OEB STAFF PUBLIC INTERROGATORIES
Union Gas
Cap and Trade Compliance Plan
EB-2017- 0255

January 26, 2018

Issue 1 – Cost Consequences

Staff IR UGL #11 Public

Topic: 2018 Greenhouse Gas Emissions Impact Deferral Account (GGEIDA) Cost Forecast

Ref: 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.

Questions:

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.

Administrative Cost Item	2017 Forecast	2017 Actual	2018 Forecast
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[1] and related working group)			$50,000

[1] OEB's Long-term Carbon Price Forecast, EB-2016-0359

Administrative Cost Item	2017 Forecast	2017 Actual	2018 Forecast
Revenue Requirement on Capital Costs (related to billing system changes)			$193,000
Other (travel expenses, market research and communications)	$68,000		$68,000
SUB-TOTAL	**$4,223,000**		**$4,004,000**
Low Carbon Initiative Fund	n/a		$2,000,000
TOTAL	**$4,223,000**		**$6,000,000**

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

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[2] 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:
   i. The cost difference between 2017 Forecast and 2017 Actual is greater than 10 percent.
   ii. The cost difference between 2017 Actual and 2018 Forecast is greater than 10 percent.

Staff IR UGL #12 Public

Topic: 2018 Greenhouse Gas Emissions Impact Deferral Account (GGEIDA) Cost Forecast

[2] EB-2017-0306

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Ref: 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.

Questions:

a) Please complete the table below:

Consultant	**2018 Costs**
ClearBlue	
BlueSource	
ICF	
Ortech Environmental	
Other	
Total	**$670,000**

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[3] 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.

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

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

Staff IR UGL #13 Public

Topic: 2018 Volume Forecast

Ref: Exhibit 2 / p. 5
Exhibit 2 / Schedule 1 / p. 1
Exhibit 3 / Tab 4 / Appendix A / p. 2

Preamble:
In Exhibit 2, p. 5, Union Gas indicates that the DSM volume impact corresponds to the 2016-2020 DSM plan approved by the OEB (EB-2015-0029) and amounts to 98,317,116m^3.

In the 2018 Volume Forecast table in Schedule 1, Union Gas includes a DSM volume reduction of 323,134,370 m^3.

In Evaluation of Customer Abatement via Energy Conservation Programs Incremental to DSM, Union Gas indicates that their C/I annual savings in their DSM Plan for 2020 (including savings persisting from 2018 and 2019 programs) are 193 million m^3 for C/I programs and 20 million m^3 for residential programs.

Questions:

a) Please explain why the DSM volume impacts in Exhibit 2 and Exhibit 2 / Schedule 1 are not consistent. If revisions are required, please update all necessary tables.

b) Please explain whether the annual savings for Union Gas' DSM plan shown in Appendix A of Exhibit 3 / Tab 4 reflect the 2018 DSM volume impact estimated in Exhibit 2. If not, why not.

[3] EB-2017-0306

1.7 Has the gas utility reasonably and appropriately presented and conducted its Compliance Plan risk management processes and analysis?

Staff IR UGL #14 Public

Topic: Purchasing and Holding Limits

Ref: Exhibit 3 / Tab 6 / pp. 12-13

Preamble:
In the WCI linked market, Union Gas is considered a related person with two entities: Enbridge Gas and Gazifère Inc.

Enbridge Gas and Union Gas also filed a MAAD application[4] with the OEB.

Questions:

a) For 2018, please explain whether, and if so how, Union Gas will realize any economies of scale in relation to the following cap and trade activities:
   i. Research and development, including RNG research and development
   ii. Back office functions
   iii. FTEs related to cap and trade
   iv. Cap and trade consultants
   v. Abatement activities

b) Do Enbridge Gas and Union Gas intend to file individual and separate compliance plans for 2019-2020? Please explain.

Staff IR UGL #15 Public

Topic: Carbon Market Transaction Mechanisms and Data Sources

Ref: Exhibit 3 / Tab 2 / p. 12

Preamble:
Union Gas states that its CITSS accounts are managed within its compliance instrument procurement function in the Gas Supply department. Union Gas also has CITSS Account Viewing Agents in the cap-and-trade and Finance departments.

Questions:

[4] EB-2017-0306

a) How may CITSS accounts does Union Gas have?
    i. Please describe each of Union Gas' CITSS accounts

b) Do Union Gas, Enbridge Gas and Gazifère share a CITSS account? Please explain.

c) Please explain how Union Gas, Enbridge Gas and Gazifère will coordinate and report their accumulated compliance instruments to demonstrate compliance.

Staff IR UGL #16 Public

Topic: Application for Holding Limit Exemption

Ref: Exhibit 3 / Tab 2 / p. 11

Preamble:
Union Gas states that it 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.

Questions:
a) Has Union Gas applied to the MOECC for a holding limit exemption? Please explain.
    i. If yes, has Union Gas been granted an exemption? Is there a time limit on the exemption? Please explain.

