



Diane Roy
Vice President, Regulatory Affairs

Gas Regulatory Affairs Correspondence
Email: gas.regulatory.affairs@fortisbc.com

Electric Regulatory Affairs Correspondence
Email: electricity.regulatory.affairs@fortisbc.com

FortisBC
16705 Fraser Highway
Surrey, B.C. V4N 0E8
Tel: (604) 576-7349
Cell: (604) 908-2790
Fax: (604) 576-7074
www.fortisbc.com

September 12, 2022

City of Richmond
6911 No. 3 Road
Richmond, B.C V6Y 2C1

Attention: Mr. Anthony Capuccinello Iraci

Dear Mr. Capuccinello Iraci:

Re: FortisBC Energy Inc. (FEI)

Revised Renewable Gas Program Application – Stage 2 (Application)

Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. (collectively City of Richmond or CoR) Information Request (IR) No. 2

On December 17, 2021, FEI filed the Application referenced above. In accordance with the amended regulatory timetable established in British Columbia Utilities Commission Order G-165-22A, FEI respectfully submits the attached response to the City of Richmond IR No. 2.

FEI has not provided responses to City of Richmond IR2 15.1, 15.2, 17.2, 19.1, 19.5 and 23.7 as, in accordance with the proceeding scope determined by the BCUC in its Decision and Appendix C to Order G-165-22A and further clarified in Order G-214-22, it submits that they are outside the scope of this proceeding. Please refer to the above IRs for further explanation with respect to why each is outside the scope of this proceeding.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Diane Roy

Attachments

cc (email only): Commission Secretary
Registered Parties

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 1

A. GREENHOUSE GAS INTENSITY OF RENEWABLE GASES

14.0 Reference: GHG INTENSITY

Exhibit B-20, Section E, CoR IR1 12.4, pp. 39-40

Proposed Renewable Gas Program - Benefits of Renewable Gas Connections

In response to CoR IR1 12.4, FEI provides a table labelled Table 1 Natural Gas and Renewable Gas Emission Factors replicated below.

Table1: Natural Gas and Renewable Gas Emissions Factors

A	B	C	D
	Upstream kgCO ₂ e/GJ (or g CO ₂ e/MJ)	Burner tip kgCO ₂ e/GJ (or g CO ₂ e/MJ)	Total Lifecycle kgCO ₂ e/GJ (or g CO ₂ e/MJ)
Renewable Natural Gas (2021)	-22.7	0.2932	-22.4*
Conventional Natural Gas	8.95**	49.87	58.82

* Lifecycle intensity of supplied RNG (2021) was calculated by using the weighted average of the supplied RNG lifecycle intensity as determined using GHGenius, consistent with the BC Low Carbon Fuels Standards requirements and is based on finalized lifecycle intensities assessed by a third party engineering consultant. This source specific RNG supply value differs from the generic value as published by the BC Best Practice to Quantify GHG Emissions value which only considers the end use combustion of the RNG. Please refer to the response to CEC IR1 3.2 for a discussion on how Renewable Gas achieves negative lifecycle emissions.

** Source: 8.951 kg CO₂e/GJ based on 2019 upstream data as published by BC Oil and Gas Commission, in combination with other peer reviewed literature based values, factoring in: pipeline transport (compression) + storage (compression) + operation & maintenance + fugitive emissions + energy required to refine natural gas from fossil gas. This value covers wellhead to customer meter, and is based on 100 percent conventional natural gas.

14.1 Please confirm the Burner tip emission factor for Renewable Gas in Column C is the emission factor for Conventional Natural Gas less a credit received for biogenic CO₂ as provided in the “2020 B.C. Best Practices Methodology for Quantifying Greenhouse Gas Emissions”, Table 1: Emission Factors: Stationary Fuel Combustion (GJ), which can be found at <https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2020-pso-methodology.pdf>. If not confirmed, please explain why not.

Response:

The values from Table 1, column C, are from the 2020 BC Best Practices Methodology for Quantifying Greenhouse Gas Emissions. To clarify, there is no “credit received for biogenic CO₂”; rather, the CO₂ emissions from a biogenic source are carbon neutral.

