# Enbridge Gas Inc.
# 2024 Rebasing – Phase 2
# EB-2024-0111
# Compendium of the Consumers Council of Canada (CCC)
# Panel 4

# INDEX

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, p. 15

Preamble:

Enbridge states: “Enbridge Gas’s proposal to procure low-carbon energy as part of the gas supply commodity portfolio is a cost-effective means to reduce emissions.”

Question(s):

a) Please provide an estimate of the cost of reducing emissions through the proposed RNG purchases ($/CO2e). Please provide an incremental value based on the differential between the cost of RNG and fossil methane gas. Please include the underlying figures and calculations.

b) Please provide an estimate of the cost of reducing emissions through the proposed RNG purchases ($/CO2e). Please provide an incremental value based on the differential between the cost of RNG and fossil methane gas. Please base the number on an RNG cost wherein 1% RNG penetration is achieved for $2/month/residential customer and fossil methane gas costs remaining static. Please include the underlying figures and calculations.

c) Please estimate the cost of reducing emissions through Enbridge’s current DSM programs ($/CO2e). Please include a table with a breakdown for the different program categories (residential, commercial, etc.). Please base the answer on the plan or the actual results as Enbridge deems appropriate. Please include the underlying figures and calculations

Response:

a) Table 1 provides the cost of reducing emissions from the purchase of RNG using a high and low estimated price of RNG between the years of 2026 to 2029.

Table 1

Low and High Estimate of Cost Per Tonne of Carbon Dioxide Equivalents of Reducing Emissions from RNG

| Line No. | Particulars | Federal Carbon Charge ($/GJ) | Price of Natural Gas (1) ($/GJ) | Price of RNG (2) ($/GJ) | Incremental Cost of RNG ($/GJ) | Cost of Reducing Emissions with RNG ($/tCO2) |
|---|---|---|---|---|---|---|
| | | (a) | (b) | (c) | (d) = (c-a-b) | (e) = (d / 0.05 tCO2/GJ (3)) |
| | Low Estimate | | | | | |
| 1 | 2026 | 5.36 | 3.60 | 15.98 | 7.02 | 140.40 |
| 2 | 2027 | 6.10 | 3.60 | 15.98 | 6.28 | 125.60 |
| 3 | 2028 | 6.83 | 3.60 | 15.98 | 5.55 | 111.00 |
| 4 | 2029 | 7.56 | 3.60 | 15.98 | 4.82 | 96.40 |
| | High Estimate | | | | | |
| 5 | 2026 | 5.36 | 3.60 | 30.00 | 21.04 | 420.80 |
| 6 | 2027 | 6.10 | 3.60 | 30.00 | 20.30 | 406.00 |
| 7 | 2028 | 6.83 | 3.60 | 30.00 | 19.57 | 391.40 |
| 8 | 2029 | 7.56 | 3.60 | 30.00 | 18.84 | 376.80 |

Notes:

(1) Cost of natural gas based on the Dawn Reference Price of $3.60/GJ as per EB-2024-0166, Exhibit A, Tab 2, Schedule 1, p.3.

(2) The average price of RNG is $15.98/GJ and the maximum price of RNG is $30/GJ.[1] Please see response at Exhibit I.4.2-ED-40 for more information on the price variability of RNG. The price of RNG does not consider potential revenue generated from selling CFR credits.

(3) 1 GJ of RNG results in an emission reduction of 0.05 tonnes of $CO_2$, using an emission factor of 1.921 $kgCO_2/m^3$,[1] [2] and a heating value for Enbridge Gas South of 39.09 $GJ/10^3m^3$, effective July 1, 2024.[3]

b) Using the same assumptions and calculations as provided at part a) with an incremental cost of RNG of $25.58/GJ, as provided in the response at Exhibit I.4.2-STAFF-33, part b), the estimated cost of reducing emissions from the procurement of RNG if the maximum target percentage of 1% and maximum residential bill impact

[1] Environment and Climate Change Canada. (2024 May). 2024 National Inventory Report 1990-2022: Greenhouse Gas Sources and Sinks in Canada. Part 2. Table A6.1-1 CO2 Emission Factors for Marketable Natural Gas. https://publications.gc.ca/collections/collection_2024/eccc/En81-4-2022-2-eng.pdf

[2] When RNG is combusted, it produces biogenic carbon dioxide which is not a net contribution to the atmosphere and small amounts of methane (CH4) and nitrous oxide (N2O) emissions which are not considered biogenic. When converted to CO2e, the end use combustion emission factor for RNG is 0.011.5 kgCO2e/m3 of RNG.

[3] Based on Enbridge Gas South heat value, effective July 1, 2024.

of $2/month are achieved would be $511.60 per $tCO_2$ ($25.58/GJ divided by 0.05 avoided $tCO_2$/GJ RNG).

c) Please see Table 2. For this response, Enbridge Gas has referenced program results and spend from the 2023 program year, which are currently draft, meaning it is unaudited and not yet approved by the OEB. Enbridge Gas has converted the net cumulative natural gas savings by program into $CO_2e$ by assuming 1.932 kg of $CO_2e$ are emitted for each cubic metre of gas consumed. Net cumulative natural gas savings represents the total lifetime emissions reduced through DSM programming.

Please note that in order to determine the cost of reducing emissions, Enbridge Gas has only considered 2023 program spend, which does not include portfolio level spend nor does it account for customer spend.

Table 2

2023 DSM Programs Results and Spend (1)

| Line No. | Scorecard | 2023 Total Net Cumulative Natural Gas Savings (2) (million $m^3$) | Total Cumulative Net (3) (thousand $tCO_2e$) | 2023 Actual Spend (4) ($) | $/Net Cumulative tCO2e |
|---|---|---|---|---|---|
| | | (a) | (b) | (c) | (d) |
| 1 | Residential Program | 492.42 | 951.35 | $64,103,929 | $67.38 |
| 2 | Commercial Program | 333.22 | 643.77 | $20,859,883 | $32.40 |
| 3 | Industrial Program | 453.04 | 875.27 | $13,289,021 | $15.18 |
| 4 | Large Volume Program | 113.47 | 219.22 | $2,684,891 | $12.25 |
| 5 | Low-Income Program | 130.58 | 252.27 | $23,844,021 | $94.52 |

Notes:
(1) 2023 DSM results are unaudited and subject to OEB approval.
(2) Draft 2023 DSM Annual Report, June 7, 2024, Section 3, Table 3.5, p.18.[4]
(3) Assumes 1.932kg of $CO_2e$ are emitted for each $m^3$ gas consumed.
(4) Draft 2023 DSM Annual Report, June 7, 2024, Section 6, Table 6.12, p.60.[5]

[4] Enbridge Gas, Draft 2023 Demand Side Management Annual Report. June 7, 2024. https://engagewithus.oeb.ca/26884/widgets/149848/documents/133206
[5] Ibid.

**Exhibit I.4.2-ED-48 Table 1 (w/ 2030)**

| Low Estimate | | FCC | Conv. NG | RNG | Incr. RNG | $/tCO2 |
|---|---|---|---|---|---|---|
| 1 | 2026 | 5.36 | 3.60 | 15.98 | 7.02 | 140.40 |
| 2 | 2027 | 6.10 | 3.60 | 15.98 | 6.28 | 125.60 |
| 3 | 2028 | 6.83 | 3.60 | 15.98 | 5.55 | 111.00 |
| 4 | 2029 | 7.56 | 3.60 | 15.98 | 4.82 | 96.40 |
| *5* | *2030* | *8.29* | *3.60* | *15.98* | *4.09* | *81.80* |

| High Estimate | | FCC | Conv. NG | RNG | Incr. RNG | $/tCO2 |
|---|---|---|---|---|---|---|
| 6 | 2026 | 5.36 | 3.60 | 30.00 | 21.04 | 420.80 |
| 7 | 2027 | 6.10 | 3.60 | 30.00 | 20.30 | 406.00 |
| 8 | 2028 | 6.83 | 3.60 | 30.00 | 19.57 | 391.40 |
| 9 | 2029 | 7.56 | 3.60 | 30.00 | 18.84 | 376.80 |
| *10* | *2030* | *8.29* | *3.60* | *30.00* | *18.11* | *362.20* |

ENBRIDGE GAS INC.

Answer to Interrogatory from
Environmental Defence (ED)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, 27

Question(s):

Please provide the Platts Gas Daily spot price for RNG over the past year, expressed as $/m3 CAD.

Response:

The S&P Global Commodity Insights RNG price premium is reported in US$/mmbtu and reflects the premium for renewable natural gas to conventional natural gas. Unlike many reported natural gas price indices, the RNG price premium is not based on reported RNG transactions but rather is derived using reported carbon offset pricing adjusted for calculated carbon intensity ratings.

According to S&P Global Commodity Insights, there are two price assessments reported; one that reflects California transport fuels market incentives where the transacted gas is consumed within California, and another that reflects RNG supplied to consumers outside of California and thus does not include those additional state-level incentives. The price assessments reflect the premium that pipeline quality RNG receives over pipeline-quality natural gas, delivered on a spot basis in North America, with a pathway that has a carbon intensity (CI) of 45.[1]

The average price of the S&P Global Commodity Insights RNG premium outside of California between May 2023 and June 2024 is $26.30 US$/MMBtu. The price has ranged from $22.75 to $28.00 US$/MMBtu over this time period.

[1] S&P Global. (16 May 2023). Platts of S&P Global Commodity Insights Launches First-of-Type Daily Price Assessments for North America Renewable Natural Gas. https://press.spglobal.com/2023-05-16-Platts-of-S-P-Global-Commodity-Insights-Launches-First-of-Type-Daily-Price-Assessments-for-North-America-Renewable-Natural-Gas

ENBRIDGE GAS INC.

Answer to Interrogatory from
Green Energy Coalition (GEC)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, Page 17, Paragraph 46

Preamble:

Enbridge indicates procurement of 1,000GJ of RNG in March 2022, 2,300 GJ of RNG in February 2023, and an additional 2,300 GJ of RNG in February 2024 through the voluntary RNG Pilot Program.

Question(s):

a) Are these values cumulative, so that the total procured for voluntary participation now totals 5,600 GJ?

b) What year(s) do these procurements of RNG for the voluntary program expire?

c) What is the cost per GJ for each of these procurements?

d) What percent of the planned gas commodity procurement for 2024 do these RNG procurements provide? Note: Paragraph 32 indicates total planned gas commodity procurement of 527 PJ.

e) If the proposed LCVP and RNG in the commodity portfolio as proposed are successful in meeting their 4% target, by 2029, how many total PJ of RNG will be provided in the Enbridge Gas Commodity portfolio?

f) By what factors (in percent terms) will the volumes of RNG procurement need to increase above the voluntary RNG pilot procurements listed above to meet the Low Carbon Voluntary (LCVP) targets of up to 1% in 2026 and 4% in 2029?

