Ontario Energy Board | Commission de l'énergie de l'Ontario

Ontario

BY E-MAIL

May 27, 2020

Ms. Christine E. Long
Board Secretary and Registrar
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto ON M4P 1E4
BoardSec@oeb.ca

Dear Ms. Long:

Re: Enbridge Gas Inc.
Low Carbon Energy Project
OEB Staff Interrogatories to Applicant
OEB File No. EB-2019-0294

In accordance with Procedural Order No. 1, please find attached the OEB staff interrogatories for the above proceeding. This document has been sent to Enbridge Gas Inc. and all intervenors.

Enbridge Gas Inc. is reminded that its response to the interrogatories are due by June 8, 2020.

Yours truly,

Original signed by

Ritchie Murray
Project Advisor

c. Applicant and intervenors

Encl.

ENBRIDGE GAS INC.
LOW CARBON ENERGY PROJECT
EB-2019-0294

OEB STAFF INTERROGATORIES

OEB staff No. 1

Ref.: Exhibit B, Tab 1, Schedule 1, page 3

Preamble

In Enbridge Gas' initial application[1], the estimated number of customers in the BGA was 3,600 and the estimated GHG reductions was 98-117 tCO2e per year. In Enbridge Gas' revised application (Application)[2], the estimated number of customers in the BGA is 3,600 and the estimated GHG reductions is 97-120 tCO2e per year.

Questions

a) Please explain why there is a change in the estimated GHG reductions.

b) What is Enbridge Gas' most current estimate of the GHG reductions?

OEB staff No. 2

Ref.: Exhibit B, Tab 1, Schedule 1, pages 3-10 and 18

Preamble

Enbridge Gas is applying for approval of a rate rider (credit) to compensate customers in the BGA for the additional extra costs associated with the increase in volumetric requirements for blended gas as compared to conventional natural gas (Consumption Impact). Enbridge Gas says that this treatment would apply until rebasing or until such earlier time that a different treatment is appropriate based on future developments; for example, the implementation of a Federal Clean Fuel Standard (CFS). Enbridge Gas' next rebasing is in 2024.

[1] Filed December 20, 2019
[2] Filed March 31, 2020

Enbridge Gas says that its affiliate, 2562961 Ontario Ltd., has developed and built North America's first utility scale PtG facility in Markham, Ontario. It is located at Enbridge Gas' Technology and Operations Centre (TOC) in Markham. The PtG facility was developed in partnership with Hydrogenics Corporation. Hydrogenics Corporation is part owner of 2562961 Ontario Ltd.

Enbridge Gas is proposing to acquire hydrogen from 2562961 Ontario Ltd. in a manner that keeps ratepayers cost-neutral. Enbridge Gas is proposing to recover the cost of procuring hydrogen from all customers in the legacy EGDI rate zone until rebasing after which time the cost would be recovered from all customers, or until such earlier time that a different treatment is appropriate based on future developments (e.g., the implementation of the CFS).

Enbridge Gas says the CFS will be a performance-based approach designed to incent the innovation and adoption of clean technologies in the oil and gas sector and the development and use of low-carbon fuels throughout the economy. The gaseous and solid fuel regulations were scheduled to be published in early 2020 and to come into force on January 1, 2023[3]. However, the Government of Canada announced in April 2020 that publication of the regulations will be delayed to the fall of 2020 due to COVID-19[4]. Under the CFS, hydrogen is expected to be a means of compliance and a pathway for the generation of CFS credits.

Questions

a) Based on the best information available to date, please identify and explain any alternate treatments that may be available to address the Consumption Impact at rebasing and as a result of the CFS.

b) Based on the best information available to date, please identify and explain any alternate treatments that may be available for the procurement of hydrogen at rebasing and as a result of the CFS.

c) Please explain the rationale for why the cost to procure hydrogen should initially be recovered from all rate payers in the EGDI rate zone and then all Enbridge Gas rate payers after rebasing in 2024.

d) Please explain what is meant by "cost neutral". For example, does it mean

[3] https://www.canada.ca/en/environment-climate-change/services/managing-pollution/energy-production/fuel-regulations/clean-fuel-standard/regulatory-approach.html#toc48
[4] https://www.canada.ca/en/environment-climate-change/services/managing-pollution/energy-production/fuel-regulations/clean-fuel-standard.html

that the commodity cost of the hydrogen will be the same as the commodity cost of natural gas? Or, does it mean that the commodity cost of the hydrogen will be that same as the landed cost of natural gas (i.e., inclusive of commodity, transportation and storage costs)?

e) Will the procurement of hydrogen continue to be cost neutral after rebasing? Please explain.