Issue 1.9 - Are the gas utility's proposed longer term investments reasonable and appropriate?

Issue 1.10 - Are the gas utility's proposed new business activities reasonable and appropriate?

Issue 1.11 - Are the gas utility's proposed greenhouse gas abatement activities reasonable and appropriate?

Staff IR UGL #17 Public

Topic: Abatement Construct

Ref: Exhibit 3 / Tab 1 / p. 9
Exhibit 3 / Tab 4 / p. 13, Table 1

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Cap and Trade Compliance Plan
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January 26, 2018

Preamble:
Union Gas states that Union Gas and Enbridge Gas have developed an Abatement Construct, including an Initiative Funnel, to support development of new technologies over the long-term, including "abatement initiatives that may not be cost-effective and that will require alternative funding models… to proceed." Union Gas provides Table 1, which lists the abatement initiatives in Union Gas' Initiative Funnel (by Funnel stage):

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

Questions:

a) Please provide Table 1 (above) with the following columns added on:
   i. The cost per tonne of CO_2e ($/tonne CO_2e) for each abatement opportunity.
   ii. A description of the funding that Union Gas has requested or will request for each opportunity.
   iii. An explanation of why these abatement opportunities require government funding.

b) Please provide all supporting documentation, including data and analysis used to calculate the $/tonne CO_2e for each abatement activity in a).

c) Please provide the cost-effectiveness threshold (in $/tonne) that Union Gas used to determine that the abatement activities may not be cost-effective.

a) For any abatement activity in Table 1 that is more expensive per tonne of CO_2e than the abatement activities on the OEB's Marginal Abatement Cost Curve[5] (OEB MACC), please explain why Union Gas selected these activities instead of the less expensive abatement activities on the OEB MACC. In Union Gas' response, please provide all supporting documentation, including data, assumptions and analysis.

Staff IR UGL #18 Public

Topic: The Abatement Construct, Abatement Guiding Principles

Ref: Exhibit 3 / Tab 4 / pp. 6-8

Preamble:
Union Gas states that "abatement investments require guiding principles that are complementary to the guiding principles in the Cap-and-Trade Framework." Union Gas then outlines its abatement guiding principles, including:

- Funding
- Timely advancement of technology
- Support for government targets
- Efficient and rational development, and
- Respect for appropriately modified regulatory constructs.

Questions:

a) In the OEB's Cap and Trade Framework[6], the OEB indicates that its assessment of the utility's Compliance Plan will be guided by six principles, the first of which is cost-effectiveness. Please explain why cost-effectiveness is not one of Union Gas' guiding principles for abatement.
   i. Please explain how each of Union Gas' abatement guiding principles upholds the Cap and Trade Framework's guiding principles of rate predictability, cost recovery, transparency, flexibility and continuous improvement.

b) Please explain how Union Gas used its abatement guiding principles in its decision to pursue RNG Procurement, RNG Enabling, and Geothermal Energy Services Program for its 2018 proposed customer abatement activities.

[5] EB-2016-0359
[6] EB-2015-0393, pp. 7-8

i. Please explain whether Union Gas considered the cost-effectiveness of RNG Procurement, RNG Enabling, and Geothermal Energy Services.

c) In regards to the second principle, "timely advancement of technology", please explain what Union Gas believes its role is in advancing the adoption of new technology in Ontario.

d) In relation to the third principle, "support for government targets", please explain what Union Gas believes its role is in supporting government abatement targets.

e) In relation to the fourth principle, "efficient and rational development", Union Gas states that "abatement programs should balance customer cost impacts by leveraging existing infrastructure." Please provide one or more examples of how customer abatement programs would balance customer cost impacts by leveraging existing infrastructure.
   i. For the examples provided above, please explain why Union Gas did or did not propose any of these customer abatement programs as part of its 2018 Compliance Plan. Please provide analysis and supporting documentation.

Staff IR UGL #19 Public

Topic: Cost-Effectiveness of Abatement and Abatement Funding

Ref: Exhibit 3 / Tab 1 / p. 62
Union Gas IRR / Exhibit B.Staff.1 / Attachment 1 / p.6 (p.15 of slide deck)

Preamble:
Union Gas states that it "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 the IRRs provided by Union Gas in response to Issue 1.1.10 (RNG), Board Staff IR #1, Attachment 1, Union Gas provides a slide deck. On page 15 of the slide deck, Union Gas states "conservation remains the lowest cost solution to reducing emissions and saving customers money." It also contains a graphic stating that "Residential Customers save $2.67 for each dollar spent on natural gas conservation (ECO, 2016)."