Response:

a) Yes. The cumulative amount of RNG procured for the VRNG Program as of February 2024 is 5,600 GJ.

b) The RNG procured to date has been in the spot market as one-time purchases without an associated term.

c) The average price paid on the spot market for all RNG procured is $35.92/GJ. The price paid for RNG on the spot market by Enbridge Gas is subject to the RNG market at the time of procurement. Spot market prices may not be representative of the price for RNG procured on long-term contracts. Please see response at Exhibit I.4.2-ED-40 for factors Enbridge Gas believes will impact the variance in price for RNG procured.

d) The 2024 year-to-date volume of RNG procured is 2,300 GJ and the 2024 planned gas supply commodity purchases are 527,350 TJ, as noted in Phase 2 Exhibit 4, Tab 2, Schedule 1, Attachment 1, page 3. The 2024 RNG procured as a percentage of the 2024 planned gas supply commodity purchases is therefore 0.00044% (2,300 GJ divided by 527,350,000 GJ).

e) Assuming planned gas supply commodity purchases of 527,350 TJ in 2029, 4% of the planned purchases is 21,094 TJ or 21.1 PJ.

f) RNG procurement would need to increase by 229,183% in 2026 above the 2024 year-to-date RNG procurement of 2,300 GJ to meet the 1% of planned gas supply commodity target for 2026. RNG procurement would need to increase by 917,030% above the 2024 procurement of 2,300 GJ to meet the 4% target for 2029. The percentage increases are extremely high due to the low volume of RNG purchased through the VRNG in 2024.

Updated Response: /u

e) The maximum target percentage is updated to 2% in 2029. Assuming planned gas supply commodity purchases of 527,350 TJ in 2029, 2% of the planned purchases is 10,547 TJ or 10.5 PJ.

f) RNG procurement would need to increase by 57,221% in 2026 above the 2024 year-to-date RNG procurement of 2,300 GJ to meet the 0.25% of planned gas supply commodity target for 2026. RNG procurement would need to increase by 458,465% above the 2024 procurement of 2,300 GJ to meet the 2% target for 2029. The percentage increases are extremely high due to the low volume of RNG purchased through the VRNG in 2024.

# LOWER-CARBON ENERGY IN THE GAS SUPPLY COMMODITY PORTFOLIO

STEPHANIE FIFE, TECHNICAL MANAGER NEW ENERGY SUPPLY
AMY MIKHAILA, DIRECTOR GAS SUPPLY
MARK PROCIW, SUPERVISOR LARGE COMMERCIAL INDUSTRIAL ACCOUNTS
CORA CARRIVEAU, SUPERVISOR CLIMATE POLICY
LAUREN WHITWHAM, MANAGER COMMUNITY & INDIGENOUS ENGAGEMENT

/u

1. Enbridge Gas has included this evidence to reflect the following issue which is being addressed as part of Phase 2 of this Application:

    17) Are the specific proposals to amend the Voluntary RNG Program and to procure low-carbon energy as part of the gas supply commodity portfolio, appropriate?

/u

2. The purpose of this evidence is to request OEB approval to procure lower-carbon energy, with a focus on renewable natural gas (RNG) as part of the gas supply commodity portfolio beginning in 2026, and recover the incremental costs associated with this energy through the proposed cost recovery mechanism. In addition, Enbridge Gas has included in this evidence, updated legislation and market developments relevant to this proposal.

3. Enbridge Gas has updated the target percentages of RNG as part of the planned gas supply commodity portfolio with this evidence update.

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4. The RNG target percentages originally proposed as part of the planned gas supply commodity portfolio was up to one percent of RNG beginning in 2026, increasing to up to four percent of RNG in 2029. The updated proposed target percentages of

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RNG are up to 0.25 percent of RNG in 2026, increasing to up to two percent of RNG in 2029.

5. The reduction in target percentages of RNG acknowledges the nascent supply and demand markets for RNG. Enbridge Gas recognizes the complexities in contracting for large volumes of RNG supply, particularly in the Ontario market, in the 2026 to 2029 timeframe as those years become closer to the present date. The complexities in contracting include potential challenges that could arise associated with elements such as the in-service timing of new projects producing RNG, the associated volumes brought to market by new RNG projects, and the process of contracting for and procuring RNG supply (for example the RFP process and negotiations with multiple counterparties). Additionally, while customers have expressed interest in lower-carbon energy options and in a voluntary program, the customer demand patterns for lower-carbon energy are in the initial stages of taking shape and difficult to confirm without an available service offering. The reduced target percentages provide the opportunity for Enbridge Gas to enter the RNG market, offer RNG as a supply option for large volume customers, and balance the overall impact to customers. /u

6. It is clear the energy transition is underway and RNG will play an important role. As outlined in Canada's Energy Future 2023 published by the Canada Energy Regulator (CER), lower-carbon fuels will enable the energy system's path to net-zero.[1]

[1] Canada Energy Regulator, Canada's Energy Future 2023, p.2, Canada's Energy Future 2023: Energy Supply and Demand Projections to 2050 (cer-rec.gc.ca)

7. RNG is a lower-carbon energy because the displacement of conventional natural gas with RNG reduces greenhouse gas (GHG) emissions. RNG is produced from decomposing organic matter (e.g., food waste, human and animal wastes), which creates biogas that can be upgraded to pipeline quality methane. RNG is a “drop-in” fuel that can be consumed at blends up to 100 percent without compatibility issues or modification to customer equipment. RNG production offers other environmental benefits such as encouraging improved waste management practices through the collection and processing of organic waste material. /u /u

8. With interest for lower-carbon energy supported by customer engagement results, provided at EB-2022-0200 Exhibit 1, Tab 6, Schedule 1, Attachment 1, pages 293 to 295 and 382 to 384, and direct inquiries from large volume customers, Enbridge Gas has evaluated the role that lower-carbon energy can have in the gas supply commodity portfolio and is proposing a lower-carbon energy program for OEB approval.

9. As the gas supply costs associated with the lower-carbon energy proposal will not be incurred in 2024, the costs are not reflected in the gas cost forecast provided at Phase 2 Exhibit 4, Tab 2, Schedule 1, Attachment 1.

10. This evidence is organized as follows:
    1. Lower-Carbon Energy Program Proposal
    2. Evaluation of Lower-Carbon Energy as part of the Gas Supply Commodity Portfolio
    3. RNG Market Overview
    4. GHG Emissions Reporting and Reductions from RNG

1. Lower-Carbon Energy Program Proposal

11. Enbridge Gas is proposing a lower-carbon energy program to procure up to 0.25 percent of the planned gas supply commodity portfolio as lower-carbon energy beginning in 2026. Enbridge Gas proposes to increase lower-carbon energy purchases each subsequent year to a maximum of up to two percent by 2029. Thereafter, Enbridge Gas will continue to target lower-carbon energy purchases of up to two percent of its portfolio until approval from the OEB is granted to procure amounts above two percent. The target percentages and associated volumes are found in Table 1. /u /u /u /u

Table 1
Updated Lower-Carbon Energy Proposal

| Line No. | Particulars | 2026 | 2027 | 2028 | 2029 |
|---|---|---|---|---|---|
| | | (a) | (b) | (c) | (d) |
| 1 | Target % of RNG | 0.25% | 0.75% | 1.25% | 2% |
| 2 | Target amount of RNG (PJ) | 1.3 | 4.0 | 6.6 | 10.5 |

12. Enbridge Gas proposes cost recovery for lower-carbon energy through a newly proposed Lower-Carbon Voluntary Program (LCVP) for large volume sales service customers and through the cost of gas supply commodity purchases. Enbridge Gas expects to offer the LCVP on a voluntary basis to large volume sales service customers beginning January 1, 2027, when the business systems to enable the program are complete. Costs not recovered from voluntary participants through the LCVP will be included in the recovery of the cost of gas supply commodity purchases for the duration of the underpinning lower-carbon energy commodity contracts, including the cost premium for lower-carbon energy purchases for 2026 until the LCVP can be offered to large volume customers. Enbridge Gas proposes a

maximum impact on the average residential customer of $2 per month per target percentage point of RNG. Accordingly, at a target percentage of 0.25 percent of RNG in the gas supply commodity portfolio in 2026 as forecast at the time of procurement, the maximum bill impact for an average residential customer would be 50 cents per month. At a target percentage of two percent of RNG in the gas supply portfolio in 2029, the maximum bill impact for an average residential customer would be $4 per month. /u /u

13. Enbridge Gas is proposing approval of the lower-carbon energy program and cost recovery proposal permanently, until such time that a change is requested and approved by the OEB. Changes to Enbridge Gas's lower-carbon energy procurement may be required where policies, regulations, codes or standards are introduced or amended, that may require procurement of lower-carbon energy for different customer segments and/or at different amounts. Enbridge Gas will continue to engage customers to determine interest in lower-carbon energy in the gas supply commodity portfolio and may propose changes to the lower-carbon energy program at a future date based on customer feedback.

### *1.1. Procurement of Lower-Carbon Energy*

14. Currently, Enbridge Gas does not have cost recovery certainty for procurement of lower-carbon energy beyond its existing Voluntary RNG (VRNG) Pilot Program. Ontario natural gas customers are at a disadvantage compared to customers in other jurisdictions as the current VRNG Pilot Program does not support the purchase of RNG with long-term contracts. Enbridge Gas is unable to compete for this supply, as recognized by VECC in the 2022 Annual Gas Supply Plan Update: "[a]s it stands today it would appear that Canada's largest gas distribution utility is unable to compete for renewable natural gas sourced within its own distribution

franchise."[2] It is critical for Enbridge Gas to have the regulatory support to meaningfully participate in the lower-carbon energy market, with a current focus on RNG, through a cost-recovery mechanism that allows for larger volume and longer-term contracts. Without this support, Ontario customers will be left out of this critical opportunity to lower their emissions.

15. It is critical that Enbridge Gas secure meaningful quantities of RNG and other lower-carbon energy sources under long-term contracts to ensure that Ontario customers can benefit from economical RNG supply projects. Given current market dynamics, without the ability for Enbridge Gas to commit to larger volumes and longer terms, entities in other jurisdictions will be the first to secure the RNG production and associated benefits. RNG is in demand in various jurisdictions including Québec, British Columbia and the United States with mandates and supporting programs in place. Delays in the ability of Enbridge Gas to secure larger volumes and longer terms will increase the price as existing supply is contracted to meet the demand in other jurisdictions. As RNG is typically purchased via long-term contracts, these other jurisdictions will continue to maintain this position in the market for many years. As the federal carbon charge (FCC) increases and the benefit of RNG grows, Ontario's access to the RNG market will be limited along with the RNG supply produced within the province. To ensure Ontario customers can participate in this developing market, Enbridge Gas will seek to secure a portfolio of lower-carbon energy under agreements that will be of a large enough volume to procure at a reasonable cost. As the pool of RNG is procured, Enbridge Gas will work with large volume customers to encourage their participation in the LCVP.

[2] EB-2022-0072, VECC Submission, May 24, 2022.