f) OEB staff would like to compare the relative local costs of natural gas and hydrogen. Please provide the following information. Or, if the requested information does not provide for a good comparison, please provide more suitable information.

   i. Please provide the current commodity cost of natural gas for a residential customer in Markham, Ontario, in $/GJ.

   ii. Disregarding the proposed cost-neutrality arrangement mentioned above, please provide the current commodity cost of hydrogen in Markham, Ontario, from 2562961 Ontario Ltd. in $/GJ.

g) Please discuss the implications of the cost-neutral arrangement with respect to the Affiliate Relationship Code.

h) Based on the best information available to date, how does Enbridge Gas believe that the CFS credit system will work? In the response, please include an explanation for how Enbridge Gas would use CFS credits, and how that use may benefit its ratepayers.

i) Will the delayed publication of proposed regulations for the liquid fuel class of the CFS until fall 2020 impact the timing of the Project?

OEB staff No. 3

Ref.: Exhibit B, Tab 1, Schedule 1, page 5

Preamble

An Enbridge Gas affiliate, 2562961 Ontario Limited, is currently under contract with the Independent Electricity System Operator (IESO) for power grid stability and reliability services in the province. An electrolyzer owned by the affiliate uses surplus electricity to split water into hydrogen and oxygen. The hydrogen is stored and when there is a demand for electricity, a fuel cell converts the hydrogen into electricity for the grid.

Questions

a) Is the amount of hydrogen available to Enbridge Gas for hydrogen blending limited as a consequence of the contractual arrangements between 2562961 Ontario Limited and the IESO?

b) Please explain what Enbridge Gas would do if it were unable to procure sufficient quantities of hydrogen to supply the BGA as planned? What impact could this have on such things as the duration of the Project and the amount of the rate rider?

OEB Staff No. 4

Ref.: Exhibit B, Tab 1, Schedule 1, page 16

Preamble

Enbridge Gas is proposing to offset the Consumption Impact on customers within the BGA by way of an annual rate rider providing a credit of $9.00 per year. Based on October 2019 Quarterly Rate Adjustment Mechanism rates, a typical residential customer in the BGA consuming approximately 2,433 m^3 per year would pay approximately $8.75 more each year than a non-BGA customer based on the slightly higher volumes consumed.

Question

a) Please provide a flat file (e.g., Excel printout) that clearly demonstrates step-by-step how the approximate $8.75 rider was calculated. Please include any assumptions, conversions or other information needed to understand the calculation.

b) Does the proposed rider account for Federal Carbon Charges[5]? Please explain.

OEB staff No. 5

Ref.: Exhibit B, Tab 1, Schedule 1, page 8

Preamble

[5] EB-2018-0205, Enbridge Gas Inc., 2019 Federal Carbon Pricing Program Application

Enbridge Gas says that in order to complete the analysis and investigation work for hydrogen blending, several consultants were engaged. One was a consultant experienced with town-gas applications, and another was a global consulting firm specializing in risk management.

Questions

a) Please provide the name of the consultant experienced with town-gas applications. Please provide a curriculum vitae for each of the key employees from this consultancy that were accountable for the work performed in respect of the Project.

b) Please provide the name of the global consulting firm. Please provide a curriculum vitae for each of the key employees from this consultancy that were accountable for the work performed in respect of the Project.

OEB staff No. 6

Ref.: Exhibit B, Tab 1, Schedule 1, Attachment 1, Table 2, page 11

Preamble

Enbridge Gas provided a table that summarizes the initial criteria for the selection of closed loop systems for use as BGAs. One criteria is pipeline material. Enbridge Gas states that some carbon steel pipes and welds might be affected by the presence of hydrogen, under certain conditions, and that plastic pipelines could exhibit fewer issues with regards to hydrogen. Enbridge Gas also states that it is known that turbines, compressed natural gas (CNG) tanks and some other sensitive equipment are not compatible with low levels of hydrogen.

Questions

a) Please explain what effect(s) hydrogen has on carbon steel pipes and welds? Besides limiting the concentration of hydrogen, are there any other actions that Enbridge Gas can take to mitigate these effects? Please explain.

b) How much more permeable are plastic pipe and fittings to hydrogen that steel? Could any difference in permeability result in a change to the operational effectiveness of steel or plastic pipe and fittings in terms of leaks or other factors? Please explain.

c) In addition to turbines and CNG tanks, what other types of equipment are not

well suited to blended gas? Is avoidance the only means of mitigation?

d) How would blended gas affect large volume consumers who use natural gas for process load or as a feedstock? For example, fertilizer manufacturers.