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 2

14.2 Please provide the average upstream GHG emission factor for FEI's 2021 RNG supply portfolio attributable only to the upgrading of biogas to biomethane (e.g., the emissions associated with electricity and conventional natural gas consumed in the upgrading process).

Response:

FEI does not have the average upstream GHG emission factor for FEI's 2021 RNG supply portfolio attributable only to the upgrading of biogas to biomethane, as it is not industry practice to separate out these emissions. Instead, the emissions associated with upgrading biogas to biomethane are accounted for in the carbon intensity of an RNG project, and FEI considers the relative carbon intensity of the produced RNG versus conventional gas to determine emissions reductions.

14.2.1 Under FEI's supply contracts for biomethane (i.e., biogas that has already been upgraded to biomethane), who takes responsibility for the emissions released as part of the process for upgrading biogas to biomethane for injection in the distribution network (i.e., the emissions associated with gas and electricity used in the upgrading process)?

Response:

All emissions associated with the production of biomethane, including those associated with any use of gas and electricity in the upgrading process, are accounted for in the carbon intensity of each RNG supply project.

14.2.2 Does the allocation of responsibility vary across FEI contracts (e.g., in Province and out of Province)?

Response:

No. Please refer to the response to City of Richmond IR2 14.2.1.

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 3

14.2.3 How are the emissions associated with the upgrading process reflected in FEI's GHG accounting, if at all?

Response:

Emissions associated with the upgrading process are accounted for in the carbon intensity (CI) value of RNG producers as explained in the response to City of Richmond IR2 14.02.1. The value shown in column B (- 22.7 g CO₂e/MJ) is the weighted average RNG portfolio CI in 2021, which accounts for the emissions associated with the upgrading process.

FEI determines the emissions reduction of RNG using the values as shown in column D multiplied by the RNG volume.

14.2.4 Where FEI purchases biogas and then upgrades the biogas to biomethane itself, how are the emissions for the upgrading accounted for and allocated by FEI?

Response:

The emissions associated with upgrading biogas to biomethane are accounted for in the carbon intensity (CI) of an RNG project. The 2021 RNG portfolio CI shown in Column B includes the emissions associated with biogas upgrading of RNG projects where FEI purchases biogas. From an RNG supply auditing perspective, FEI submits compliance filings, including CI information for its RNG supply, to the Ministry which then validates and approves them.

14.3 Please provide the third-party engineering consultant report referenced in the first footnote to Table 1 above.

Response:

The referenced report is confidential and contains commercially sensitive information. The reports for the individual RNG facilities contain operating details which can be used to infer business practices, the disclosure of which could impact the competitiveness of the facilities compared to other facilities in the industry.

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 4

14.4 Confirm that the upstream emissions factors for Renewable Gas include emission reductions associated with the sources of biogas in the upgrading process (e.g., methane capture and destruction in landfills, manure management and wastewater treatment). If not confirmed, please explain why not.

Response:

FEI confirms that the upstream emissions for RNG include emission reductions associated with the origin of feedstock, such as avoided methane emissions, methane destruction and manure management.

14.5 Please confirm that the excerpt below is from the Redacted Biogas Purchase Agreement between FEI and the City of Vancouver which was filed for acceptance by the BCUC on November 8, 2018, and may be found at https://docs.bcuc.com/Documents/Proceedings/2018/DOC_52838_B-1-FEI-BPA-COV-App-Redacted.pdf. If not confirmed, please explain why not.

Response:

Confirmed.

ARTICLE 7- ENVIRONMENTAL ATTRIBUTES AND EMISSION REPORTING

7.1 **Definitions.** For the purposes of this Article, the following definitions apply:

(a) **"Biomethane Environmental Attributes"** means:

- (i) all attributes associated with, or that may be derived from, the displacement of traditional natural gas by biomethane in FEI's natural gas distribution system including any existing or future credit, allowance, certificate, right, benefit or advantage or proprietary or contractual right whether or not tradable;
- (ii) any existing or future instrument, including any environmental emission allowances and reduction credits, reduction right, allowance, certificate or other unit of any kind whatsoever, whether or not tradable and any other proprietary

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 5

or contractual right, whether or not tradable, and any resulting from, or otherwise related to the actual or assumed reduction, displacement or offset of emissions associated with, or that may be derived from the displacement of traditional natural gas by biomethane in FEI's natural gas distribution system; and

- (iii) all revenues, entitlement, benefits and other proceeds arising from or related to the foregoing.