16. Enbridge Gas expects lower-carbon energy commodity purchases will be made on long-term contracts of five years or greater. Accordingly, Enbridge Gas is proposing the cost recovery mechanism be approved for the duration of the lower-carbon energy contract term.

17. Enbridge Gas will not be requesting pre-approval of specific long-term contracts for commodity purchases consistent with the OEB's Filing Guidelines for the Pre-Approval of Long-term Natural Gas Supply and/or Upstream Transportation Contracts,[3] as the procurement of RNG is not directly supporting new natural gas infrastructure and requesting pre-approval of each RNG contract would be administratively burdensome.

18. Enbridge Gas's proposal to begin procuring RNG for delivery in 2026, with cost recovery certainty on a long-term basis, will ensure all Enbridge Gas customers have an opportunity to access economic RNG supply being produced within the province and potentially across North America. As demand increases on long-term contracts, access to economic RNG supply will become increasingly challenging. Enbridge Gas's proposal would enable the Company to enter long-term contracts, subject to the maximum bill impact forecast at the time of procurement, without the administrative burden of requesting individual approval for each contract. This proposal would enable recovery of the cost of gas supply commodity purchases for at least the duration of the underpinning commodity contracts. /u

19. Upon implementation of the LCVP, Enbridge Gas will first offer the lower-carbon energy that has been procured to large volume sales service customers on a voluntary basis. Large volume sales service customers will have the ability to

[3] EB-2008-0280.

voluntarily assume an elected portion of the pass-through commodity costs associated with lower-carbon energy as part of the proposed LCVP, up to 100 percent of their actual consumption.

20. Enbridge Gas proposes that the cost of lower-carbon energy purchases not recovered through the LCVP be included in the recovery of the cost of gas supply commodity purchases. Enbridge Gas is proposing approval of lower-carbon energy purchases to a maximum average residential customer bill impact of 50 cents per month at the target percentage of 0.25 percentage of lower-carbon energy[4] in 2026, as forecast at the time of procurement. As proposed, the maximum bill impact for an average residential customer would be $4 per month by 2029. Bill impacts for non-residential general service and contract sales service customers will be based on the customers' consumption volumes. The residential customer bill impact will be calculated by taking the cost associated with RNG supply that was not elected as part of the LCVP and including this in the commodity reference price. This approach allows Enbridge Gas the flexibility to contract for lower-carbon energy, beginning with RNG, as part of regular business activities. /u /u

21. There are two potential situations where Enbridge Gas would stop procuring lower-carbon energy for a program year. The first is reaching the target percentage of lower-carbon energy in the total gas supply portfolio, and the second is reaching the maximum bill impact for customers, as forecast at the time of procurement. Enbridge Gas estimates that the target percentage of RNG will be able to be procured within the maximum bill impact, however, as market dynamics change, /u

[4] For example, a target 0.25 percent of supply would equate to a maximum 50 cents/month average residential customer bill impact and a target two percent of supply would equate to a maximum $4/month average residential customer bill impact. The monthly consumption of an average residential customer is defined as 200 $m^3$ in the EGD rate zone (2,400 $m^3$ annually) and 183 $m^3$ in the Union rate zones (2,200 $m^3$ annually). /u

either of these two potential situations may be possible. In a scenario where LCVP demand exceeds the target percentage of lower-carbon energy, the Company will, on a best-efforts basis, procure additional RNG to meet this demand on a short-term contract and no additional costs would flow to the gas supply commodity portfolio in that year.

22. The Company will target an increasing level of lower-carbon energy purchases, moving from up to 0.25 percent of total purchases in 2026 to up to two percent in 2029, capped at a monthly bill impact per target percentage of lower-carbon energy procured. The monthly amount will be based on the forecast gas costs at the time of the lower-carbon energy procurement and Enbridge Gas will cap the average residential customer bill impact at $2 per month per target percentage of the portfolio procured as lower-carbon energy, as forecast at the time of procurement. The maximum bill impact will be incremental to the commodity costs charged to customers excluding the lower-carbon energy commodity costs. As the FCC increases by $15 per tonne per year from $110 per tonne in 2026 to $155 per tonne in 2029[5], the price differential between conventional natural gas and lower-carbon energy will narrow. /u /u /u

23. Enbridge Gas will procure lower-carbon energy through a portfolio of lower-carbon energy types that the Greenhouse Gas Pollution Pricing Act (GGPPA) recognizes as being exempt from the FCC. Currently, Enbridge Gas plans to use RNG and the associated definition and reduction recognized by the GGPPA.[6] If other lower-carbon fuels become recognized as a means to reduce the FCC applicable to

[5] Government of Canada. (2021 August 5). The Federal Carbon Pollution Pricing Benchmark. https://www.canada.ca/en/environment-climate-change/services/climate-change/pricing-pollution-how-it-will-work/carbon-pollution-pricing-federal-benchmark-information.html
[6] Greenhouse Gas Pollution Pricing Act, September 1, 2022, pp.18-19, https://laws-lois.justice.gc.ca/PDF/G-11.55.pdf

consumption, the Company will consider the inclusion of these lower-carbon energy alternatives as part of the lower-carbon energy procurement in alignment with the gas supply planning principles.

24. Increasing the amount of RNG in gas supply (1) supports an immediate opportunity to reduce GHG emissions within Ontario's building, transportation, industrial and electricity generation sectors; (2) develops an Ontario-based RNG market to supply RNG to the difficult-to-decarbonize sectors such as industrial processes and heavy transportation; and (3) provides customers with RNG as an option to achieve GHG emission reduction goals as the energy transition unfolds.

25. An amendment to the GGPPA was published on April 12, 2023, recognizing hydrogen as an FCC exempt fuel.[7] Given this recognition, Enbridge Gas will consider hydrogen procurement in this program when further certainty on the inclusion of hydrogen in the distribution system is available. This will follow the completion of the system-wide Hydrogen Blending Grid Study,[8] discussed at length in Phase 1 of this proceeding. Upon completion of the Hydrogen Blending Grid Study, Enbridge Gas will evaluate the feasibility of including hydrogen within its gas supply commodity portfolio, including the availability of hydrogen supply, pricing, and environmental benefits and may seek approval for hydrogen inclusion as part of a future application.

[7] Government of Canada. (2023 April 12). Regulations Amending Schedule 2 to the Greenhouse Gas Pollution Pricing Act, Amending the Fuel Charge Regulations and Repealing the Part 1 of the Greenhouse Gas Pollution Pricing Act Regulations (Alberta): SOR/2023-62. https://www.gazette.gc.ca/rp-pr/p2/2023/2023-04-12/html/sor-dors62-eng.html
[8] EB-2022-0200, Exhibit 4, Tab 2, Schedule 6, p.16.

26. Enbridge Gas will use the existing Gas Supply Plan review process, established from the Framework[9] and subsequent Annual Gas Supply Update proceedings, to provide an overview of LCVP results. At the same time, the Company will also report on lower-carbon energy procurement activities, including terms of procurement contracts and forecast bill impacts to customers. /u

*1.2. Voluntary Program for Large Volume Sales Service Customers*

27. To provide the ability for large volume sales service customers to reduce their emissions related to natural gas consumption and the cost associated with the FCC, Enbridge Gas has developed the LCVP for large volume sales service customers. Direct purchase (DP) customers who wish to procure RNG as part of their supply already can arrange this with their supplier as part of their supply arrangement. As a result, Enbridge Gas has developed processes to reduce the FCC on the bill of those DP customers who have attested that their supply is RNG. The proposed LCVP will create a similar ability for sales service customers to reduce their exposure to the FCC.

28. Enbridge Gas is aware of multiple large volume sales service customers who have expressed interest in a more customizable quantity of RNG in their gas supply than is offered through the current VRNG Pilot Program. This customer group interacts frequently with Enbridge Gas and, due to greater gas demands, experiences a greater impact from the FCC.[10] The current VRNG Program does not offer large volume customers access to the volume of RNG supply to achieve the emissions

[9] EB-2017-0129, Report of the Ontario Energy Board, Framework for the Assessment of Distributor Gas Supply Plans, October 25, 2018.
[10] Facilities that hold an Exemption Certificate issued by the Canada Revenue Agency (i.e., large industrial facilities registered in Ontario's Emissions Performance Standards Program) are exempt from the FCC on their natural gas bill. Greenhouse Gas Pollution Pricing Act, September 1, 2022, https://laws-lois.justice.gc.ca/PDF/G-11.55.pdf

reductions they require. Through existing communication channels with these customers, Enbridge Gas will share the availability of this program without additional marketing spend.

29. With OEB approval, the proposed LCVP will be available to commercial and industrial sales service customers served by contract and large volume general service rate classes upon the implementation of planned changes to internal and customer-facing business applications and processes to support participation in the program. Enbridge Gas intends to offer the LCVP to large volume general service customers with a sales service supply option and annual consumption greater than 15,000 $m^3$ in Rate 6 in the EGD rate zone, Rate 01 and Rate 10 in the Union North rate zone, and Rate M1 and Rate M2 in the Union South rate zone. Following rate class harmonization, large volume general service customers eligible for the LCVP will be served as part of the harmonized Rate E02 rate class. /u /u

30. The lower-carbon energy premium of the LCVP will be recovered through the proposed Rider L which will be effective with the LCVP implementation as provided at Phase 2 Exhibit 8, Tab 2, Schedule 1, Attachment 3.

31. Subject to RNG availability, Enbridge Gas will offer lower-carbon energy as part of the LCVP for a commitment period of one year with automatic renewal in subsequent years until a time in which the customer elects a change. This will allow customers certainty on their emissions reductions on a long-term basis. Participating LCVP customers will receive a specified portion of their supply as lower-carbon energy and pay the associated premium cost of lower-carbon energy above the gas commodity cost through Rider L. The premium will vary based on the portfolio of lower-carbon energy the Company procures, however the premium will

be known at the time of the commitment by customers to participate and updated to reflect the average price of lower-carbon energy procured by Enbridge Gas.

32. Prior to the time of the LCVP offering, Enbridge Gas will contract for the lower-carbon energy and communicate the average contract price of the supply as part of the offering. Enbridge Gas will pass through the premium for the selected portion of lower-carbon energy to customers who elect the LCVP over the year of the election.

33. Enbridge Gas will reduce the FCC for customers who elect the LCVP on their natural gas bills by a percentage equal to the total annual percentage of lower-carbon energy elected by the customer.

*1.3. Inclusion of Low-Carbon Energy in Gas Supply Portfolio*

34. Lower-carbon energy that is not elected as part of the LCVP will be included in the planned gas supply portfolio commodity purchases. These purchases include all supply provided by Enbridge Gas to sales service customers. Enbridge Gas will use the gas supply commodity portfolio forecast of planned purchases, which is updated on an annual basis, to determine the quantity of lower-carbon energy to procure.