Questions:

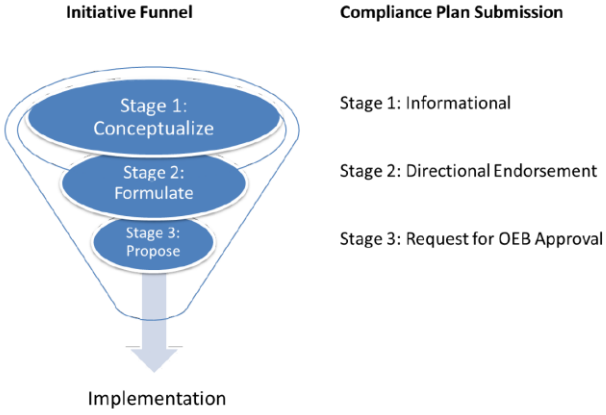
a) Given Union Gas' statement above and the statements contained in the slide deck, please explain:
   i. Union Gas' decision to prioritize RNG and not to pursue other abatement opportunities in its 2018 Compliance Plan.
   ii. Whether the abatement activities that Union Gas is seeking government funding for are cost-effective.
      1. Please provide all data and supporting analysis that Union Gas used to calculate cost-effectiveness in $/tonne CO_2e.

Staff IR UGL #20 Public

Topic: Abatement Initiative Funnel

Ref: Exhibit 3 / Tab 4 / pp. 8-10

Preamble:
Union Gas proposes that the following Initiative Funnel for its approach to investigating, planning and implementing abatement activities through its Compliance Plan.



Union Gas states that decisions about which initiatives move through the funnel stages will be informed by market signals, policy, OEB MACC, OEB LTCPF, customer acceptance, and technology development status, among other inputs.

Questions:

a) Please explain how Union Gas' abatement guiding principles will be incorporated into its decision regarding which abatement activities move through the Funnel stages. Will they be different depending on the stage? Please explain.

i. Are all the abatement guiding principles equally important or are some of the guiding principles more important than others? Please explain.
ii. Will Union Gas consider the cost-effectiveness of different abatement initiatives as it moves projects through the Initiative Funnel?
    1. If yes, please describe how Union Gas will consider and compare the cost-effectiveness of all potential abatement initiatives.
    2. If no, please explain why not.

b) Please explain whether, and if so how, stakeholder input will be used by Union Gas to made decisions regarding which abatement initiatives to pursue.

Staff IR UGL #21 Public

Topic: Abatement Resourcing Requirements and the LCIF

Ref: Exhibit 3 / Tab 4 / pp. 10-12 and 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.

Questions:
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.

Staff IR UGL #22 Public

Topic: The Low Carbon Initiative Fund

Ref: Exhibit 3 / Tab 4 / p. 16

Preamble:
Union Gas states that it engaged customers in 2017 to understand their needs and preferences, and that one of the topics it asked customers about was "the creation of an innovation and technology fund." Union Gas also states that over 70% of residential and commercial customers supported ratepayer-funded investments in new technologies.

Questions:

a) Please provide all relevant documentation of the customer engagement activities Union Gas carried out in 2017 that are related to the creation of an innovation and technology fund.
    i. Please provide documentation demonstrating customer responses and approval ratings in regards to the development of a new fund.

Staff IR UGL #23 Public

Topic: Stage 2 (formulate) projects: Integrated Air-Source Heat Pump/Natural Gas Solutions and Ground Source Heat Pumps

Ref: Exhibit 3 / Tab 4 / pp. 25-28

Preamble:
Union Gas states that two of the project in Stage 2 of the Initiative Funnel are Integrated Air-Source Heat Pump/Natural Gas Solution and Ground Source Heat Pumps.

For Ground Source Heat Pumps (GSHP), Union Gas indicates that it intends to work with industry to establish an application roadmap for this technology. Union Gas states that it has and will continue to work with Enbridge Gas as part of its evaluation of GSHP technology, and it plans to monitor and build on Enbridge Gas' experience with GSHP and consider options to serve Union Gas customers. Union Gas also states that it expects to launch a pilot project in 2018 which will establish an implementation plan for its residential and commercial markets for GSHPs. It will evaluate next steps for GSHP following the pilot project in 2018.

Questions:

a) Given that the OEB MACC report indicates that heat pumps are currently high cost compared to other energy efficiency options for space heating, please explain why Union Gas is pursuing heat pumps at this point in time?

b) In regards to Union Gas' development of an application roadmap for GSHP, please describe:
    i. The industry experts that Union Gas has been working with and will work with in the future to establish the roadmap.
    ii. The work has been done on the GSHP roadmap to date.
    iii. What Union Gas expects to achieve from the development of the roadmap.

c) In regards to the work Union Gas has been undertaking on GSHP with Enbridge Gas, please explain:

i. How Union Gas plans to monitor and build on Enbridge Gas' experience with GSHP.
ii. The details of the pilot project that Union Gas expects to launch in 2018.
iii. How Union Gas will evaluate the pilot to determine next steps for GSHP.
iv. What type of "additional customer research" Union Gas is planning for GSHPs.