(b) **"Methane Environmental Attributes" means:**

- (i) all attributes associated with, or that may be derived from the reduction of greenhouse gas emissions from the Lands as a result of the capture of Biogas by the Owner Facilities, including any existing or future credit, allowance, certificate, right, benefit or advantage or proprietary or contractual right whether or not tradable;
- (ii) any existing or future instrument, including any environmental emission allowances and reduction credits, reduction right, allowance, certificate or other unit of any kind whatsoever, whether or not tradable and any other proprietary or contractual right, whether or not tradable, and any resulting from, or otherwise related to the actual assumed reduction, displacement or offset of emissions associated with, or that may be derived from the elimination of methane discharges into the atmosphere from the Lands as a result of the capture of Biogas by the Owner Facilities ; and
- (iii) all revenues, entitlement, benefits and other proceeds arising from or related to the foregoing.

7.2 **Offsets for Natural Gas Displacement.** The parties agree FEI will own any Biomethane Environmental Attributes. The Owner will, at FEI's expense, support FEI in all applications for the Biomethane Environmental Attributes and provide any authorizations, documentation and information FEI reasonably requires in this regard.

7.3 **Offsets for Methane Destruction.** The parties agree the Owner (or third parties with whom it has entered into agreements) will own any Methane Environmental Attributes. FEI will, at the Owner's expense, support the Owner in all applications for the Methane Environmental Attributes and provide any authorizations, documentation and information the Owner reasonably requires in this regard, including providing the Owner with reasonable access to data with respect to the FEI Facilities required to determine the amount of biomethane injected into FEI's natural gas distribution system.

7.4 **Reporting Requirements.** Each party shall be responsible to comply with reporting requirements of all applicable environmental laws with respect to emissions from their respective facilities.

14.5.1 Do the upstream emission reductions associated with RNG in Column B of Table 1 above include what is referred to as "Methane Environmental Attributes", as these are defined in the Redacted Biogas Purchase Agreement between FEI and the City of Vancouver?

Response:

No. In the referenced Agreement, Methane Environmental Attributes are assigned to the City of Vancouver. Further, FEI notes that it did not receive RNG from the City of Vancouver in 2021.

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 6

1 In the referenced agreement, “Methane Environmental Attributes” refers to the capture and use
2 of biogenic methane that would otherwise be emitted to the atmosphere. In the case of landfills
3 in BC, these arise from the capture and flaring of the landfill gas. Landfills located in BC that
4 exceed a certain threshold for Landfill Gas emissions are already required by regulation to collect
5 and destroy (through flaring) landfill gas. As such, FEI does not procure the upstream “Methane
6 Environmental Attributes” associated with landfills that are already required by regulation to collect
7 and flare their landfill gas.

8
9
10
11 14.5.2 If yes, how much of the upstream emission reductions associated with
12 RNG in Table 1 are attributable to what is referred to as Methane
13 Environmental Attributes, as they are defined in the Redacted Biogas
14 Purchase Agreement between FEI and the City of Vancouver?
15

16 **Response:**

17 Please refer to the response to the City of Richmond IR2 14.5.1.
18
19

20
21 14.5.3 If no, please explain what are the other sources of negative upstream
22 emission reductions associated with the acquisition of RNG by FEI.
23

24 **Response:**

25 Sources of negative upstream emissions are referred to as emissions sinks and are accounted
26 for in the carbon intensity assessment where applicable. In general, these emission sinks account
27 for methane emissions that would otherwise be released into the environment.