35. Planned purchases in the gas supply commodity portfolio for 2024 are 527 PJ.[11] Enbridge Gas will plan to procure up to 0.25 percent of the equivalent forecast supply requirements as lower-carbon energy for 2026 (which includes purchases for system supply, compressor fuel, UFG and own use) and increase the target procurement annually, reaching up to two percent in 2029. Procurement will be /u /u

[11] Phase 2 Exhibit 4, Tab 2, Schedule 1, Attachment 1, p.3, line 8.

executed in alignment with the current gas supply planning principles. Enbridge Gas will seek a diverse, flexible, reliable, and cost-effective supply source of lower-carbon energy to meet the target blend percentage.

36. Enbridge Gas will procure this supply to a forecast maximum residential bill impact of 50 cents per month at a target percentage of 0.25 percent of RNG in the gas supply portfolio, after reduction of the FCC, at the time of purchase. The maximum bill impact will increase to $4 per month at a target percentage of 2% of RNG in the gas supply portfolio. This maximum bill impact represents Enbridge Gas's current estimated bill impact for the annual percentage targets assuming no LCVP participation. This approach of establishing a maximum bill impact allows Enbridge Gas the flexibility to procure a diverse portfolio of low-carbon energy while providing price certainty to ratepayers as market dynamics for lower-carbon energy continue to develop. The rate impacts for other customers will vary based on their forecast consumption. /u /u

37. Lower-carbon energy costs not recovered through the LCVP will be included in the cost of gas supply commodity purchases, with variances captured in the Purchase Gas Variance Accounts and remain effective for at least the duration of the under-pinning contracts.

38. Enbridge Gas will reduce the FCC for sales service customers to reflect the FCC benefit of the lower-carbon energy purchases. Due to timing differences between when the lower-carbon energy is delivered into the distribution system and when Enbridge Gas rebates the FCC for that lower-carbon energy delivery, variances between actual customer FCCs and actual FCCs collected through rates may arise. These variances will be recorded in the Customer Carbon Charge – Variance

Account (CCCVA). Additionally, the FCC benefit associated with RNG purchases on behalf of sales service customers will be recorded in the CCCVA until planned changes to reduce the FCC for sales service customers are implemented in internal and customer-facing business applications. On an annual basis, any balance in the CCCVA will be proposed for disposition through the annual Federal Carbon Pricing Program Application. Enbridge Gas will collect and remit the required FCC from customers monthly. /u

2. Evaluation of Lower-Carbon Energy as part of the Gas Supply Commodity Portfolio

39. As discussed in the 2022 Annual Gas Supply Plan Update, the Company determined the need to evaluate the role that lower-carbon energy could serve in the gas supply commodity portfolio following supportive customer engagement results specifically for the inclusion of RNG.[12] Through that process, multiple stakeholders showed interest in more information about RNG, with one noting that their members (large commercial customers) are working towards lower-carbon operations and net-zero emissions.[13] Stakeholders were seeking more information to be provided via a jurisdictional overview in the rebasing application[14]. As described by VECC, “renewable natural gas has clear benefits to consumers not just in GHG emission reduction but also in potential monetary credits to offset carbon taxes.”[15]

40. The Company has undertaken this evaluation, including an assessment of alignment with gas supply guiding principles, a review of lessons learned from the existing Voluntary Renewable Natural Gas (VRNG) Pilot Program, through

[12] EB-2022-0072, Transcript Day 1, p.91.
[13] Ibid, BOMA Submission, May 24, 2022.
[14] Ibid, BOMA, LPMA and VECC Submission, May 24, 2022.
[15] Ibid, VECC Submission, May 24, 2022, paragraph 8.

customer engagement activities and through completion of a jurisdictional overview of the lower-carbon energy market. These evaluation components are outlined below.

*1.1. Alignment with Gas Supply Guiding Principles and Public Policy*

41. The OEB's Framework for the Assessment of Distributor Gas Supply Plans (Framework) set out guiding principles for assessment of natural gas distributors' gas supply plans. It identified three guiding principles used in assessing the plans:

> - Cost-effectiveness – The gas supply plan will be cost-effective. Cost-effectiveness is achieved by appropriately balancing the principles and in executing the supply plan in an economically efficient manner.
> - Reliability and security of supply – The gas supply plan will ensure the reliable and secure supply of gas. Reliability and security of supply is achieved by ensuring gas supply to various receipt points to meet planned peak day and seasonal gas delivery requirements.
> - Public policy – The gas supply plan will be developed to ensure that it supports and is aligned with public policy where appropriate.[16]

42. As outlined below, the proposal to procure lower-carbon energy as part of the gas supply commodity portfolio is aligned with each of these guiding principles.

43. Enbridge Gas's proposal to procure lower-carbon energy as part of the gas supply commodity portfolio is a cost-effective means to reduce emissions. Lower-carbon energy, specifically RNG, is a market-ready solution to advance progress to make meaningful reductions in GHG emissions while leveraging existing infrastructure

[16] EB-2019-0137, Final OEB Staff Report to the Ontario Energy Board, March 26, 2020.

and assets in a cost-effective manner that does not compromise reliability of supply. Enbridge Gas's proposal to allow large volume system gas customers to voluntarily elect to include RNG in their supply allows customers with emissions reductions goals to meet these goals on a long-term basis. RNG that is not elected for as part of the LCVP will be recovered through the gas commodity reference price. This approach maximizes alignment with customers interests in reducing their emissions, while minimizing the marketing costs required to provide that alignment. It also enables Enbridge Gas the critical ability to contract for RNG supply on a long-term basis, allowing for more economic and reliable access to RNG supply.

44. Government at all levels as well as customers are focused on reducing GHG emissions and transitioning to a lower-carbon economy. Specifically, the Ontario government has committed to reducing emissions by 30 percent below 2005 levels by 2030, as outlined in the Made-in-Ontario Environment Plan, which is aiming to reduce emissions by 18 Mt of $CO_2$ by 2030[17]. Enbridge Gas's lower-carbon energy proposal is aligned with the spirit of this public policy as it would reduce emissions by over 0.5 Mt of $CO_2$ by 2029 (assuming two percent of the gas supply commodity portfolio is purchased as RNG). This proposal therefore achieves approximately three percent of the reduction goals in the Made-in-Ontario Environment Plan. /u /u

45. In March 2022, the Canadian Biogas Association released a report outlining the role that biogas and RNG could play in meeting Canada's Climate Targets.[18] In its findings, the report states that if new policy were introduced to enact a renewable

[17] Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan, November 29, 2018, p.24, https://prod-environmental-registry.s3.amazonaws.com/2018-11/EnvironmentPlan.pdf
[18] Hitting Canada's Climate Targets with Biogas & RNG, March 2022, https://biogasassociation.ca/images/uploads/documents/2022/resources/Hitting_Targets_with_Biogas_RNG.pdf

gas blend mandate and create carbon credits for methane destruction and utilization in landfills and agriculture, biogas and RNG within Ontario could contribute an additional 5.6 Mt of $CO_2$ emissions reductions by 2030, while also reducing methane emissions by 192 kt at the same time.[19] Additional benefits found in this report include creating 19,900 jobs across Canada and contributing $5 billion in annual GDP.

46. Aligned with the spirit of public policy and cost-effectiveness, and in support of reliable and secure supply, Enbridge Gas is proposing the inclusion of up to two percent lower-carbon energy in the gas supply commodity portfolio by 2029. /u

*1.2. Current Inclusion of Lower-Carbon Energy in the Gas Supply Commodity Portfolio*

47. To date, Enbridge Gas has incorporated lower-carbon energy in the gas supply commodity portfolio through the existing VRNG Pilot Program and phase 1 of the Low Carbon Energy Project (LCEP).

***VRNG Pilot Program***

48. The existing VRNG Pilot Program was approved by the OEB[20] and implemented in April 2021. This Pilot Program allows customers to voluntarily pay an additional $2 per month towards the inclusion of RNG in the gas supply portfolio. The VRNG Program was proposed and approved as a pilot to provide an opportunity to begin incorporating RNG into the gas supply commodity portfolio.

[19] Ibid.
[20] EB-2020-0066, Decision and Order, September 24, 2020.

49. Enbridge Gas procured 1,000 GJ of RNG in March 2022, 2,300 GJ of RNG in February 2023, and an additional 2,300 GJ of RNG in February 2024, based on revenue collected and the forecast of enrolled participants at the time. At the end of Q1 2024, 4,102 customers have enrolled in the VRNG Pilot Program. Enbridge Gas has reduced approximately 278 tonnes of $CO_2e$ through the displacement of conventional natural gas through this program. Enbridge Gas will continue to provide enrollment to the VRNG Pilot Program and will offer this program until the approval and implementation of the lower-carbon energy program in this evidence. Following approval of the lower-carbon energy program, the Company will use any remaining funds collected from the VRNG Pilot Program to procure RNG for the system supply portfolio as part of the 2026 RNG procurement and discontinue the existing VRNG Pilot Program.

50. The VRNG Pilot Program has allowed Enbridge Gas to procure a small volume of RNG on behalf of program participants; however, the ability to purchase the RNG has been limited by lower-than-expected participation in the program. Enbridge Gas has recognized that participation is strongly correlated with marketing campaign spend and timing, with 77 percent of enrollments occurring during active marketing campaigns. For example, Enbridge Gas ran a marketing campaign from March 14 to May 31, 2022, during which a monthly average of 208 participants enrolled in the program, compared to a monthly average of only 59 participants in January and February. Enbridge Gas has attempted to maximize the effectiveness of its marketing budget associated with the VRNG Pilot Program; however, the Company would need to significantly increase and sustain the marketing budget to continue to attract additional customers to this program.

51. The target participants of the existing VRNG Pilot Program are residential and small commercial customers. Through this program, Enbridge Gas has experienced a cost to acquire of $200 per participant. Assuming the cost to acquire a participant remains constant, a marketing budget of $4.8 million for the first two years would be needed to achieve participation levels forecast as part of the VRNG Pilot Program. At this level, RNG procurement would continue to fall short of the demonstrated interest for RNG in customer engagement that was supported by customer engagement results, provided at EB-2022-0200 Exhibit 1, Tab 6, Schedule 1, Attachment 1, pages 293 to 295.

***Low Carbon Energy Project (LCEP)***

52. Phase 1 of the existing LCEP Program began blending hydrogen into the natural gas distribution system in October 2021. Through the LCEP Program, customers have been able to reduce $CO_2e$ by approximately 198 tonnes between October 2021 and February 2024. Further details of this program were provided at EB-2022-0200 Exhibit 4, Tab 2, Schedule 6. Enbridge Gas will continue to blend hydrogen as part of the LCEP to reduce GHG emissions.

*1.3. Customer Support and Engagement*

53. Of Ontario's GHG emissions, 32 percent are related to the combustion of natural gas by end-use customers. As noted in Enbridge Gas's customer engagement findings, residential customers ranked "minimizing any impacts on the environment" as a top priority, just behind affordability and the safety and reliability of delivering natural gas as provided at EB-2022-0200 Exhibit 1, Tab 6, Schedule 1, Attachment 1, page 119.