Staff IR Union #24 Public

Topic: Stage 2 (formulate) projects: Net Zero Energy and Net Zero Energy Ready Homes

Ref: Exhibit 3 / Tab 4 / pp. 28-30

Preamble:
Union Gas states that it currently administers the Optimum Home Program to encourage residential builders to construct new homes 20% more efficient than the Ontario Building Code 2017 standards. Union Gas also states that Enbridge Gas has a similar program and that Union Gas is aware that Enbridge Gas has proposed to the MOECC additional measures, such as expanding participating builders and geographic regions as well as builder incentives for NZER construction. Union Gas indicates that it is investigating similar measures for its franchise area and that specific measures are yet to be determined, but it is expected that they will not be cost-effective and would require government funding of $100 - $150 million to proceed.

Questions:

a) Please expand on the types of measures Union Gas is considering as part of its cap and trade customer GHG abatement.

b) Please explain why Union Gas has determined that it requires government funding to proceed with NZER.
   i. Please provide Union Gas' data and calculations used to determine that NZER will not be cost-effective and that $100-$150M would be required in provincial funding.
   ii. Has Union Gas entered into discussions, or will Union Gas enter into discussions, with the province regarding obtaining this funding? Please explain.

Staff IR UGL #25 Public

Topic: Stage 2 (formulate) projects: Micro Generation

Ref: Exhibit 3 / Tab 4 / p. 32

Preamble:
Union Gas states that it is planning to pilot various micro generation technologies in 2017 and 2018 in target markets and geographic locations, and that the results of the pilot projects will be monitored to confirm the effectiveness of micro generation systems.

Union Gas also states that it intends to pursue further steps to overcome the barriers to commercialization of micro generation, including proposing changes to legislation pertaining to Net Metering. Union Gas indicates that it expects that government funding in the range of $70 - $110 million is required over the next 5 years to commercialize micro generation technology.

Questions:

a) Please explain how micro generation solutions lead to GHG abatement.

b) Please explain why it is appropriate for Union Gas to have a role in the commercialization of micro generation technology.

c) Please explain whether ratepayers would be expected to support any of the costs of commercialization of micro generation.
   i. Is Union Gas requesting ratepayer support for its activities regarding proposing changes to Net Metering legislation? If yes, how much does Union Gas expect these activities to cost?

d) If ratepayers are expected to contribute to the cost of commercialization of micro generation, please describe the expected benefits, including:
   i. Qualitative benefits such as consumer choice.
   ii. Quantitative benefits in $/tonnes of CO_2e savings.

Staff IR UGL #26 Public

Topic: Stage 1 (Conceptualize) projects

Ref: Exhibit 3 / Tab 4 / pp. 35-38

Preamble:

Union Gas states that its stage 1 (conceptualize) projects include Residential-Scale Carbon Capture and Utilization, Building Skins, Biomass Conversion (Thermochemical) to RNG, and Automatic Meter Reading.

Questions:

a) Please explain what activities (such as research and development, pilot projects, market research, etc.) Union Gas intends to do with regards to the stage 1 projects in 2018.
   i. Please indicate how much Union Gas expects these activities to cost in 2018.

Staff IR UGL #27 Public

Topic: Facility Abatement study

Ref: Exhibit 3 / Tab 4 / pp. 44-45
Exhibit 3 / Tab 4 / pp. 49-51

Preamble:
Union Gas states it undertook a Facility Abatement Study to identify opportunities with the potential to reduce GHG emissions from its transmission, storage, and distribution operations. Union Gas further states that the Facility Abatement Study identified three applications where incorporating the GHG emissions impact has particular applicability: valve operators, pipeline looping, and blowdown recovery.

Union Gas indicates that for pipeline looping, the Abatement Study evaluated the cost and emissions of building a new compressor relative to the cost to install pipeline looping, and that “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.”

Questions:

a) Please provide a copy of the study referenced above.

b) Did Union Gas complete a similar abatement study for customer abatement?
   i. If yes, please provide this study.

c) For pipeline looping, can Union Gas please provide the following:
   i. Supporting documentation, including data and analysis which demonstrate that the higher capital cost of pipeline looping could be offset by cost savings related to the avoidance of GHG emissions.

Staff IR Union #28 Public

Topic: Facilities Abatement Sustainment Plan and Abatement Analysis and Process

Ref: Exhibit 3 / Tab 2 / p. 4
Exhibit 3 / Tab 4 / p. 56

Preamble:
Union Gas states that it initiated process changes to support the potential abatement opportunities, such as leveraging economic evaluation models and processes to incorporate the OEB LTCPF and OEB MACC into customer and facility abatement analyses.

Union Gas also states that it established a cross-functional project team to investigate and evaluate facility abatement ideas, and that this project team will evolve into a sustainment team which generates and evaluates new abatement ideas on an annual basis, and that this team also integrates its findings into Union Gas's broader planning processes.