28 Examples of emissions sinks include:

- 29 • collection of methane from dairy farm or biosolids plant;
30 • waste diversion of organics from landfills; and
31 • production of co-products, such a digestate, which are used as fertilizer and displace
32 synthetic fertilizers.
33
34
35

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 7

14.6 Does FEI legally acquire the upstream emission reductions associated with “Methane Environmental Attributes” or any other sources of negative upstream emission reductions as part of any of its supply contracts for RNG?

Response:

Yes, in many cases, FEI is entitled to all the Environmental Attributes associated with a given RNG supply facility.

FEI seeks to acquire RNG with low carbon intensity (CI) values. Typically, RNG produced through farm and municipal waste results in RNG production with low or negative CI values. FEI purchases RNG (physical biomethane molecules) with all of the environmental attributes included. In the case of RNG production with negative CI, the entirety of the environmental attributes are acquired, which would include avoided methane emissions.

14.7 If so, how much of FEI’s supply portfolio includes these attributes?

Response:

FEI interprets that question as asking how much of FEI’s established RNG contracts include the environmental attributes associated with production of the renewable methane molecule.

FEI’s supply portfolio includes RNG production facilities using farm waste and municipal organics as feedstock. These are the type of production facilities where methane avoidance is common and, as such, include methane avoidance in the upstream emissions. As the RNG supply portfolio increases over time, these facilities will contribute to lower overall RNG portfolio upstream emissions. The RNG production volumes of all RNG projects vary month-over-month and year-over-year. Ultimately, how much of FEI’s supply portfolio includes these attributes varies depending on the RNG production of all the RNG producers at a point in time.

14.8 In FEI’s experience, does acquisition of upstream emission reductions result in higher prices for RNG?

Response:

RNG production from sources such as farm and municipal organic waste are projects with feedstock which have avoided emissions associated with the production of RNG. These projects result in lower carbon intensities and a greater amount of GHG emission reductions, but are

<p style="text-align: center;">FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)</p>	<p style="text-align: center;">Submission Date: September 12, 2022</p>
<p style="text-align: center;">Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2</p>	<p style="text-align: center;">Page 8</p>

generally capital intensive, and therefore, they may result in higher RNG purchase costs on a per GJ basis but with lower costs on a \$/tonne basis. This translates to improved emission reduction and potentially lower portfolio costs to achieve the CleanBC targets.

14.9 Where FEI does not contractually acquire upstream emission reductions as part of RNG supply contracts, how can FEI lay claim to these emission reductions and also ensure they are not double counted by others claiming those reductions for their own requirements?

Response:

FEI does not “lay claim” to any emissions it does not contractually acquire.

14.10 Notwithstanding contractual rights, if any, can FEI claim negative upstream emission reductions for the sale of RNG if those emission reductions are already required by law (e.g., methane capture and destruction regulations for landfills or operating permits for wastewater treatment plants)?

Response:

No. FEI cannot claim negative emissions that are required by law.

FEI will only claim negative emissions if they exclude any negative emissions associated with regulatory requirements and where FEI has contractual claims to those negative emissions.

14.11 If an RNG supplier was using raw biogas on-site (for example, using raw biogas to meet process loads), and the customer fuel switches that process load to conventional natural gas in order to free up more biogas to be upgraded and sold to FEI, does FEI account for this increase in the use of conventional natural gas when calculating the emissions intensity of its renewable gas portfolio?

<p style="text-align: center;">FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)</p>	<p style="text-align: center;">Submission Date: September 12, 2022</p>
<p style="text-align: center;">Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2</p>	<p style="text-align: center;">Page 9</p>

1 **Response:**

2 Yes. FEI uses carbon intensity (CI), which are evaluated annually, as a measure of emissions
3 intensity. The input sources of energy are, by definition, included in the CI calculation.

4
5
6
7 14.11.1 Have any FEI suppliers increased their use of conventional natural gas
8 to free up biogas for sale to FEI?

9
10 **Response:**

11 No.

12
13
14
15 14.11.2 Has FEI proposed this approach to suppliers or potential suppliers as a
16 way to increase RNG supply?