OEB staff No. 7

Ref.: Exhibit B, Tab 1, Schedule 1, Attachment 1, Figure 3

Preamble

Figure 3 is a map that illustrates the extents of loops S1, S1A and B1 relative to Enbridge Gas' existing distribution system. Most of the existing pipelines are orange in colour. There are small portions of pipelines that are in purple; some are inside a loop (e.g., northeast corner of Elgin Mills Road East and Highway 404) and some are outside a loop (e.g., northwest corner of 10th Avenue and Kennedy Road).

Questions

What is the significance of the purple pipelines? Are they related to the Project in some way? If so, please explain.

OEB staff No. 8

Ref.: Exhibit B, Tab 1, Schedule 1, Table 1 and pages 1-3 and 13
Exhibit C, Tab 1, Schedule 1, Attachment 4, page 53

Preamble

Enbridge Gas is seeking approvals for a pilot project that involves injecting a controlled quantity of hydrogen into its natural gas distribution system to create a blended gas comprised predominantly of methane with up to 2% hydrogen by volume.

When combusted, hydrogen is a zero carbon emission fuel source. As a result, the blended gas would produce less GHG emissions relative to combusting regular natural gas. Enbridge Gas estimates that the GHG reductions associated with using blended gas having 2% hydrogen by volume in Loop S1 would be between 97-120 tCO2e per year.

OEB staff notes that, in 2017, Ontario's GHG emissions attributable to petroleum refining and natural gas distribution were 7.9 MtCO2e[6].

Enbridge Gas says the 2% limit was based on literature reviews, analytical modeling, risk assessments, field surveys, industry consultation (e.g., external consultants, internal subject matter experts, manufacturers, etc.), integrity considerations and engineering judgement. This included an assessment of gas interchangeability to confirm that the combustion parameters of the blended gas remain within the range of Enbridge Gas' gas specifications based on historical gas distribution values for the past 12 years. Enbridge Gas also completed a survey of appliances in the BGA to ensure compatibility with hydrogen concentrations of up to 2% by volume.

Enbridge Gas says that its investigation into the various components of loops S1, S1A and B1 yielded the conclusion that up to 5% hydrogen by volume could be injected into the system.

A sample of international projects reveals that some had blended gas with concentrations of hydrogen as high as 20% by volume.

Questions

a) Based on its research to date, does Enbridge Gas believe that it is possible for its residential and commercial customers' appliances to consume blended gas with concentrations of hydrogen greater that 2% by volume?

b) Does Enbridge Gas intend to increase the concentration of hydrogen above 2% in loops S1, S1A and B1 in the future?

c) Does Enbridge Gas anticipate that other loops throughout its system may be able to safely accept blended gas with greater than 2% hydrogen?

d) Has Enbridge Gas compared the GHG reduction benefits of hydrogen blending to other existing or potential programs that reduce GHGs (e.g., Demand Side Management) in terms of metrics such as $ spent / tCO2e reduced? If so, please provide a summary table that lists the alternatives and their corresponding metrics. If not, please explain why not.

OEB staff No. 9

Ref.: Exhibit B, Tab 1, Schedule 1, Attachment 1, pages 11-13

[6] https://www.cer-rec.gc.ca/nrg/ntgrtd/mrkt/nrgsstmprfls/on-eng.html

Preamble

Enbridge Gas says that industrial customers are much more sensitive to variations in their fuel, and therefore would not be suitable for the first phase of hydrogen blending.

Question

Given that demand for natural gas by industrial customers represents a large portion of the total annual demand for natural gas in Ontario – and therefore represents a large portion of potential GHG reductions from the use of blended gas – does Enbridge Gas intend to serve industrial customers with blended gas in future phases? Please explain.

OEB staff No. 10

Ref.: Exhibit B, Tab 1, Schedule 1, Attachment 1, page 16

Preamble

Fuels safety falls under the purview of the Technical Standards and Safety Authority (TSSA), so hydrogen and blended gas pipelines are under the jurisdiction of the TSSA.

The TSSA requires compliance with the Canadian Standards Association (CSA) Z662 Oil and Gas Pipeline Systems (CSA Z662)[7]. The CSA Z662 definition of "gas" does not explicitly cover blended gas. However, the scope of the CSA Z662 includes pipeline systems that convey Manufactured Gas and Synthetic Natural Gas, which have high hydrogen contents.

Prior to filing the Application, Enbridge Gas consulted with the TSSA and provided information on the Project. The TSSA indicated to Enbridge Gas that it would act as a technical reviewer of the Application on behalf of the OEB if requested.