Union Gas indicates that as part of the mandate of the Abatement Study project, a sustainment plan has been implemented to maintain ongoing focus on facility abatement projects. Union Gas proposes that the sustainment plan establishes the Facility GHG Emission Reduction program, which includes the formation of the Facilities Abatement Steering Committee.

Questions:

a) Please describe the roles and responsibilities of each team, Committee and the GHG Emission Reduction program [program] (as described in the exhibit above) as well as any other team or committee that Union Gas has that relates to facilities abatement.
    i. Please explain how the teams, Committees and program differ from each other.
    ii. Is there, or will there be, interaction and collaboration between the Committee and teams described above? Please explain.

b) Please describe all the work done to date by the teams, Committees and program discussed in a).

c) Please explain when the cross-functional project team will evolve into a sustainment team.

d) Please describe how the sustainment team will generate and evaluate new abatement ideas, and how this will work with Union Gas' Initiative Funnel.
   i. Will the Facilities Abatement Steering Committee also work with Union Gas' Initiative Funnel? Please explain.

e) Please describe whether, and if so how, the work of the Committee and teams will be integrated into Union Gas' broader planning processes (including, but not limited to, business planning, capital planning and investment management planning).

f) Will similar teams, programs and Committees be used for customer abatement activities? Please explain.

Staff IR Union #29 Public

Topic: Evaluation of Customer Abatement via Energy Conservation Programs Incremental to DSM

Ref: Exhibit 3 / Tab 4 / Appendix A, pp. 2-3 and Table 1

Preamble:
Union Gas states that it conducted an analysis of the OEB's Conservation Potential Study (OEB CPS) and OEB LTCPF and determined that incremental abatement opportunities were not cost-effective over an average 15-year measure life once Ontario's cap and trade market is linked to WCI.

Questions:

a) Please provide all supporting data and analysis that Union Gas used to calculate the marginal costs of incremental abatement (in $/tonne) in Table 1.
   i. Please describe whether Union Gas' calculations include costs and benefits to the utilities only, or also includes costs and benefits to the ratepayer.

b) Please provide the cost-effectiveness threshold (in $/tonne) that Union Gas used to determine that the incremental abatement activities were not cost-effective.

Staff IR Union #30 Public

Topic: Evaluation of Customer Abatement via Energy Conservation Programs

Incremental to DSM

Ref: Exhibit 3 / Tab 4 / Appendix A, p. 4

Preamble:
Union Gas indicates that it adjusted the savings potentials found in the CPS and the OEB MACC because it claims that they were gross, i.e., did not exclude efficiency upgrades that would occur in the absence of DSM programming.

The OEB's Natural Gas Conservation Potential Study explicitly gives special consideration to natural conservation, and notes that it gave special consideration to:

- Naturally-occurring improvements in equipment efficiency
- Expected penetration of more efficient equipment into the building stock
- Known, upcoming changes in building and equipment energy performance codes and standards

Questions:

a) Please indicate why Union Gas believes that the opportunities identified in the OEB MACC are gross savings.

b) Please confirm that Union Gas understands that the OEB MACC analysis is based on the data and analysis from the OEB CPS, which indicates that the reference case explicitly included natural conservation.

c) Please explain how the adjustment factors Union Gas used to reduce the OEB MACC potential are reasonable, given that the reference case included natural conservation.

Staff IR Union #31 Public

Topic: Evaluation of Customer Abatement via Energy Conservation Programs
Incremental to DSM

Ref: Exhibit 3 / Tab 4 / p. 43
Exhibit 1 / p. 6 and Exhibit 3 / Tab 4 / Appendix A, p 6, Table 2 and Table 3

Preamble:
In Exhibit 3, Union Gas states that when assessing the OEB MACC for abatement opportunities, it "did not identify any cost-effective Commercial/Industrial (C/I) abatement opportunities incremental to its existing DSM programs." Union Gas LAO states that it "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 Gas indicates that it will "assess the incremental opportunity and pursue it through the DSM Framework where possible."

Union Gas proposes that "through the CPS and OEB MACC analyses, Union has determined that it is not appropriate to include incremental DSM abatement opportunities in the 2018 Compliance Plan."

In Appendix A, Union Gas identifies its annual savings in 2020 (plus savings persisting from the 2018 and 2019 year) based on its analysis of the potential found in the OEB MACC, and compared them to the savings anticipated in the existing DSM plan for those years.