17
18 **Response:**

19 No.

20
21
22
23 14.12 What is the current blended average GHG intensity of FEI's RNG supply portfolio,
24 based on those environmental attributes actually transferred to FEI, including all
25 emissions from the upgrading process, and including the impact of any increases
26 in the use of conventional gas due to fuel switching? For clarity, please exclude
27 the impact of any environmental attributes associated with RNG which are not
28 transferred to FEI under FEI's contracts with RNG suppliers. Please provide a
29 working spreadsheet showing the calculation of the weighted average GHG
30 intensity based on FEI's current supply contracts.

31
32 **Response:**

33 There is no change to the data provided previously in the response to City of Richmond IR1 12.4,
34 as quoted in the preamble to this question.

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 10

1 FEI reiterates that this is a weighted average of carbon intensity (CI) scores. The weighted
2 average is derived by multiplying each individual project CI by its volume and then dividing the
3 total of that sum by the total volume.

4
$$\frac{\sum CI_{project} \times Volume_{Project}}{\sum Volume_{of Projects}}$$

5 The individual project CIs are a combination of approved CIs, estimated CIs and contractual CIs.
6 The volumes are actual volumes produced in 2021. FEI has used project CI scores according to
7 attributes contractually received.

8 FEI cannot provide the weighted average CI calculation in a spreadsheet because it would require
9 disclosing the individual project CI scores which are confidential and commercially sensitive.

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 11

B. HYDROGEN BLENDING LIMITS

15.0 Reference: OTHER RENEWABLE GASES

Exhibit B-20, Section H, CoR IR1 11.1, p. 36; Exhibit B-22, CEC IR1 13.1, p. 23

Growth in Renewable Gas Supply - Hydrogen Gas and Synthesis Gas

CoR IR1 11.1 asked: “What percentage of hydrogen (expressed in both volume terms and in energy content terms) can be injected into the FEI gas grid before major upgrades would be required to the FEI gas grid and end-user appliances? ... ”

In response, FEI referred to the response to CEC IR1 13.1. The first paragraph of the response to CEC IR1 13.1 reads:

“Based on current industry research and consideration of initial hydrogen blending limitations across FEI’s high-pressure and low-pressure gas pipelines and appliances in BC, FEI considers that hydrogen could be blended with methane and safely delivered in the existing gas network pipelines at hydrogen blend concentrations up to 20 percent by volume, and potentially up to 30 percent.”

The response to CEC IR1 13.1 does not provide the hydrogen blending limit in energy content terms.

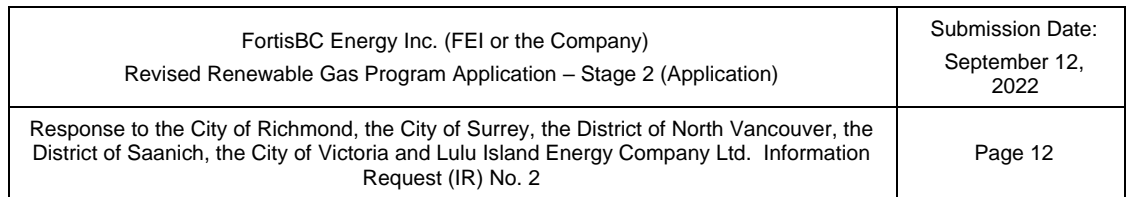
15.1 Please complete the missing values in the below table.

	Current Industry Research	Potential
Blending limit as percentage by volume	20%	30%
Blending limit as percentage by energy content		

Response:

This question is outside the scope for this proceeding. In Order G-165-22A, the Panel found that this proceeding should be scoped to include only RNG as outlined in Appendix C to Order G-165-22A, and thus hydrogen and other low carbon fuels are not in scope.¹

¹ Order G-165-22A, Appendix A, p. 7.



Response:

This question is outside of scope of this proceeding as it relates to hydrogen. In Order G-165-22A, the Panel found that this proceeding should be scoped to include only RNG as outlined in Appendix C to Order G-165-22A, and thus hydrogen and other low carbon fuels are not in scope.²

² Order G-165-22A, Appendix A, p. 7.