54. Residential and business customers also supported the inclusion of RNG in the gas supply portfolio at an incremental cost. Enbridge Gas asked customers to consider

including RNG starting at an additional cost to their current rates. Customer engagement results indicate that 54 percent of residential customers and 52 percent of business customers were supportive of incurring these additional costs to support RNG in the system supply portfolio at various levels.[21] As noted above, this support for Enbridge Gas to purchase RNG is not reflected in the low participation rates of the VRNG Pilot Program, likely due to the requirement of residential customers to take positive action to elect their participation. Small volume customers do not interact frequently with the utility and require considerable Company effort to encourage taking specific actions such as electing to participate in the VRNG Pilot Program. Enbridge Gas's proposal to recover unelected RNG costs through the gas supply commodity portfolio will allow small sales service customers to benefit from the inclusion of RNG without having to take specific action.

55. In addition to support for inclusion of RNG in the gas supply portfolio through the customer engagement process, Enbridge Gas is aware of multiple large volume sales service customers who are seeking to lower their emissions using RNG. Enbridge Gas is in the process of assessing this interest and customer requirements. Many of Enbridge Gas's large volume sales service customers have also set goals to reduce emissions and/or become net-zero. Additionally, municipalities, associations and stakeholders have set ambitious goals to reduce their own and their constituents' emissions. Letters of support for the inclusion of RNG are provided at Attachment 1. Enbridge Gas is aware of customers switching to DP in order to include RNG as part of their gas supply mix, which cannot currently be facilitated through a sales service arrangement. To create a similar opportunity for emissions reductions for large volume sales service, Enbridge Gas

[21] EB-2020-0200 Exhibit 1, Tab 6, Schedule 1, Attachment 1, p. 32.

is proposing a voluntary program for the inclusion of RNG for large volume sales service customers.

3. RNG Market Overview

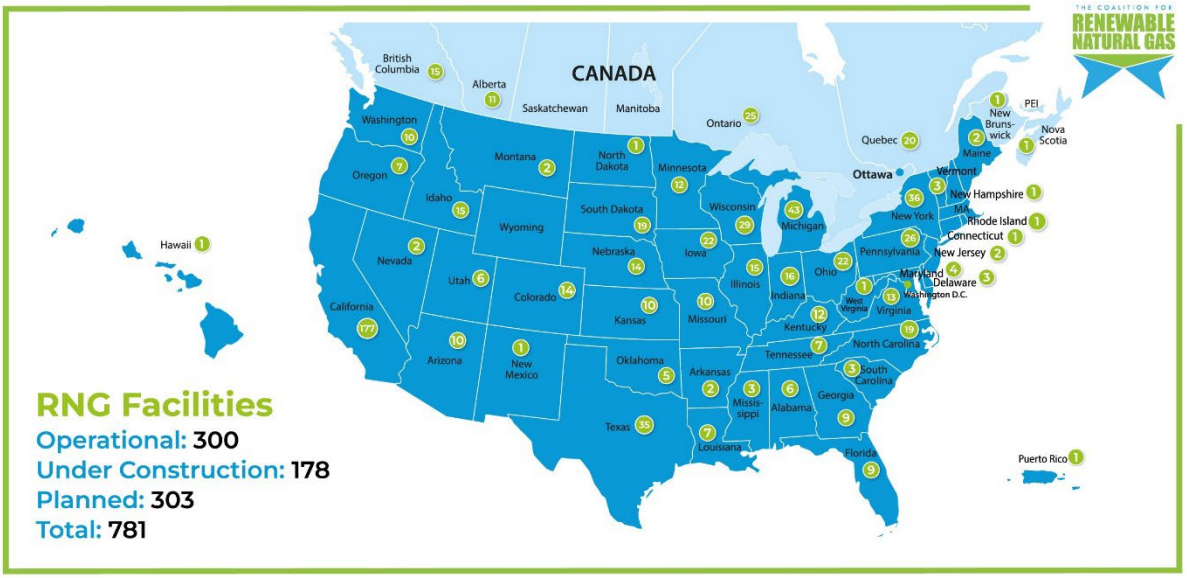
56. Enbridge Gas engaged Anew Canada ULC (Anew), formerly Bluesource Canada ULC, to provide a jurisdictional overview (the Anew Report) of the RNG market in North America and the role of RNG for customers seeking to lower the carbon emissions associated with their natural gas supply. The Anew Report is provided at Attachment 2. This report, including the review of RNG programs in other jurisdictions such as those in the provinces of British Columbia (BC) and Québec, has informed Enbridge Gas's proposal for similar inclusion of RNG in its portfolio on both a voluntary basis and through the gas supply commodity portfolio.

57. Since the completion of the Anew Report, the RNG market has continued to evolve across North America. RNG supply has continued to grow, and an increasing number of jurisdictions have enacted regulations to lower GHG emissions of their gas supply by procuring RNG as part of their energy mix. Further, in alignment with the existing conventional natural gas market in North America, as RNG production continues to increase, tools to facilitate North American-wide transactions, such as registries and pricing indices, are developing and further accelerating RNG market development. When seeking RNG supply for procurement, buyers have access to supply from across the continent, as they do for conventional natural gas. Enbridge Gas will be able to access this market using both existing upstream portfolio contracts and delivered supplies, as the Company continues to monitor available supply and new market tools and opportunities.

*3.1 Supply Developments*

58. Rapid development of RNG supply projects in North America has occurred over recent years and is expected to continue, with accelerated short-term growth. From December 2021 to July 2023, the number of North American RNG supply projects that are planned, under construction, or in operation has increased from 446[22] to 781[23] as of July 18, 2023. Figure 1 shows the RNG supply projects spread across North America that are now planned or operational in every continental U.S. state and almost all provinces in Canada.

Figure 1: North American RNG Facilities




[22] Natural Gas Intelligence. (2021 Oct 28). UGI, Global Common Energy Developing Third RNG Project in Upstate New York. https://www.naturalgasintel.com/ugi-global-common-energy-developing-third-rng-project-in-upstate-new-york/.
[23] The Coalition for Renewable Natural Gas. RNG Renewable Natural Gas Infographics. https://www.rngcoalition.com/infographic

59. Significant growth in RNG facilities has been experienced in recent years. Wood Mackenzie noted that in 2022, 60 MMcf/d (approximately 0.1 PJ/d) of new RNG production was added, with the number of projects doubling in the last five years.[24]

60. Recent development of RNG projects, some of which is fueled by the U.S. Inflation Reduction Act's Investment Tax Credit, is leading to forecasts of very high near-term growth, followed by continued steady growth until 2050. S&P Global shared one lender outlook, pointing to a 50 percent growth by 2024 and a potential 2.2 Bcf/d (approximately 2.4 PJ/d) by 2050.[25] Existing buyers are benefiting from these rapidly developing near-term supplies and playing a key role in driving development of projects. Many of these buyers, including utilities in Québec and BC are contracting for supply on long-term agreements, accessing supply at competitive prices in comparison to spot market prices. As part of project development, RNG buyers are typically contracting for supply agreements during the planning and construction phases of projects. Access to the RNG market during this expansion in development projects will provide current buyers with more options for supply. Buyers not taking advantage of current opportunities, will lose access to the currently available and developing supply.

61. Enbridge Gas is aware of multiple RNG projects in the planning and construction phase as well as projects in operation. Please see Attachment 3 for supporting documentation from potential RNG suppliers and impacted stakeholders. These

[24] Natural Gas Institute. (2023 Jul 20). North American RNG Production Forecast to Steadily Increase to 2050, Says Wood Mackenzie. https://www.naturalgasintel.com/north-american-rng-production-forecast-to-steadily-increase-to-2050-says-wood-mackenzie/
[25] S&P Global Commodity Insights. (2023 Jan 06). US RNG approaches maturity as lenders eye 50% production growth by 2024. https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/natural-gas/010623-us-rng-approaches-maturity-as-lenders-eye-50-production-growth-by-2024.

documents demonstrate the further development of RNG projects and supply, interest in participating in a competitive bid process should this proposal receive approval, as well as some of the opportunity that RNG provides in both economic development and waste management. Specifically, at page 1 of Attachment 3, one producer states that RNG "presents a remarkable opportunity for rural economic development by promoting the growth of local biogas and agricultural waste-to-energy projects. The development of RNG infrastructure and production facilities can create jobs in rural areas, providing new economic opportunities while also contributing to the diversification of rural economies" Others on page 4, state that Enbridge Gas's RNG procurement proposal "amplifies market potential for [their] RNG production". Initial production indications from this group of suppliers point to supply potential of greater than 39 PJ/year.

### *3.2 Demand Developments*

62. RNG demand has continued to increase as both legislated and voluntary buyers contract for supply, typically on a long-term basis. Jurisdictions with legislated RNG targets that increase over time, as well as new jurisdictions entering the RNG marketplace, have contributed to increasing demand. As demand has increased in these areas, the importing and movement of RNG both within and across jurisdictions has become increasingly common and more transparent. In addition, market tools, such as registries for environmental attributes have facilitated greater transparency and efficiency of the RNG market.

63. Multiple utilities have been purchasing renewable natural gas for several years including Énergir, FortisBC and Vermont Gas. Each of these jurisdictions is subject to increasing targets by 2030, as Énergir seeks 10 percent of its supply as RNG to meet legislated targets and FortisBC seeks 15 percent, typically on long-term

contracts. These increasing targets, as well as number of utilities entering the RNG market, point to the fact that other jurisdictions are acknowledging RNG will play a role in the energy future. Enbridge Gas needs to begin procuring RNG to take advantage of emerging opportunities to secure supply.

64. More recently, S&P Global has noted that utilities are poised to become bigger players in the RNG market.[26] ONE Gas, which serves 2.2 million customers in Kansas, Oklahoma and Texas[27] has lined up 22 RNG projects and identified 175 Bcf (approximately 194 PJ) of RNG production potential in the states that they serve.[28] Puget Sound Energy[29] and Washington Gas[30], both located in Washington State, as well as UGI in Pennsylvania have begun procuring RNG. Florida, Missouri and Minnesota all recently enacted renewable content legislation that will allow RNG to be a viable source of the states' energy mix.[31] These jurisdictions are actively procuring long-term RNG contracts, securing access to RNG for up to 20 years and removing this supply from availability to the market.

