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October 27, 2025

British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC
V6Z 2N3

Dear Registrar:

Re: British Columbia Utilities Commission (BCUC) Review of Renewable Natural Gas (RNG) Definition and Accounting (Inquiry)

FortisBC Energy Inc. (FEI) Response to BCUC Information Request (IR) No. 1 to FEI

In accordance with the regulatory timetable established in BCUC Order G-231-25 for the Inquiry, FEI respectfully submits the attached response to BCUC IR No. 1 to FEI.[1]

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Sarah Walsh

Attachments

cc (email only): Registered Interveners

[1] For convenience and efficiency, if FEI has provided an internet address for referenced reports instead of attaching the documents to its IR responses, FEI intends for the referenced documents to form part of its IR responses and the evidentiary record in this proceeding.

A. GHG EMISSIONS REPORTING, TERMINOLOGY AND DEFINITIONS

1.0 Reference: CARBON DIOXIDE EMISSIONS FROM COMBUSTION OF RNG

Exhibit C1-2 (FEI Appendix B Submission), pp. 24–25

On page 24 of the FortisBC Energy Inc. (FEI) Appendix B Submission, FEI states:

> When biomethane produced in another jurisdiction is consumed in BC, the emissions associated with that combustion are not, and should not be, added to the total GHG [green house gas] emissions in the other jurisdiction. Such an outcome would be inconsistent with the territorially-based approach that Canadian and US jurisdictions use to build up their national GHG emissions inventories in accordance with IPCC guidelines for national GHG inventory reporting and would be inconsistent with the fact that RNG is produced from biogenic feedstocks.
>
> GHG inventories are typically built up using a bottom-up approach. Key categories of economic activity are identified and then the associated sources for GHG emissions and removals of GHG emissions are identified and quantified. Under the IPCC guidelines for jurisdictional inventory reporting, the GHG emissions associated with the production of RNG are to be recorded in the source jurisdiction, i.e., in the jurisdiction where the RNG is produced. However, the GHG emissions resulting from the consumption of the RNG should be recorded in the jurisdiction where that RNG is used. Moreover, the carbon dioxide component of those GHG emissions should not show up in that jurisdiction's overall GHG emissions because RNG is methane produced from biogenic feedstocks, which means the carbon dioxide that is released when the RNG is combusted is balanced by the carbon drawn out of the atmosphere to create its raw materials. The carbon dioxide associated with the combustion of RNG is already part of the carbon cycle and, therefore, does not result in incremental emissions of carbon dioxide to the atmosphere.

By way of example, FEI describes the purchase of "a volume of RNG that is produced in Ontario and exported to BC". FEI states that:

> The emissions associated with production of that volume of RNG will be reported in Ontario. However, when that volume of RNG is exported to British Columba, the EAs [environmental attributes] associated with that volume of RNG are contractually stripped away and attached to an equal volume of natural gas that is consumed in British Columbia. As a result, the methane molecules delivered to the natural gas supply in Ontario will be treated as if it were conventional natural gas for GHG emissions reporting purposes. As such, when those methane molecules are burned in Ontario, the associated carbon dioxide emissions are accounted for in Ontario's overall reported GHG emissions, just like any other volume of conventional natural gas combusted there. In BC, the carbon dioxide

component of the GHG emissions would not be added to its overall GHG emissions, as RNG is produced from biogenic feedstocks.

… it would be inconsistent with the internationally recognized GHG inventory methodologies to add the GHG emissions from the combustion of the RNG in British Columbia back to the overall GHG emissions in Ontario or the jurisdiction in which the RNG was produced. That would result in the double-counting GHG emissions, rather than the double counting of EAs.

1.1 Please provide a revised version of FEI's qualitative explanation of GHG accounting in British Columbia and Ontario under a scenario where biomethane is purchased in Ontario for notional delivery to British Columbia, clearly distinguishing between the types of gas being accounted for in each jurisdiction's GHG inventory, avoiding use of the term "RNG" and instead clearly specifying whether the gas in question is:

i. biomethane with EAs attached;

ii. biomethane without EAs attached (i.e. the EAs have been stripped from the biomethane and sold);

iii. fossil gas (i.e. natural gas derived from fossil fuels) with no EAs attached; or

iv. fossil gas with EAs from biomethane attached.