Questions:

a) Please explain why Union Gas states that is not appropriate to include incremental abatement in its 2018 Compliance Plan even though Union Gas identified cost-effective abatement opportunities in the residential sector in all carbon price forecast scenarios.
   i. Please explain why and how Union Gas proposes to pursue this opportunity through the DSM Framework instead (given that the DSM budgets for 2015-2020 were approved in the DSM Decision.[7]

b) For the Commercial/Industrial Analysis in Appendix A:
   i. Please provide Union Gas' calculation of the OEB MACC mid-range LTCPF savings potential of 66 million m^3, based on the results found in the OEB MACC.
   ii. Please provide Union Gas' data and analysis to calculate the annual savings realized in 2020 from Union's C/I prescriptive and custom DSM plan, including savings from 2018 and 2019 that persist into 2020. Please indicate the achievement of their targets (in %) assumed for 2017, 2018, 2019, and 2020 in this calculation.
   iii. Please indicate what commercial/industrial measures included in the OEB MACC are those that Union Gas does not currently incent, and provide rationale for excluding each.

c) For the Residential Analysis in Appendix A:
   i. Please provide Union Gas' calculation of the OEB MACC mid-range LTCPF savings potential of 35 million m^3, based on the results found in

[7] EB-2015-0029/0049

the OEB MACC (i.e., 144 million m^3 of 2018-2020 abatement potential in Ontario, as shown in Table 14 of the OEB MACC).

ii. Please provide Union Gas' data and analysis to calculate the annual savings realized in 2020 from Union Gas' Residential DSM Plan, including savings from 2018 and 2019 that persist into 2020. Please explicitly indicate the achievement of their targets (in %) assumed for 2017, 2018, 2019, and 2020 in this calculation.

d) Please explain whether the annual savings from Union Gas' DSM Plan in Appendix A are consistent with the 2018 DSM volume reductions indicated in Exhibit 2.

Issue 3 - Customer Outreach – Are the proposed customer outreach processes and methods reasonable and appropriate?

Staff IR Union #32 Public

Topic: Customer Outreach

Ref: Exhibit 5 / pp. 1-9

Preamble:
Union Gas states that based on customer feedback, it 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.

Union Gas proposes that its cap-and-trade rate changes will be communicated with customers in the same way as other annual rate changes, including (but not limited to): bill inserts, bill messages, website, contact centre, customer FAQ's, Enerline newsletters, customer meetings and one-on-one discussions. Union Gas states that 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.

Questions:

a) Please discuss Union Gas' experience to-date related to the information that it has provided to customers. Please discuss how this information generally been received by customers and the volume of inquiries/comments submitted to Union Gas' call centre.

b) Has Union Gas has received feedback from customers on its cap and trade calculator? If so, please discuss the feedback Union Gas has received.

Issue 4 – Deferral and Variance Accounts

Issue 4.2 – Are the proposed deferral account balances reasonable and appropriate?

Staff IR Union #33 Public

Topic: 2016 Greenhouse Gas Emissions Impact Deferral Account (GGEIDA)

Ref: Exhibit 6 / p. 3 and Exhibit 6 / p. 3, Table 1

Preamble:
Union Gas states that it is requesting approval of the disposition of the 2016 balance in its GGEIDA. The 2016 balance in Union Gas' GGEIDA is a debit from ratepayers of $2.225 million, plus interest of $0.007 million, for a total debit from ratepayers of $2.232 million. Union Gas provided the Table 1 as a line item summary of its 2016 GGEIDA.

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**

In Exhibit D, Tab 1, Schedule 2, p 2 of Enbridge Gas' evidence, Enbridge Gas provided the following table:

Table 1: 2016 GGEIDA

Cost Element	Actual Amount
IT billing system – revenue requirement	$ (99,500)
Staff Resources	$533,321
Market Intelligence, and Consulting Support	$268,199
Customer Outreach and Information	$44,783
External Legal Counsel (Compliance Readiness and C&T Regulatory Proceeding Preparations)	$93,533
Total (exclusive of interest)	**$840,336**

Questions:

a) Please provide an explanation as to why Union Gas believes $1,682,000 is a reasonable amount for salaries and wages given that Enbridge Gas spent $533,321 in 2016.

b) Please provide an explanation as to why Union Gas believes $484,000 is a reasonable amount for consulting and market research given that Enbridge Gas spent $268,199 for consulting support and market intelligence in 2016.

Issue 4.3 – Is the disposition methodology reasonable and appropriate?

Staff IR Union #34 Public

Topic: Disposition of 2016 Cap-and-Trade Deferral Account Balances

Ref: Exhibit 7 / Tab 2 / p. 2
Exhibit 6 / p. 3
Exhibit 6 / p. 3, Table 1

Preamble:
Union Gas proposes to dispose of the 2016 GGEIDA balance of $2.232 million related to administration costs and 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.

Union Gas also proposes to dispose of the approved 2016 GGEIDA balance with the disposition of the 2017 non-commodity deferral account balances. Union Gas

anticipates its disposition of the 2017 non-commodity deferral accounts to be effective October 1, 2018 following OEB approval in that proceeding.

For General Service Rate M1, Rate M2, Rate 01 and Rate 10 customers, Union Gas proposes to dispose of the 2016 cap-and-trade deferral account balances prospectively, over the October 1, 2018 to March 31, 2019 time period. For in-franchise 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.

In Table 1, Union Gas provided the following administration cost line items for 2016.

