under Union's Schedule 2 Hub pricing (available at uniongas.com). This  
10 change to the Rate C1 rate schedule does not impact the facility-related costs allocated to  
11 interruptible and short-term firm transportation.

12  
13 Blackline versions of the Rate M9, Rate M10, Rate T3 and Rate C1 rate schedules are provided  
14 at Exhibit 7, Schedule 5.

15  
16 **6. CUSTOMER BILL IMPACTS**

17 The bill impact of the Cap-and-Trade program, including the customer-related Cap-and-Trade  
18 costs, for a typical Union South and Union North residential customer consuming 2,200 m<sup>3</sup>  
19 annually is an increase of \$5 per year.

20

1 The bill impact of the Cap-and-Trade program, excluding customer-related Cap-and-Trade  
2 costs, for a typical Union South and Union North residential customer consuming 2,200 m<sup>3</sup>  
3 annually is a decrease of less than \$1 per year.

4  
5 Exhibit 7, Tab 1, Schedule 2 provides customer bill impacts, both including and excluding  
6 customer-related obligations, for General Service rate classes Rate M1, Rate M2, Rate 01 and  
7 Rate 10. Exhibit 7, Tab 1, Schedule 3 provides the customer bill impacts, both including and  
8 excluding customer-related obligations, for all in-franchise rate classes.

9  
10 The calculation of Supplemental Service Charges is provided at Exhibit 7, Tab 1, Schedule 4.

11  
12 Bill impacts included in this application do not reflect changes to rates included in Union's  
13 2017 Compliance Plan final rate order (EB-2016-0296), proposed changes in Union's 2018  
14 Rates application (EB-2017-0087) or changes to Union's gas commodity and fuel rates that  
15 will be implemented with Union's January 1, 2018 QRAM application.

TAB 9



UNION GAS LIMITED  
 Actual vs Forecast Compliance Portfolio  
 for the 3 month period ending September 30, 2013

Line No.	Compliance Category	Volume (CO <sub>2</sub> e)	Price (\$/CO <sub>2</sub> e)	CO <sub>2</sub> e (\$/CO <sub>2</sub> e)	Forecast <sup>a</sup>	Transacting Cost (\$/CO <sub>2</sub> e)	Forecasting Cost (\$/CO <sub>2</sub> e)	Total Cost (\$/CO <sub>2</sub> e)	Percentage of Portfolio	Total Cost (\$/CO <sub>2</sub> e)	Percentage of Portfolio	Total Cost (\$/CO <sub>2</sub> e)	Volume (CO <sub>2</sub> e)	Variance (\$/CO <sub>2</sub> e)
9	Subtotal - Compliance Instruments													
9	Abatement													
9	Customer Abatement Program <sup>b</sup>	3,333	\$						0%					
10	Facility Abatement Program								0%					
11	Subtotal - Abatement	3,333	\$						0%					
12	Total - Compliance Plus													

**Notes:**  
 (1) - Forecast data for this 3 month period ending September 30, 2013 has been newly provided from the total forecast amounts included in the 2013 Compliance Portfolio as of 6/1/13.  
 (2) - As indicated in Union's 2013 Compliance Plan, the 2013 compliance program is forecast and actual CO<sub>2</sub>e reduction for 2013 and 2014. The forecast amount for 2013 is 3,333 CO<sub>2</sub>e and the actual amount for 2013 is 3,333 CO<sub>2</sub>e. The forecast amount for 2014 is 3,333 CO<sub>2</sub>e and the actual amount for 2014 is 3,333 CO<sub>2</sub>e.  
 Actual volume represents full year modeled annual savings.

TAB 10

UNION GAS LIMITED

Answer to Interrogatory from  
Board Staff

Reference: Exhibit 3, pp. 29-32

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

- a) For comparative purposes, please provide a breakdown of Union's 2016 administrative costs which include the costs of IT billing system updates, staff resources, call centre, consulting, and any other amounts Union incurred or forecast to be incurred.
- b) Please provide variance analysis which compares, by cost element, the costs incurred in 2016 versus the projected administrative costs for 2017.
- c) Please discuss the rationale and appropriateness of the difference in staffing levels proposed by Union (13.5 FTEs in 2017) and Enbridge (7 FTEs in 2017).
- d) Please discuss the process that Union uses or intends to use to ensure that administrative costs are incremental to the Company's current business and are required for the purpose of the Company meeting its Cap-and-Trade obligations.

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**Response:**

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

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

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

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

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

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

**Salaries - excluding customer contact centre**

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

**Salaries - customer contact centre**

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

### **Consulting**

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

### **Bad debt related to Cap-and-Trade**

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

### **Revenue requirement on capital costs**

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

### **Other**

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

- c) Union does not have the information required to adequately assess and justify the difference in staffing levels proposed between Union and Enbridge. Please see Exhibit B.SEC.3 for a description of Union's 13.5 FTE roles.
- d) In order to properly support the incremental work resulting from the Cap-and-Trade and CCAP, Union has incurred administrative costs. These costs are comprised of new incremental roles and existing roles supporting the incremental work. In the case of existing roles, Union has reallocated work, refined processes and restructured support teams to drive productivity gains allowing for these roles to assume the incremental Cap-and-Trade work.

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

Figure 1