[7] https://www.tssa.org/en/fuels/resources/Documents/Code-Adoption-Document---Oil-Updated-Contact-Numbers.pdf

OEB staff contacted the TSSA to inquire about its support. The TSSA indicated that it would not intervene in this proceeding, but that it would file a letter of comment.

Question

Has Enbridge Gas had any discussions with the TSSA since it filed the Application? If so, please provide a summary of those discussions.

OEB staff No. 11

Ref.: Exhibit 1, Tab 1, Schedule 1, Attachment 1, page 19

Preamble

In summarizing the conclusions from each of the work streams conducted to evaluate the suitability of hydrogen blending both internally for its distribution system and externally for customer-owned piping and equipment, Enbridge Gas states, “Risk Assessment (Hazard Identification and Quantitative Risk Assessment work): Completed and the results were accepted.”

Questions

a) What does “accepted” mean? Does it mean that someone approved the risk mitigation strategies and residual risks?
b) Who accepted the results and what are their qualifications to do so?

OEB staff No. 12

Ref.: Exhibit 1, Tab 1, Schedule 1, page 19

Preamble

Enbridge Gas states that, “[i]ncreased monitoring of the gas distribution network in Markham will take place in the initial period of the Project in order to confirm the findings of Enbridge Gas.”

Question

Please confirm that the “initial period” means Phase 1. If not, please explain.

OEB staff No. 13

Ref.: Exhibit C, Tab 1, Schedule 1, page 5

Preamble

Enbridge says that an Environmental Protection Plan (EPP) for the Project will be completed prior to mobilization and construction. The EPP will incorporate recommended mitigation measures contained in the Environmental Report (ER) and those mitigation measures obtained from agency consultation for the environmental issues associated with the proposed works.

Question

Please provide a status update on agency communications related to the EPP since Enbridge Gas filed the Application.

OEB staff No. 14

Ref.: Exhibit C, Tab 1, Schedule 1, Attachment 2, Appendix E, page 5

Preamble

During public consultations, a resident asked Enbridge Gas for a copy of the engineering assessment. Enbridge Gas responded that the assessment would be available at the time that Enbridge Gas applied to the OEB.

Question

Please confirm that the resident was provided a copy of the engineering assessment and on what date. Were there any concerns raised by the resident regarding the engineering assessment? If so, please provide the nature of the comments raised and Enbridge's response to these comments. If a copy of the assessment was not provided, please explain why not.

OEB staff No. 15

Ref.: Exhibit C, Tab 1, Schedule 1, Attachment 2, pages 6-7
Exhibit C, Tab 1, Schedule 1, Attachment 4, page 4

Preamble

Enbridge Gas' consultation logs show that a particular resident asked a number of questions including one about the impact of the use of blended gas on home insurance. The log indicates that Enbridge Gas responded to the resident's questions, but does not record the answers that were given.

During the open house that was held as part of completing the ER Addendum, another resident asked about the impact of the use of blended gas on home insurance and property tax.

Question

Please file a copy of the information that Enbridge Gas provided to these residents in response to their questions about the impact of the use of blended gas on home insurance and property tax?

OEB Staff No. 16

Ref.: Exhibit E, Tab 1, Schedule 1, Table 1, pages 2-4
Exhibit F, Tab 1, Schedule 1, Attachment 1, page 5

Preamble

Table 1 in Exhibit E contains a list of required permits and approvals along with the permitting authority. In Exhibit F, the Project Description Letter to the Ministry of Energy, Northern Development and Mines (MENDM) lists "potential authorizations". The two lists are the same, with the exception that Exhibit F includes three authorizations not listed in Exhibit E:

a) Ministry of Natural Resources and Forestry

b) Electrical Safety Association

c) Technical Standards and Safety Association

Question

Please confirm that permits or approvals are required from the three authorities listed above. If so, please update and refile Exhibit E, Table 1.

OEB staff No. 17

Ref.: Exhibit E, Tab 1, Schedule 1, page 1 and Attachment 1

Preamble

Enbridge Gas states that temporary working areas may be required where the road allowance is too narrow or confined to facilitate construction. These areas will be identified with the assistance of the contractor that will construct the Project. Agreements for temporary working rights will be negotiated where required. Enbridge Gas provided a copy of the proposed form of working area agreement.

Questions

a) Was the proposed form of working area agreement approved for use by the OEB in a previous proceeding? If so, please provide the case number for that proceeding.

b) Have any changes been made to the proposed form of working area agreement since it was last approved for use by the OEB? If so, please list and explain them.