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**

Questions:

a) Please provide the proposed allocation factors by rate class for each of the cost line items outlined in Table 1 (above) and the amounts allocated by rate class.

b) Please provide an indication of the average monthly amount for general service customers associated with 2016 GGEIDA costs in Table 1.

Issue 5 – Cost Recovery

Issue 5.1 – Is the proposed manner to recover costs reasonable and appropriate?

Staff IR Union #35 Public

Topic: Total customer- and facility-related obligation costs and tables

Preamble:
In Enbridge Gas' Exhibit G, Tab 1, Schedule 1, p. 3, Enbridge Gas provides the following information:

"12. As set out in Appendix A, Table A1, which is included at Exhibit G, Tab 1, Schedule 1, Enbridge's forecast customer-related obligation costs in 2018 total $377,052,654 (19,855,327t$CO_2$e * $18.99 CAD/t CO_2e).
13. As set out in Appendix A, Table A2, which is included at Exhibit G, Tab 1, Schedule 1, Enbridge's forecast facility-related obligation costs in 2018 total $4,604,398 (242,464t$CO_2$e * $18.99/t CO_2e)."

Enbridge Gas then provides the following Tables in Appendix A:

TABLE A1

TABLE 1: 2018 CUSTOMER-RELATED VOLUMES, EMISSIONS, COST OF EMISSIONS AND UNIT RATE

		Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7
Line	Rate	Budget Forecast Volumes[1]	LFE, Customer Abatement, Capped Participants and Other Exempt Gas Volumes[2]	Net Volumes[3]	Net CO_2e Emissions[4]	Assumed Cost of Allowances[5]	Cost of CO_2e Emissions[6]	Unit Rate[7]
		(10^3m^3)	(10^3m^3)	(10^3m^3)	(Tonnes CO_2e)	($/tonne CO_2e)	($)	(¢/m^3)
1.1	1	4,760,546.5	5,922.6	4,754,623.9	8,913,146.3	18.99	169,260,649.0	
1.2	6	4,829,792.7	156,649.9	4,673,142.8	8,760,399.7	18.99	166,359,989.7	
1.3	9	0.0	0.0	0.0	0.0	18.99	0.0	
1.4	100	0.0	0.0	0.0	0.0	18.99	0.0	
1.5	110	789,035.8	367,138.0	421,897.8	790,901.0	18.99	15,019,210.1	
1.6	115	542,831.4	410,350.3	132,481.1	248,352.6	18.99	4,716,216.8	
1.7a	125	319,562.5	0.0	319,562.5	599,060.5	18.99	11,376,158.7	
1.7b	125D[8]	124,896.5	0.0	124,896.5	234,134.4	18.99	4,446,211.3	
1.8	135	64,501.3	0.0	64,501.3	120,915.9	18.99	2,296,192.5	
1.9	145	50,136.2	3,670.7	46,465.5	87,105.5	18.99	1,654,133.1	
1.10	170	291,152.3	237,627.7	53,524.6	100,338.7	18.99	1,905,431.2	
1.11	200	169,764.4	169,764.4	0.0	0.0	18.99	0.0	
1.12	300	518.6	0.0	518.6	972.2	18.99	18,461.7	
1	Total Customer-Related	11,942,738.2	1,351,123.6	10,591,614.6	19,855,326.7	18.99	377,052,654.1	3.5599

Notes:
(1) Exhibit B, Tab 2, Schedule 1, Table 1, Col. 1 - Col. 2
(2) Exhibit B, Tab 2, Schedule 1, Table 1, Col. 3 + Col. 5 + Col. 6
(3) Col. 1 - Col. 2
(4) Exhibit B, Tab 3, Schedule 1, Table 1, Col. 5
(5) The carbon proxy price for rate setting purposes was based on the California Carbon Allowance ICE 21 day strip price for delivery from September 1 through to September 29, 2017.
(6) Col. 4 x Col. 5
(7) (Col. 6 / (Col. 3 x 1000)) x 100
(8) Dedicated unbundled customers

Customer-Related Unit Rate Calculation

Cap and Trade Customer Related Charge = Cost of CO_2e Emissions / Net Volumes
= $ 377,052,654.1 / 10,591,614.6 10^3m^3
= 3.5599 ¢/m^3

TABLE A2

TABLE 2: 2018 FACILITY-RELATED VOLUMES, EMISSIONS, COST OF EMISSIONS AND UNIT RATES

Line		Col. 1 Volumes[1] (10^3m^3)	Col. 2 CO_2e Emissions[2] (Tonnes CO_2e)	Col. 3 Assumed Cost of Allowances[3] ($/tonne CO_2e)	Col. 4 Cost of CO_2e Emissions[4] ($)	Col. 5 Unit Rate (¢/m^3)	
2.1	Company Use						
2.1.1	Fleet	1,147.2	2,150.6	18.99	40,839.4		
2.1.2	Buildings	1,388.8	2,603.5	18.99	49,440.1		
2.1.3	Boilers	4,078.8	7,909.9	18.99	150,209.5		
2.1	Company Use	6,614.8	12,664.0	18.99	240,489.0	0.0016	5
2.2	Unaccounted For Gas (UAF)	106,077.0	198,854.8	18.99	3,776,252.8	0.0320	6
2.3	Compressor Fuel	15,957.3	30,945.5	18.99	587,655.9	0.0050	7
2	Total Facility-Related	128,649.1	242,464.3	18.99	4,604,397.7	0.0386	