Response:

FEI clarifies that the discussion and example quoted in the preamble to this IR explain GHG accounting under the Intergovernmental Panel on Climate Change (IPCC) Guidelines. The example provided below is similarly based on the IPCC Guidelines. However, please refer to FEI's response to BCUC-All IR1 3.1 where FEI notes its understanding that the National Inventory Report and, therefore, the BC Provincial Inventory, does not yet track and account for the biogenic nature of CO_2 emissions from biomethane.

As requested, FEI provides below a revised qualitative explanation of GHG accounting in British Columbia and Ontario under a scenario where biomethane is purchased in Ontario for delivery by displacement to British Columbia. This explanation more clearly distinguishes between the types of gas being accounted for in each jurisdiction's GHG inventory:

- The emissions associated with the production of biomethane with EAs attached in Ontario will be reported in Ontario.
- When the biomethane with EAs attached is injected into the natural gas system in Ontario, the EAs attached to that biomethane are contractually stripped away (detached) and later attached to an equal volume of conventional natural gas delivered to FEI at a market hub location connected to FEI's system in British Columbia.

- When the biomethane without EAs attached is consumed in Ontario, the associated CO_2 emissions are accounted for in Ontario's overall reported GHG emissions.
- When the natural gas with EAs from biomethane attached is consumed in BC, the associated CO_2 emissions should be recognized as biogenic in nature and not be added to BC's overall GHG emissions.

1.2 Please provide a quantitative accounting of GHG emissions in (i) British Columbia and (ii) Ontario under a scenario where biomethane is purchased in Ontario for notional delivery to British Columbia. For the purposes of the response please:

- Assume a purchase of 100 TJ/year of biomethane (with the associated environmental attributes), produced in Ontario and notionally delivered to British Columbia;
- Consider end-use combustion emissions only (i.e. exclude any GHG emissions associated with the production and/or delivery of the biomethane/fossil gas in question); and
- Clearly distinguish between the types of gas being accounted for in each jurisdiction's GHG inventory by avoiding use of the term "RNG" and instead specifying whether the gas in question is:
  i. biomethane with EAs attached;
  ii. biomethane without EAs attached (i.e. the EAs have been stripped from the biomethane and sold);
  iii. fossil gas (i.e., natural gas derived from fossil fuels) with no EAs attached; or
  iv. fossil gas with EAs from biomethane attached.

1.2.1 Please provide a detailed explanation, with supporting documentation as appropriate, of the basis for the GHG emissions values used in preparing the quantitative accounting provided in response to IR 1.2. As part of the response, please discuss whether these values are based on the average carbon intensity of biomethane purchased by FEI to date, modelled assumptions in GHGenius, or some other source.

1.2.2 Please explain whether the selection of another jurisdiction besides Ontario, such as another Canadian province or the US, would affect the analysis provided in response to IR 1.2.

Response:

To quantify the GHG emissions in British Columbia (BC) and Ontario (ON) under a scenario where biomethane is purchased in ON for delivery by displacement to BC, two parameters are required:

- the activity data, which is the quantity of the fuel used; and
- the emissions factor (EF), which quantifies the emissions associated with the use of the fuel.

To quantify end use combustion emissions, the quantity of fuel used (100 TJ/year) is multiplied by the end-use emissions factor for that fuel. The emissions factors are supplied by the governing jurisdiction, as set out below. If another jurisdiction were selected instead of ON, the analysis would remain the same; however, the emissions factor for CO_2 will vary between jurisdictions due to the different carbon content of the gas supply in each jurisdiction. Further, differences in quantification methodologies can lead to minor differences in emissions factors.

FEI provides the requested quantitative accounting in the table below, based on how the emissions ought to be reported and recorded in the provincial inventories following the IPCC Guidelines. However, please refer to FEI's response to BCUC-All IR1 3.1 where FEI notes its understanding that the National Inventory Report and, therefore, the BC Provincial Inventory, does not yet track and account for the biogenic nature of CO_2 emissions from biomethane.