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[26] S&P Global Market Intelligence. (2022 Mar 04). Utilities scale up renewable natural gas purchases, expand project portfolios. https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/utilities-scale-up-renewable-natural-gas-purchases-expand-project-portfolios-69225022

[27] ONE Gas. https://www.onegas.com/home/default.aspx

[28] S&P Global Market Intelligence. (2022 Mar 04). Utilities scale up renewable natural gas purchases, expand project portfolios. https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/utilities-scale-up-renewable-natural-gas-purchases-expand-project-portfolios-69225022

[29] Puget Sound Energy. Press Release. (2022 Jun 02) Puget Sound Energy launches Renewable Natural Gas program. https://www.pse.com/en/press-release/details/Puget-Sound-Energy-launches-Renewable-Natural-Gas-program

[30] S&P Global Market Intelligence. (2021 Nov 08). Gas utilities expand renewable natural gas project investments in Q3. https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/gas-utilities-expand-renewable-natural-gas-project-investments-in-q3-67492573

[31] S&P Global Market Intelligence. (2021 Aug 09). Gas utilities plot RNG expansion as supply chain issues emerge. https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/gas-utilities-plot-rng-expansion-as-supply-chain-issues-emerge-65964095

65. Currently, utilities and other purchasers of RNG are understood to be importing RNG from across North America to their respective jurisdictions. Énergir, FortisBC and Vermont Gas have all purchased and imported RNG from outside of their jurisdictions.

66. As filed in its 2023-2024 Rate Case, Énergir imports 74 percent of their RNG from outside of their territory. On October 31, 2022, Énergir issued a request for information (RFI) for between 70 to 100 $Mm^3$ (between approximately 2.7 to 3.9 PJ) of RNG supplies annually, with delivery starting in October 2024. In this RFI, Énergir sought RNG produced anywhere within North America.

67. As of 2021, FortisBC indicated that it expected to import 74 percent of its RNG supply from across North America, of which 18 percent is expected to be supplied from Ontario.[32] The Government of British Columbia has identified RNG as a viable lower-carbon energy source. FortisBC currently purchases and imports RNG from at least two Ontario producers, Faromor CNG and Stormfisher.[33] It is entering into long term agreements (up to 20 years) with producers and, in some cases, purchasing supply before production has started.

68. As filed in its Gas Supply and Renewable Natural Gas Report July 1, 2022, Vermont Gas is entering into long-term RNG supply deals with producers across North America.[34] These producers include The Dubuque Water and Resource

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[32] FortisBC Energy Inc. (2021 Dec 17). Comprehensive Review and Application for Approval of a Revised Renewable Gas Program. https://docs.bcuc.com/Documents/Proceedings/2021/DOC_65216_B-11-FEI-Stage-2-Comprehensive-Review-Application-of-Revised-Renewable-Gas-Program.pdf
[33] Ibid, page 74.
[34] Vermont Public Utility Commission, July 2023 Annual Supply Plan, June 30,2023. https://epuc.vermont.gov/?q=node/64/190881/FV-ALLOTDOX-PTL

Recovery Center in Dubuque, Iowa, BP on behalf of London RNG, Vanguard Renewables and Archaea Energy Marketing LLC. This approach to procurement further supports the fact that RNG can be sourced from across North America and is not limited to the jurisdiction in which a utility operates.

69. Similar to Énergir, FortisBC and Vermont Gas, Enbridge Gas also has the ability to purchase RNG produced outside of Ontario in the same manner that it procures conventional natural gas produced outside of Ontario and is therefore not limited to Ontario RNG supplies. Enbridge Gas may purchase RNG outside of Ontario due to factors including supply availability, price and diversification. This supply can be accessed both through the upstream transportation portfolio and through delivered supplies.

70. Large end-users of natural gas have also recognized RNG can reduce their carbon footprint[35] and began procuring based on long-term contracts. Specifically, AstraZeneca recently announced a partnership with Vanguard Renewables to annually procure 650,000 MMBtu (0.7 PJ) of RNG, powering operations across North America.[36]

71. As this supply develops, key market tools and efficiencies to facilitate transactions, leading to further transparency, have also been progressing. Platts Gas Daily began publishing a daily spot market price for RNG on May 16, 2023, with the aim

[35] S&P Global Commodity Insights. (2022 Dec 16). RNG industry expects US voluntary customers to spur demand after early transport boom. https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/natural-gas/121622-rng-industry-expects-us-voluntary-customers-to-spur-demand-after-early-transport-boom

[36] AstraZeneca. (2023 Jun 13). AstraZeneca announces innovative partnership with Vanguard Renewables to decarbonize its United States sites. https://www.astrazeneca-us.com/media/press-releases/2023/astrazeneca-announces-innovative-partnership-with-vanguard-renewables-to-decarbonize-its-united-states-sites.html

of bringing further transparency to the emerging market.[37] As the market continues to develop, advancements such as these will lead to further ease of transacting and access to supply for buyers.

## 4. GHG Emissions Reporting and Reductions from RNG

72. This section of evidence provides details regarding how RNG achieves emissions reductions and how these RNG-related emissions reductions are recognized within existing government policies and regulations, as well as being disclosed through Enbridge Gas's GHG emissions reporting.

73. Enbridge Gas complies with all applicable federal and provincial climate policies. These policies recognize RNG as a lower-carbon fuel and provide direction on how the Company quantifies and claims environmental attributes and/or emissions reductions associated with RNG under each government regulated program.

74. GHG emissions related to the combustion of natural gas by end-use customers are subject to the GGPPA. The GGPPA requires Enbridge Gas to apply the FCC on the natural gas it distributes to applicable customers. The GGPPA does not apply the FCC to RNG and, therefore, has inherently recognized RNG as being free of $CO_2$ emissions. As such, the GGPPA recognizes that RNG, when displacing a conventional natural gas molecule, avoids the $CO_2$ emissions associated with the combustion of a natural gas molecule. This is also supported by the federal and

[37] Yahoo Finance. (2023 May 16). Platts of S&P Global Commodity Insights Launches First-of-Type Daily Price Assessments for North America Renewable Natural Gas. https://finance.yahoo.com/news/platts-p-global-commodity-insights-120000209.html?guce_referrer=aHR0cHM6Ly93d3cuYmluZy5jb20v&guce_referrer_sig=AQAAAI-WhcUkd6Kyat9irRwFEBONx0rOa3qHAP0qmnZf227AqLYFdbqtWMzd3HgQVdm_hlOJVZIAaQ9ASKEOMpkez9iYnsOCnMyxUqewVBIuvvf206iWamcuWZp4G9fuhptnIcfVeMom6etXHMSaNrt1hH3cJzdlG8Q47K8ulRTjkgP5&guccounter=2

provincial GHG reporting programs and Ontario's Emissions Performance Standard (EPS), all of which allow reporters to subtract the $CO_2$ emissions from combustion of RNG from their reportable GHG emissions.

75. This GHG emission avoidance is equivalent to 0.05[38] tonnes of carbon dioxide equivalent per gigajoule ($tCO_2e/GJ$) of RNG. It is important to note that although 0.05 $tCO_2e/GJ$ is emitted when a GJ of either conventional natural gas or RNG is burned, these emissions are considered avoided when RNG (also known as biomethane) is burned. This is because RNG is produced from decomposing organic matter (e.g., food waste, human and animal wastes) which is ultimately derived from plants that utilize and remove carbon dioxide ($CO_2$) from the atmosphere; therefore, the $CO_2$ emitted from combusting RNG is part of the short-term natural carbon cycle and not a net increase in GHG emissions.[39] This is aligned with the reduction recognized in the GGPPA:

> **Natural gas that contains biomethane**
> **(7)** Unless subsection (8) applies, if a quantity of marketable natural gas or non-marketable natural gas contains a particular proportion of biomethane (expressed as a percentage), for the purpose of this Part, the quantity of marketable natural gas or non-marketable natural gas

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[38] The emission factor for natural gas in Ontario can be calculated from the Ontario Marketable Natural Gas charge of $0.0979/cubic meter (Greenhouse Gas Pollution Pricing Act, September 1, 2022, Table 4, pp.242-245, https://laws-lois.justice.gc.ca/PDF/G-11.55.pdf), divided by 2022 carbon price of $50/t $CO_2e$ (Government of Canada. (2021 August 5). The federal carbon pollution pricing benchmark. https://www.canada.ca/en/environment-climate-change/services/climate-change/pricing-pollution-how-it-will-work/carbon-pollution-pricing-federal-benchmark-information.html) and equals 0.001958 $tCO_2e$/cubic meter.
Using Enbridge Gas's average annual heat content for 2021 of 0.03884 GJ/standard $m^3$, the emission factor in energy units is 0.05041 $tCO_2e/GJ$.

[39] Report Update: Biomethane Greenhouse Gas Emissions Review, March 31, 2017, https://www.cdn.fortisbc.com/libraries/docs/default-source/services-documents/offsetters-biomethane_greenhouse_gas_emissions_reviewe6fecb594de843768ae02951f4b8d3eb.pdf?sfvrsn=821688c4_2

> is deemed to be the number of cubic metres determined by the formula
>
> **A × (100% – B)**
>
> where
>
> **A** is the number of cubic metres that the marketable natural gas or non-marketable natural gas would occupy at 15°C and 101.325 kPa; and
>
> **B** is the particular proportion.[40]

76. The GGPPA allows for the proportion of any RNG contained in the natural gas supply to be subtracted from the total volume reported and subjected to the FCC. The FCC is based on the emission factor for marketable natural gas and represents direct emissions released from the combustion of natural gas and is not based on a lifecycle carbon intensity (CI) approach. Biomethane (i.e. RNG) as provided in the GGPPA is described as "a substance that is derived entirely from biological matter available on a renewable or recurring basis and that is primarily methane"[41] and does not differentiate the various feedstocks or methods of RNG production nor the various carbon intensities or indirect upstream emission reductions that may arise. As a result, replacing one GJ of conventional natural gas with one GJ of RNG regardless of the lifecycle CI associated with the supply procured achieves a full reduction in the applicable FCC for ratepayers.

77. On a lifecycle basis, RNG can provide two separate and distinct emission reduction benefits. These benefits are discussed in detail at Phase 1 Exhibit J4.3:
    1. Upstream and indirect emissions reduced from the production source.

[40] Greenhouse Gas Pollution Pricing Act, September 1, 2022, pp.18-19, https://laws-lois.justice.gc.ca/PDF/G-11.55.pdf
[41] Ibid, p.5.

2. Direct emissions reduced through displacing combustion of conventional natural gas.

78. As discussed above, since RNG is produced from biogenic sources, the $CO_2$ released to the atmosphere during its combustion is not considered incremental. The capture of methane that would have otherwise been released to the atmosphere (from the decomposition of organic wastes) is an additional emission reduction benefit that is associated with the production of RNG,[42] and distinct from the benefit experienced when combusting RNG. Where the avoided methane emissions are eligible to be included in the calculation of RNG lifecycle carbon intensity, the resulting CI is often a negative value.[43]

79. The Company acknowledges the lifecycle emission benefits of using RNG; however, at this time, the CI score of RNG will not be the primary consideration when procuring RNG.