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 13

C. COST AND AVAILABILITY OF RENEWABLE GASES

16.0 Reference: RNG SUPPLY

Exhibit B-20, Section E, CoR IR1 8.3, pp. 28-29

Growth in Renewable Gas Supply - Long-Term Supply Forecast: 2027-2032

Earlier this year, FEI announced via press release the completion of the “B.C. Renewable and Low-Carbon Gas Supply Potential Study”, prepared by Envint Consulting and others. The press release included a link to the report, which is attached as Appendix A. This version of the report was labeled “FINAL REPORT” and dated January 28, 2022. It included a section, shown below, which appears to have been removed from subsequent versions circulated by FEI.

The relevant section begins on page 112. It reads:

“Demand-side management and technology switching:

This study focuses on the supply potential for renewable and low-carbon gas production pathways. Pathways beyond renewable and low-carbon gas are outside the scope of this report. A more comprehensive approach would compare primary energy use of various pathways in a ‘well-to-heat’ manner. Currently, 45% of natural gas consumed in B.C. is used by the residential and commercial sector. [Footnote omitted] The residential sector alone uses around 48 petajoules per year of natural gas for low-temperature space heating. [Footnote omitted] This need for low-temperature heat can be met more effectively by pathways other than low-carbon gas.

For example, green hydrogen can be produced with a conversion efficiency of 65% to 75% of the electricity used. Methanation of syngas to produce RNG is expected to have 95% conversion efficiency. A downstream household may use renewable gas in its furnace or boiler at a seasonal efficiency of 80% to 85%. The total system efficiency multiplies to 46% to 61% of the electricity input. In comparison, an air-source heat pump used in the climate of southern coastal B.C., where most of the population is located, can achieve a coefficient of performance (equivalent to an efficiency) of 300% to 350% of the electricity used, i.e. it is six to eight times more efficient than heating with gas.

The life expectancy of residential buildings in Canada ranges from 42 years for apartment buildings with less than five storeys to 65 years for single detached and row houses and 80 years for large apartment buildings. [Footnote omitted] Assuming an average age of the residential housing stock of 36 years [footnote omitted] (in 2021), a large share of B.C.’s building stock will be replaced within the 29 years between 2021 and 2050. This offers opportunities to switch from natural

<p style="text-align: center;">FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)</p>	<p style="text-align: center;">Submission Date: September 12, 2022</p>
<p style="text-align: center;">Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2</p>	<p style="text-align: center;">Page 14</p>

gas to alternative forms of heating. The goal of 15% renewable gas may be achieved more easily by switching technologies than by switching to low-carbon gas.”

16.1 Was the decision to remove this section initiated by FEI or by the consultant?

Response:

The decision was initiated by the steering committee composed of the BC Bioenergy Network, the Ministry of Energy, Mines and Low Carbon Innovation and FEI. The decision was made because the section was out of scope of the study’s objectives to quantify the supply potential of renewable and low-carbon gases.

16.2 To FEI’s knowledge, why was this section removed?

Response:

Please refer to the response City of Richmond IR2 16.1

16.3 Notwithstanding its removal, does FEI agree with the conclusions of this section? If not, why not?

Response:

No, FEI does not agree with these conclusions. This section does not employ analysis to substantiate the claims it makes. FortisBC’s Pathways to 2050 study as well as the UVic study³ conduct in-depth energy system modelling to better understand the costs and tradeoffs of decarbonization pathways for heat. The conclusions of those analyses do not support the claims made in this section.

³ Cost and capacity requirements of electrification or renewable gas transition options that decarbonize building heating in Metro Vancouver, British Columbia - ScienceDirect:
https://www.sciencedirect.com/science/article/pii/S2211467X22000803?utm_campaign=STMJ_AUTH_SERV_PUBLISHED&utm_medium=email&utm_acid=253487718&SIS_ID=&dgcid=STMJ_AUTH_SERV_PUBLISHED&CMX_ID=&utm_in=DM267652&utm_source=AC.