Notes:
(1) Exhibit B, Tab 2, Schedule 1, Table 2
(2) Exhibit B, Tab 3, Schedule 1, Table 3, Col. 5
(3) The carbon proxy price for rate setting purposes was based on the California Carbon Allowance ICE 21 day strip price for delivery in each month of 2018.
(4) Col. 2 x Col. 3
(5) Cost of CO_2e emissions / (Total customer-related volume + Rate 332 Volume) = [Col. 4 / ((Exhibit A1, Table 1, Line 1, Col. 1 + 2,850,078 10^3m^3) x 1000)] x 100
(6) Cost of CO_2e emissions / (Total customer-related volume - Rate 125D customers - landfill gas volume) = [Col. 4 / ((Exhibit A1, Table 1, Line 1, Col. 1 - Line 1.7b, Col. 1 - Line 1.12, Col. 2) x 1000)] x 100
(7) Cost of CO_2e emissions / (Total customer-related volume excluding unbundled customers (Rates 125 and 300) + Rate 325 Volume) = [Col. 4 / ((Exhibit A1, Table 1, Line 1, Col. 1 - Line 1.7a, Col. 1 - - Line 1.7b, Col. 1 - Line 1.12, Col. 1 + 190,328 10^3m^3)) x 1000] x 100

Facility-Related Unit Rate Calculations

Company Use = Cost of CO_2e Emissions for Company Use / (Total Customer-Related Volume + Rate 332 Volume)
= $ 240,489.0 / (11,942,738.2 + 2,850,078) 10^3m^3
= 0.0016 ¢/m^3

Unaccounted For Gas Volumes = Cost of CO_2e Emissions for Unaccounted For Gas / (Total Customer-Related Volume Excluding Rate 125D and Landfill Gas)
= $ 3,776,252.8 / (11,942,738.2 - 124,896.5 - 0) 10^3m^3
= 0.0320 ¢/m^3

Compressor Fuel Volumes = Cost of CO_2e Emissions for Compressor Fuel / (Total Customer-Related Volume Excluding Unbundled Customers + Rate 325 Volume)
= $ 587,655.9 / (11,942,738.2 - 319,562.5 - 124,896.5 - 518.6 + 190,328.0) 10^3m^3
= 0.0050 ¢/m^3

Facility-Related Charge = 0.0016 + 0.0320 + 0.0050 ¢/m^3
= 0.0386 ¢/m^3

App Page

Questions:

a) Similar to the evidence filed by Enbridge Gas (above) in Exhibit G, Tab 1, Schedule 1, p. 3, please provide the following, including calculations:
   i. Union Gas' total forecast customer-related obligation cost for 2018.
   ii. Union Gas' total forecast facility-related obligation cost for 2018.

b) Please provide tables for Union Gas that contain the information in Table A1 and A2 from Enbridge Gas' Exhibit G, Tab 1, Schedule 1, App. A, Table A1 and A1.
   i. Similar to the evidence filed by Enbridge Gas in the tables above, please provide the customer-related and facility-related unit rate calculations with each table.

Issue 5.2 – Are the tariffs just and reasonable and have the customer-related and facility-related charges been presented separately in the tariffs?

Staff IR Union #36 Public

Topic: Rate schedule changes

Preamble:
In its application, in Exhibit G, Tab 1, Schedule 1, Appendix A, p. 4, Table A4, Enbridge Gas provided a table of 2018 cap and trade unit rate summary by rate class.

Questions:

a) As in the Enbridge Gas Exhibit described above, please provide a table that identifies 2018 Cap and Trade Unit Rate Summary by Rate Class, as follows:

Rate Class	Non-LFE (cents/m^3)	LFE* (cents/m^3)

* Includes Voluntary Participants and Other Exempt Gas Volumes

Issue 6 – Implementation – What is the implementation date of the final rates and how will the final rates be implemented?

Staff IR Union #37 Public

Topic: Interim rates

Ref: Exhibit 1 / p. 10

Preamble:
Union Gas states that it requested interim approval of their proposed 2018 cap and trade charges and interim approval was denied by the OEB. Therefore, the final 2017 OEB-approved cap and trade charges have been continued until such time as the OEB completes its review and the OEB makes a determination of the approved 2018 cap and trade charges.

Questions:

a) How does Union Gas propose to recover the difference between the final 2018 cap and trade charges and the amount Union Gas has recovered since January 1, 2018?