Quantative accounting of GHG emissions in (i) BC and (ii) ON with biomethane production in ON and delivered via displacement to BC

End-use stationary fuel combustion	(i) British Columbia convential natural gas with EAs from biomethane attached					(ii) Ontario biomethane without EAs attached				
Emissions Factor (EF) by Greenhouse Gas (kg GHG / GJ)	kg CO2/ GJ	kg CH4/ GJ	kg N2O/ GJ	kg CO2e/ GJ	kg CO2 bio/ GJ	kg CO2/ GJ	kg CH4/ GJ	kg N2O/ GJ	kg CO2e/ GJ	kg CO2 bio/ GJ
	0.00	0.0009	0.0009	0.26	49.97	50.04	0.0010	0.0009	50.31	0
Emissions results by Greenhouse Gas (t GHG / year)	t CO2/ year	t CH4/ year	t N2O/ year	t CO2e/ year	t CO2 bio/ year	t CO2/ year	t CH4/ year	t N2O/ year	t CO2e/ year	t CO2 bio/ year
	0.00	0.09	0.09	26.20	4,997.2	5,004.1	0.1	0.1	5,031.0	0.0

Notes to table:

- In BC, the fuel is combusted as natural gas with EAs from biomethane attached and for that reason, all of the resulting CO_2 should be reported as biogenic CO_2 (CO_2 bio).
- The CO_2 emissions factor values differ between BC and ON due to the different carbon content of natural gas in each jurisdiction.
- While technically the emissions factor for CH_4 and N_2O should be identical for BC and ON, there are minor differences likely due to slight differences in the quantification methodology used by each province.

FEI provides a step-by-step explanation of the quantitative accounting below.

Step 1 is to source the end-use emissions factors for the end-use of the fuel. FEI assumed stationary fuel combustion (i.e., the use of the fuel in appliances such as boilers, water heaters or other heating appliances) as end-use.

Jurisdiction	Emissions Factor Source
British Columbia	• BC Ministry of Energy and Climate Solutions • Climate Action Secretariat's Emissions Factor Catalogue for 2024 Reporting Period https://www2.gov.bc.ca/gov/content/environment/climate-change/public-sector/carbon-neutral
Ontario	• Environment and Climate Change Canada (ECCC), Canada Greenhouse Gas Offset Credit System • Emissions Factors and Reference Values, Version 2.0, May 2024 https://publications.gc.ca/collections/collection_2024/eccc/En84-294-2024-eng.pdf

Step 2 is to tabulate the respective emissions factors in both jurisdictions.

Jurisdiction	Tabulation Steps

British Columbia	• The fuel is combusted as Conventional Natural Gas with EAs from biomethane attached.
	• The emissions factor is from the Climate Action Secretariat's Emissions Factor Catalogue:[1]
	  ○ tab 'Stationary Fuel Combustion', row 774
	  ○ Calendar Year 2024
	  ○ Impact Profile '14-Renewable Natural Gas'

Ontario	• The fuel is combusted as Conventional Natural Gas/biomethane without EAs attached because the EAs are detached from the produced biomethane at injection into the pipeline and is transported to the nearest point end use.
	• The emissions factor for Conventional Natural Gas is from the Emissions Factors and Reference Values:[2]
	  ○ Table 1.1 – CO_2 emissions factors for natural gas (g CO_2/m^3 natural gas) for 2023 and 2024
	  ○ Table 2.1 – CH_4 and N_2O emissions factors for natural gas (g CO_2/m^3 natural gas) for 2023 and 2024
	  ○ Environment and Climate Change Canada (ECCC) Data Catalogue
	  ▪ Conversion from m^3 to GJ
	  • Clean-Fuel Regulation-Data-Workbook-v4.0.xlsx[3]
	  • Tab 'ECCC Parameters', row 117, Fossil Fuels, Natural gas gaseous

[1] Climate Action Secretariat's Emissions Factor Catalogue for 2024 Reporting Period https://www2.gov.bc.ca/gov/content/environment/climate-change/public-sector/carbon-neutral.