80. The CI of procured RNG (and hydrogen, pending the results of the Hydrogen Blending Grid Study) becomes an important consideration when it influences the number of credits that may be generated under the Clean Fuel Regulations (CFR). CFR credits created from the production of RNG or hydrogen may be sold to primary suppliers (i.e., obligated parties) where the sale of the CFR credit represents a means of lowering the procurement cost of RNG or hydrogen. As noted, Enbridge Gas has no obligation under the CFR (i.e. is not a primary

[42] Clean Fuel Regulations: Specification for Fuel LCA Model CI Calculations, July 2022, p.120, https://data-donnees.az.ec.gc.ca/api/file?path=/regulatee%2Fclimateoutreach%2Fcarbon-intensity-calculations-for-the-clean-fuel-regulations%2Fen%2FArchive%2FCFR-Specifications-for-Fuel-LCA-Model-CI-Calculations-v1.0.pdf

[43] Some observed CI values for RNG are presented at Phase 1 Exhibit J4.1

supplier); however, it may participate in the CFR on a voluntary basis. CFR credits are new regulatory instruments that were introduced with the publication of the CFR as of July 6, 2022, and can be created by eligible lower-carbon fuels that displace natural gas use, as is the case with the Enbridge Gas proposed procurement. A lower CI score will produce more credits per GJ of RNG or hydrogen than a higher CI score, relative to the reference carbon intensity for gaseous fuels as defined in the CFR.[44]

81. The Company has not determined at this time if RNG will be purchased with or without CFR credits. If Enbridge Gas purchases RNG with CFR credits, it envisions that the benefits, less expenses, generated from CFR credit sales will reduce the incremental cost of lower-carbon fuel. The means by which RNG-related CFR credit costs and revenues will be treated are described in the Phase 1 Settlement Agreement.[45] As part of the Phase 1 Settlement Agreement, the parties agreed to the creation of a new Clean Fuel Regulation Credits Deferral Account that will record the revenues obtained by Enbridge Gas from the sale of CFR credits and certain offsetting costs. Enbridge Gas may elect to procure RNG without CFR credits, where it is forecast that procurement of RNG without the CFR credit leads to more cost-effective procurement. The nascence of the CFR and its credit market means that there is currently credit price uncertainty.

[44] Canada Gazette Part II, Vol. 156, No. 14, Clean Fuel Regulations, July 6, 2022, Schedule 1, p.2790, https://www.canadagazette.gc.ca/rp-pr/p2/2022/2022-07-06/pdf/g2-15614.pdf
[45] EB-2022-0200, Settlement Agreement, Exhibit O1, Tab 1, Schedule 2, Accounting Orders - Phase 1, Accounting Order Number 179-330, August 17, 2023, p.47.

ENBRIDGE GAS INC.

Answer to Interrogatory from
School Energy Coalition (SEC)

Interrogatory

Reference:

[4-2-7, p.11]

Question(s):

Please provide Enbridge expectations, including by way of customer surveys or other analyses, of the uptake of the proposed LCVP.

Response:

Enbridge Gas has not determined a demand forecast for the Low-Carbon Voluntary Program (LCVP) due to a nascent market environment where RNG production is still developing and customer demand patterns for low-carbon energy are in the initial stages of taking shape.

Large volume customers continue to express interest in low-carbon energy options and in a voluntary program offering through Enbridge Gas. This message has been delivered from customers to the Company through various means: one-on-one discussions with their account advisors, participation in discussions on the topic of RNG at large segment customer meetings, providing responses to an LCVP Expression of Interest (EOI) via email/web, and providing letters of support as part of this regulatory application to demonstrate that lowering emissions is a priority for their organizations through the use of their existing equipment and assets.

In addition, business customers that participated in the Customer Engagement Survey indicated that 52% are supportive of incurring costs to support RNG in the gas supply mix at various levels. Please see EB-2022-0200 Exhibit 1, Tab 6, Schedule 1, Attachment 1, page 383 for survey results.

In September 2022, Enbridge Gas held multiple virtual contract rate customer meetings, hosted by account advisors, to inform and educate customers on RNG and the proposed LCVP program. Enbridge Gas received letters of support from customers on the need for energy choice following the education sessions.

As provided at Phase 2 Exhibit 4, Tab 2, Schedule 7, Attachment 1, letters of support have been received from a wide range of customers across many market segments and rate classes. To date, the letters of support have been received from organizations with multiple facilities (apartments, multi-unit living buildings), municipalities, and industrial facilities and indicate a wide range of interest and potential program participation. However, the letters did not contain a volume commitment to support a future demand forecast.

In June 2023, Enbridge Gas conducted a non-binding Expression of Interest (EOI) campaign to general service and contract rate sales service customers with annual consumption greater than 15,000 $m^3$ for whom the Company had an active email address.[1] The EOI outlined high-level details of the LCVP proposal and requested customers respond through web form and provide information on the organization's emissions reduction goals and percentage of consumption to be supplied as RNG. Enbridge Gas received a response from 94 customers with 75 indicating positive interest in continuing to learn more about the program offering as more details become available. Customers were subsequently provided with a Frequently Asked Questions (FAQ) document to help close knowledge gaps and contract rate customers were engaged directly through their account advisor. Of the 75 customers with a positive interest, 45 submitted an indication of the potential allocation of RNG of their annual volume which amounted to 325 TJ. The average percentage indicated per customer was approximately 56% and the total volume of RNG allocated is equivalent to approximately 31% of the total annual consumption of those who submitted an allocation. The EOI did not request information on how customers' interest may scale over the program's first four years.

Subsequent to the EOI campaign, Enbridge Gas has continued to receive inquiries about RNG availability from contract rate customers who did not formally submit a response to the EOI. As an example, customers have indicated interest in securing volumes of RNG to qualify for grants, such as the Zero Emission Transit Fund through Infrastructure Canada. Through direct interactions with customers, it has been clear that continual education is required for customers to understand the key characteristics of RNG that will assist in achieving their ESG goals and emissions targets.

Direct purchase customer demand in RNG is prompting Enbridge Gas to upgrade systems and services to accommodate RNG nomination, which is an indication that large volume customers are beginning to seek RNG as a solution for meeting emissions targets.

Due to the evolving nature of the RNG market and the emerging interests from customers seeking to reduce carbon emissions, Enbridge Gas was challenged to factor

[1] Of the approximate 122,000 general service and contract rate customers eligible for the LCVP, Enbridge Gas has an active email for approximately 21,000.

in all aspects of customer and provincial emissions targets, policies, and learnings from customer engagements into a quantitative demand forecast for the LCVP Program.

ENBRIDGE GAS INC.

Answer to Interrogatory from
Ontario Energy Board Staff (STAFF)

Interrogatory

Reference:

Exhibit 4, Tab 2, Schedule 7, p. 7

Question(s):

Enbridge Gas describes the two potential situations where it would stop procuring low carbon energy for a program year, which include a target percentage of low-carbon energy in the total gas supply portfolio, and a maximum bill impact threshold.

a) Please confirm that the target percentage of low-carbon energy in the gas supply portfolio would be calculated on an energy equivalent basis, not a volumetric basis.

b) Please confirm that Enbridge Gas is proposing that the maximum bill impact threshold is tied to the target percentage of low-carbon energy purchases, not the actual percentage of low-carbon energy purchases and provide Enbridge Gas's rationale for this approach. For example, if Enbridge Gas's target of low- carbon energy purchases is 4% of Enbridge Gas's planned gas supply commodity portfolio, but it only ends up purchasing a supply of low-carbon energy equivalent to 3% of the planned gas supply commodity portfolio, OEB staff's interpretation of Enbridge Gas's proposal is that Enbridge Gas would have the ability to spend up to a level such that the bill impact on residential customers of purchasing this volume is $8 per month, not $6 per month (paying a higher unit cost for the low-carbon energy purchases).

c) If confirmed, is there a unit cost threshold ($/m3 or potentially $/CO2e) at which Enbridge Gas would elect to cease further purchase of low-carbon energy supply?

Response:

a) Confirmed. Enbridge Gas will apply the target low-carbon percentage to the planned gas supply commodity portfolio which is prepared on an energy content basis (GJ).

b) Confirmed. Enbridge Gas is proposing that the maximum bill impact be tied to the target percentage of low-carbon energy (RNG) by program year. This approach provides the Company with flexibility and recognizes that the price of RNG is based on market factors. Tying the average residential bill impact to the actual RNG

percentage of planned gas supply commodity portfolio purchases places a cap on the price at which RNG can be procured.

Enbridge Gas proposes two maximum thresholds that will be considered during the procurement process: an annual target percentage of low-carbon energy (RNG) based on the program year and maximum residential bill impact of $2/month per target percentage.

The calculated weighted average net RNG price where the maximum of both thresholds is reached is $25.58/GJ. The net RNG price is incremental to the gas supply commodity charged to customers excluding the low-carbon energy commodity costs and the FCC benefit. The actual market price of RNG is influenced by many factors as described at Exhibit I.4.2-ED-40. If the weighted average net price of RNG procured is less than $25.58/GJ, Enbridge Gas commits to not exceeding the maximum target percentage. If the weighted average net price of RNG procured is greater than $25.58/GJ, Enbridge Gas commits to not exceeding the maximum residential bill impact.

Table 1 provides the calculation of the $25.58/GJ net RNG price where the maximum of both thresholds is reached.

Table 1
Net RNG Price of Maximum Target Percentage and Residential Bill Impact

| Line No. | Particulars | 2026 | 2027 | 2028 | 2029 |
|---|---|---|---|---|---|
| | | (a) | (b) | (c) | (d) |
| 1 | Maximum residential impact per month ($/month) | 2.00 | 4.00 | 6.00 | 8.00 |
| 2 | Maximum residential impact per year ($/year) (line 1 x 12) | 24.00 | 48.00 | 72.00 | 96.00 |
| 3 | Average residential annual consumption ($m^3$/year) (1) | 2,400 | 2,400 | 2,400 | 2,400 |
| 4 | Unit rate impact ($/$m^3$) (line 2 / line 3) | 0.01 | 0.02 | 0.03 | 0.04 |
| 5 | Maximum target percentage | 1% | 2% | 3% | 4% |
| 6 | Net RNG price ($/$m^3$) (line 4 / line 5) | 1.00 | 1.00 | 1.00 | 1.00 |
| 7 | 2024 heat value of natural gas (2) | 39.09 | 39.09 | 39.09 | 39.09 |
| 8 | Net RNG price ($/GJ) (line 6 / line 7 x 1000) | 25.58 | 25.58 | 25.58 | 25.58 |

Note:

(1) The average annual consumption is 2,400 $m^3$ and 2,200 $m^3$ for residential customers in the EGD rate zone and Union rate zones, respectively. Using the highest average consumption in the calculation of bill impact ensures that the average residential customers in all rates zones are not impacted above the maximum bill impact proposed.