OEB staff No. 18

Ref.: Exhibit F, Tab 1, Schedule 1, page 2

Preamble

Enbridge Gas provided the Ontario Ministry of Energy, Northern Development and Mines (MENDM) with a project description for the Project on January 4, 2019. On March 1, 2019, Enbridge Gas received a letter from the MENDM indicating that the MENDM had delegated the procedural aspects of consultation to Enbridge Gas for the Project. The Delegation Letter identified six Indigenous communities to be consulted with. A copy of Enbridge Gas's Indigenous Consultation Report (ICR) was provided to the MENDM on March 31, 2020. The MENDM has not yet issued a letter to Enbridge Gas with its opinion on the adequacy of Enbridge Gas' Indigenous consultations to date.

Questions

Please provide an update on any communication with the MENDM in respect of its letter of opinion. If it has not already been received, when does Enbridge Gas anticipate receiving the letter and filing it into evidence?

OEB Staff No. 19

Ref.: Exhibit F, Tab 1, Schedule 1, Appendix A

Preamble

The consultation update summary and logs in Appendix A are watermarked "Draft".

Question

Please confirm that the consultation update and summary logs in Appendix A are the final version. If not, please file a copy of the final version.

OEB Staff No. 20

Ref.: Exhibit A, Tab 2, Schedule 1

Preamble

The OEB Act permits the OEB, when making an order, to "impose such conditions as it considers proper."[8]

Question

OEB staff has prepared the following draft Conditions of Approval. If Enbridge Gas does not agree to any of the draft conditions of approval noted below, please identify the specific conditions that Enbridge Gas disagrees with and explain why. For conditions in respect of which Enbridge Gas would like to recommend changes, please provide the proposed changes and an explanation of the changes.

[8] OEB Act, s. 23

Enbridge Gas Inc.
Low Carbon Energy Project
OEB Act Sections 36 Rates, 90 Leave to Construct and 97 Land Use

DRAFT CONDITIONS OF APPROVAL

1. Enbridge Gas Inc. (Enbridge Gas) shall construct the facilities and restore the land in accordance with the OEB's Decision and Order in EB-2019-0294 and these Conditions of Approval.
2. (a) Authorization for leave to construct shall terminate 12 months after the decision is issued, unless construction has commenced prior to that date.

   (b) Enbridge Gas shall give the OEB notice in writing:

   i. of the planned in-service date, at least ten days prior to the date the facilities go into service;

   ii. of the date on which construction was completed, no later than 10 days following the completion of construction; and

   iii. of the in-service date, no later than 10 days after the facilities go into service.
3. Enbridge Gas shall implement all the recommendations of the Environmental Report filed in the proceeding, and all the recommendations and directives identified by the Ontario Pipeline Coordinating Committee review.
4. Enbridge Gas shall advise the OEB of any proposed change to OEB-approved construction or restoration procedures. Except in an emergency, Enbridge shall not make any such change without prior notice to and written approval of the OEB. In the event of an emergency, the OEB shall be informed immediately after the fact.
5. Enbridge Gas shall file, in the proceeding where the actual capital costs of the project are proposed to be included in rate base, a Post Construction Financial Report, which shall indicate the actual capital costs of the project and shall provide an explanation for any significant variances from the cost estimates filed in this proceeding.
6. Both during and after construction, Enbridge Gas shall monitor the impacts of construction, and shall file with the OEB one paper copy and one electronic (searchable PDF) version of each of the following reports:

   (a) A post construction report, within three months of the in-service date, which shall:

   i. provide a certification, by a senior executive of the company, of Enbridge Gas' adherence to Condition 1;

ii. describe any impacts and outstanding concerns identified during construction;

iii. describe the actions taken or planned to be taken to prevent or mitigate any identified impacts of construction;

iv. include a log of all complaints received by Enbridge Gas, including the date/time the complaint was received, a description of the complaint, any actions taken to address the complaint, the rationale for taking such actions; and

v. provide a certification, by a senior executive of the company, that the company has obtained all other approvals, permits, licenses, and certificates required to construct, operate and maintain the proposed project.

(b) A final monitoring report, no later than fifteen months after the in-service date, or, where the deadline falls between December 1 and May 31, the following June 1, which shall:

i. provide a certification, by a senior executive of the company, of Enbridge Gas' adherence to Condition 3;

ii. describe the condition of any rehabilitated land;

iii. describe the effectiveness of any actions taken to prevent or mitigate any identified impacts of construction;

iv. include the results of analyses and monitoring programs and any recommendations arising therefrom; and

v. include a log of all complaints received by Enbridge Gas, including the date/time the complaint was received; a description of the complaint; any actions taken to address the complaint; and the rationale for taking such actions.