[2] Emissions Factors and Reference Values, Version 2.0, May 2024 https://publications.gc.ca/collections/collection_2024/eccc/En84-294-2024-eng.pdf.

[3] https://data-donnees.az.ec.gc.ca/data/regulatee/climateoutreach/carbon-intensity-calculations-for-the-clean-fuel-regulations/en/Current%20Version.

Step 3 is to calculate the respective emissions for all individual greenhouse gases and CO_{2e} in each jurisdiction.

Jurisdiction	Emissions Calculation
British Columbia	BC, Conventional Natural Gas with EAs attached: 100 TJ / year x (1,000 GJ / TJ) x respective EF x (1 ton / 1,000 kg): • CO_2 is zero (anthropogenic CO_2) as Conventional Natural Gas with EAs from biomethane attached is combusted as biofuel. • CO_2 bio calculated resulting from the combustion of biofuel. CO_2 bio should be reported as an information item and reported separately (not together with CO_{2e}). • CH_4 and N_2O calculated as a result of combustion byproducts. • CO_{2e} is CH_4 and N_2O combined with the respective AR5 Global Warming Potentials (GWP, 100-year horizon).
Ontario	Biomethane without EAs attached because the EAs are detached from the produced biomethane at injection into the pipeline: 100 TJ / year x (1,000 GJ / TJ) x respective EF x (1 ton / 1,000 kg): • CO_2 calculated as anthropogenic CO_2 because biomethane without EAs attached is combusted as conventional natural gas. • CO_2 bio is zero as biomethane without EAs attached is combusted as conventional natural gas. • CH_4 and N_2O calculated as a result of combustion byproducts. • CO_{2e} is CO_2, CH4 and N_2O combined with the respective AR5 Global Warming Potentials (GWP, 100-year horizon).

1.3 Please provide any public reports and/or other evidence demonstrating that, under a scenario where a volume of biomethane is produced in Ontario for export to British Columbia by notional delivery, the GHG emissions associated with use of the methane molecules delivered to the Ontario natural gas system and consumed in Ontario are recorded "like any other volume of [fossil] gas combusted there."

Response:

As noted in the preamble, when biomethane (RNG) is produced in Ontario and delivered to British Columbia by displacement, the EAs are stripped from the biomethane. The GHG emissions from the biomethane produced and consumed in Ontario (now without EAs attached) are recorded as emissions from conventional natural gas. This is because biomethane without EAs attached does not meet Ontario's Guideline for Quantification, Reporting and Verification of Greenhouse Gas Emissions – March 2024, RNG Reporting Requirements in ON22.1.[4] ON.22.1 requires, amongst other things, that the Ontario facility must identify the quantity of RNG added "with a final

[4] https://ero.ontario.ca/public/2025-08/Guideline%20for%20QRV%20of%20GHG%20Emissions%20August%202025.pdf.

1 destination at the person's covered facility" for it to be reported as RNG (biomethane with EAs
2 attached).

3 The ON.22.1 RNG Reporting Requirements are provided below.

ON.22.1 RNG Reporting Requirements

(a) The person shall set out the following information, calculated for the calendar year using SQM ON.23.1 and ON.25.1 in the report prepared for a calendar year in respect of RNG CO_2 quantities reported for the purposes of "F" in the formula in subsection 12(2) of the Regulation:

(1) Annual RNG CO_2 quantity, calculated using the methods in ON.23.1, expressed in tonnes of CO_2.

(2) The following information on an annual basis for each RNG supplier:

(i) The name of the RNG supplier;

(ii) The RNG source(s) associated with the RNG supplier;

(iii) The RNG quantity added at the RNG source in item (ii) (expressed in GJ) with a final destination at the person's covered facility;

(iv) The total annual scheduled RNG quantity for each RNG quantity listed in item (iii) (expressed in GJ);

(v) The final destination of the RNG in each record of the scheduled quantity of RNG listed in item (iv); and

(vi) The annual RNG CO_2 quantity associated with the RNG quantities referred to in item (iv) (expressed in tonnes of CO_2).

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