(2) Enbridge Gas South heat value of natural gas effective July 1, 2024. The heat value of natural gas can vary and will impact the net RNG price in $/GJ if different than the heat value used in this calculation.

c) No. Enbridge Gas will not have an RNG price threshold above which it will no longer consider RNG opportunities. The actual market price of RNG is influenced by many factors as described at Exhibit I.4.2-ED-40. Enbridge Gas will use the gas supply planning principles throughout the RNG procurement process. As outlined at Phase 2 Exhibit 4, Tab 2, Schedule 7, page 14, Section 2.1, the proposal to procure low-carbon energy as part of the gas supply commodity portfolio is aligned with each of the three guiding principles: cost-effectiveness, reliability and security of supply, and public policy. Please see response at Exhibit I.4.2-CBA-1 for the proposed procurement process.

Updated Response: /u

a) Confirmed. Enbridge Gas will apply the target lower-carbon percentage to the planned gas supply commodity portfolio which is prepared on an energy content basis (GJ).

b) Confirmed. Enbridge Gas is proposing that the maximum bill impact be tied to the target percentage of lower-carbon energy (RNG) by program year. This approach provides the Company with flexibility and recognizes that the price of RNG is based on market factors. Tying the average residential bill impact to the actual RNG percentage of planned gas supply commodity portfolio purchases places a cap on the price at which RNG can be procured.

   Enbridge Gas proposes two maximum thresholds that will be considered during the procurement process: an annual target percentage of lower-carbon energy (RNG) based on the program year and maximum residential bill impact of $2/month per target percentage.

   The calculated weighted average net RNG price where the maximum of both thresholds is reached is $25.58/GJ. The net RNG price is incremental to the gas supply commodity charged to customers excluding the lower-carbon energy commodity costs and the FCC benefit. The actual market price of RNG is influenced by many factors as described at Exhibit I.4.2-ED-40. If the weighted average net price of RNG procured is less than $25.58/GJ, Enbridge Gas commits to not exceeding the maximum target percentage. If the weighted average net price of RNG procured is greater than $25.58/GJ, Enbridge Gas commits to not exceeding the maximum residential bill impact.

   Table 1 provides the calculation of the $25.58/GJ net RNG price where the maximum of both thresholds is reached.

Table 1
Net RNG Price of Maximum Target Percentage and Residential Bill Impact

| Line No. | Particulars | 2026 | 2027 | 2028 | 2029 |
|---|---|---|---|---|---|
| | | (a) | (b) | (c) | (d) |
| 1 | Maximum residential impact per month ($/month) | 0.50 | 1.50 | 2.50 | 4.00 |
| 2 | Maximum residential impact per year ($/year) (line 1 x 12) | 6.00 | 18.00 | 30.00 | 48.00 |
| 3 | Average residential annual consumption ($m^3$/year) (1) | 2,400 | 2,400 | 2,400 | 2,400 |
| 4 | Unit rate impact ($/$m^3$) (line 2 / line 3) | 0.0025 | 0.0075 | 0.0125 | 0.0200 |
| 5 | Maximum target percentage | 0.25% | 0.75% | 1.25% | 2.00% |
| 6 | Net RNG price ($/$m^3$) (line 4 / line 5) | 1.00 | 1.00 | 1.00 | 1.00 |
| 7 | 2024 heat value of natural gas (2) | 39.09 | 39.09 | 39.09 | 39.09 |
| 8 | Net RNG price ($/GJ) (line 6 / line 7 x 1000) | 25.58 | 25.58 | 25.58 | 25.58 |

Note:

(1) The average annual consumption is 2,400 $m^3$ and 2,200 $m^3$ for residential customers in the EGD rate zone and Union rate zones, respectively. Using the highest average consumption in the calculation of bill impact ensures that the average residential customers in all rates zones are not impacted above the maximum bill impact proposed.

(2) Enbridge Gas South heat value of natural gas effective July 1, 2024. The heat value of natural gas can vary and will impact the net RNG price in $/GJ if different than the heat value used in this calculation.

c) No. Enbridge Gas will not have an RNG price threshold above which it will no longer consider RNG opportunities. The actual market price of RNG is influenced by many factors as described at Exhibit I.4.2-ED-40. Enbridge Gas will use the gas supply planning principles throughout the RNG procurement process. As outlined at Phase 2 Exhibit 4, Tab 2, Schedule 7, page 14, Section 2.1, the proposal to procure lower-carbon energy as part of the gas supply commodity portfolio is aligned with each of the three guiding principles: cost-effectiveness, reliability and security of supply, and public policy. Please see response at Exhibit I.4.2-CBA-1 for the proposed procurement process.

**Lower Carbon Energy Program Annual Cost (UPDATED)**

| | | | | |
|---|---|---|---|---|
| **2026** | | | | |
| RNG % of Total | | 0.25% | | Notes: |
| RNG (GJ) | | 1,318,370.00 | 527.35 | 527.35 PJ - Total Supply (I.4.2-PP-46) |
| RNG Cost (@ $25.58/GJ) | $ | 33,723,904.60 | 1,000,000.00 | Convert to GJ |
| **2027** | | | | |
| RNG % of Total | | 0.75% | | |
| RNG (GJ) | | 3,955,125.00 | | |
| RNG Cost (@ $25.58/GJ) | $ | 101,172,097.50 | | |
| **2028** | | | | |
| RNG % of Total | | 1.25% | | |
| RNG (GJ) | | 6,591,875.00 | | |
| RNG Cost (@ $25.58/GJ) | $ | 168,620,162.50 | | |
| **2029** | | | | |
| RNG % of Total | | 2.00% | | |
| RNG (GJ) | | 10,547,000.00 | | |
| RNG Cost (@ $25.58/GJ) | $ | 269,792,260.00 | | |

**Lower Carbon Energy Program Annual Cost (UPDATED)**

| **2026** | | | | |
|---|---|---|---|---|
| RNG % of Total | | 0.25% | | Notes: |
| RNG (GJ) | | 1,318,370.00 | 527.35 | 527.35 PJ - Total Supply (I.4.2-PP-46) |
| RNG Cost (@ $25.58/GJ) | $ | 33,723,904.60 | 1,000,000.00 | Convert to GJ |
| FCC Saving (@ $5.36/GJ) | $ | 7,066,463.20 | | FCC ($/GJ) from I.4.2-ED-48 Table 1 |
| Total Cost (incl. FCC Saving) | $ | 26,657,441.40 | | |

| **2027** | | |
|---|---|---|
| RNG % of Total | | 0.75% |
| RNG (GJ) | | 3,955,125.00 |
| RNG Cost (@ $25.58/GJ) | $ | 101,172,097.50 |
| FCC Saving (@ $6.10/GJ) | $ | 24,126,262.50 |
| Total Cost (incl. FCC Saving) | $ | 77,045,835.00 |

| **2028** | | |
|---|---|---|
| RNG % of Total | | 1.25% |
| RNG (GJ) | | 6,591,875.00 |
| RNG Cost (@ $25.58/GJ) | $ | 168,620,162.50 |
| FCC Saving (@ $6.83/GJ) | $ | 45,022,506.25 |
| Total Cost (incl. FCC Saving) | $ | 123,597,656.25 |

| **2029** | | |
|---|---|---|
| RNG % of Total | | 2.00% |
| RNG (GJ) | | 10,547,000.00 |
| RNG Cost (@ $25.58/GJ) | $ | 269,792,260.00 |
| FCC Saving (@ $7.56/GJ) | $ | 79,735,320.00 |
| Total Cost (incl. FCC Saving) | $ | 190,056,940.00 |

**Lower Carbon Energy Program - Total Cost (UPDATED)**

| **2026** | | |
|---|---|---|
| RNG % of Total | | 0.25% |
| Incremental RNG % | | 0.25% |
| Incremental RNG (GJ) | | 1,318,370.00 |
| RNG Cost (@ $25.58/GJ) | $ | 33,723,904.60 |
| 5-Year Contract | $ | 168,619,523.00 |
| 10-Year Contract | $ | 337,239,046.00 |
| 5-Year Contract (w/FCC) | $ | 123,623,554.90 |
| 10-Year Contract (w/FCC) | $ | 237,662,559.90 |

| **2027** | | |
|---|---|---|
| RNG % of Total | | 0.75% |
| Incremental RNG % | | 0.50% |
| Incremental RNG (GJ) | | 2,636,755.00 |
| RNG Cost (@ $25.58/GJ) | $ | 67,448,192.90 |
| 5-Year Contract | $ | 337,240,964.50 |
| 10-Year Contract | $ | 674,481,929.00 |
| 5-Year Contract (w/FCC) | $ | 239,549,191.75 |
| 10-Year Contract (w/FCC) | $ | 467,628,499.25 |

| **2028** | | |
|---|---|---|
| RNG % of Total | | 1.25% |
| Incremental RNG % | | 0.50% |
| Incremental RNG (GJ) | | 2,636,750.00 |
| RNG Cost (@ $25.58/GJ) | $ | 67,448,065.00 |
| 5-Year Contract | $ | 337,240,325.00 |
| 10-Year Contract | $ | 674,480,650.00 |
| 5-Year Contract (w/FCC) | $ | 233,800,426.35 |
| 10-Year Contract (w/FCC) | $ | 461,879,094.35 |

| **2029** | | |
|---|---|---|
| RNG % of Total | | 2.00% |
| Incremental RNG % | | 0.75% |
| Incremental RNG (GJ) | | 3,955,125.00 |
| RNG Cost (@ $25.58/GJ) | $ | 101,172,097.50 |
| 5-Year Contract | $ | 505,860,487.50 |
| 10-Year Contract | $ | 1,011,720,975.00 |
| 5-Year Contract (w/FCC) | $ | 344,966,002.50 |
| 10-Year Contract (w/FCC) | $ | 687,084,315.00 |

| | | |
|---|---|---|
| **Total 5-Year Contract** | **$** | **1,348,961,300.00** |
| **Total 10-Year Contract** | **$** | **2,697,922,600.00** |
| **Total 5-Year Contract (w/FCC)** | **$** | **941,939,175.50** |
| **Total 10-Year Contract (w/FCC)** | **$** | **1,854,254,468.50** |

Notes:

| | |
|---|---|
| 527.35 | 527.35 PJ - Total Supply (I.4.2-PP-46) |
| 1,000,000.00 | Convert to GJ |

| | 2026 | 2027 | 2028 | 2029 | 2030 | 5-Year | 10-Year |
|---|---|---|---|---|---|---|---|
| FCC | 5.36 | 6.1 | 6.83 | 7.56 | 8.28 | | |
| 2026 Procurement | 7,066,463.20 | 8,042,057.00 | 9,004,467.10 | 9,966,877.20 | 10,916,103.60 | 44,995,968.10 | 99,576,486.10 |
| 2027 Procurement | | 16,084,205.50 | 18,009,036.65 | 19,933,867.80 | 21,832,331.40 | 97,691,772.75 | 206,853,429.75 |
| 2028 Procurement | | | 18,009,036.65 | 19,933,867.80 | 21,832,331.40 | 103,439,898.65 | 212,601,555.65 |
| 2029 Procurement | | | | 29,900,745.00 | 32,748,435.00 | 160,894,485.00 | 324,636,660.00 |