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 15

17.0 Reference: RENEWABLE GAS CONNECTIONS; ACCOUNTING TREATMENT, PROGRAM MECHANICS, RATE SETTING AND CUSTOMER BILL IMPACTS

Exhibit B-17, Section D, BCUC IR1 12.3.2, p. 63-70; Section G, BCUC IR1 41.5, p. 203; Section G, BCUC IR1 42.2, p. 206

FEI's Load Forecast and Customer Rates Without the New RG Connections Offering; Customer Bill Impacts; Customer Bill Impacts Under the CleanBC Roadmap's GHG Emissions Cap

The spreadsheets provided by FEI in response to BCUC IRs 12.3.2, 41.5, and 42.2 indicate that FEI has assumed that the cost of hydrogen will drop by \$15 per GJ by 2028 and will remain at that level through 2032.

17.1 Please confirm that these values are in real 2022\$. If not confirmed, please explain how these values should be interpreted.

Response:

FEI notes this question is out of scope, but can confirm these values were in real 2022\$.

17.2 What is FEI's justification for the assumption that the cost of hydrogen drops to \$15 per GJ by 2028?

Response:

This question is outside of scope of this proceeding as it relates to hydrogen. In Order G-165-22A, the Panel found that this proceeding should be scoped to include only RNG as outlined in Appendix C to Order G-165-22A, and thus hydrogen and other low carbon fuels are not in scope.⁴

⁴ Order G-165-22A, Appendix A, p. 7.

<p style="text-align: center;">FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)</p>	<p style="text-align: center;">Submission Date: September 12, 2022</p>
<p style="text-align: center;">Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2</p>	<p style="text-align: center;">Page 16</p>

D. CUSTOMER BILL IMPACTS AND GHG CAP

18.0 Reference: RENEWABLE GAS PROGRAM, GOVERNMENT POLICY, AND RENEWABLE GAS SUPPLY; ACCOUNTING TREATMENT, PROGRAM MECHANICS, RATE SETTING AND CUSTOMER BILL IMPACTS

Exhibit B-17, Section A, BCUC IR1 1.1, pp. 2-4; Section G, BCUC IR1 42.3 and 42.4, p. 210

Evolution of Climate Change Policy – CleanBC Roadmap Targets; Customer Bill Impacts – Customer Bill Impacts under CleanBC Roadmap’s GHG Emissions Cap

In response to BCUC IR 1.1, FEI stated:

“The referenced cap of 6.11 Mt of CO₂e refers to the cap on GHG emissions required from all gas utilities in British Columbia by 2030 in the CleanBC Roadmap, which FEI expects the provincial government will implement as the Greenhouse Gas Reduction Standard (GHGRS).”

18.1 What is FEI’s understanding of the process by which FEI’s share of the cap will be determined?

Response:

FEI is engaging the provincial government to inform the development of the GHG emissions cap. Details regarding how the overall cap allocation will be determined have not been provided.

18.2 What is FEI’s understanding of the allocation methodologies that are under consideration?

Response:

Detail on the allocation methodologies has not been provided by the provincial government.

18.3 What is FEI’s role in the process of determining FEI’s share of the emissions cap?

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 17

1 **Response:**

2 FEI is engaging with the provincial government to provide necessary information, input and
3 perspective on the development of the emissions cap.

4
5
6
7 18.4 Of the 6.11 MT CO₂e cap on 2030 GHG emissions from all gas utilities in British
8 Columbia, how much of the cap does FEI expect will be allocated to FEI? Please
9 state the emissions cap FEI expects to be required to achieve by 2030, in MT
10 (megatonnes). Note, we are asking for FEI's capped emissions, not FEI's share of
11 reductions.

12
13 **Response:**

14 The referenced response to BCUC IR1 1.1 provides all of the information FEI has available. Detail
15 on the allocation of the cap has not been provided by the provincial government.

16

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 18

19.0 Reference: ACCOUNTING TREATMENT, PROGRAM MECHANICS, RATE SETTING AND CUSTOMER BILL IMPACTS

Exhibit B-17, Section G, BCUC IR1 42.3 and 42.4, pp. 210-211

Customer Bill Impacts – Customer Bill Impacts under the CleanBC Roadmap's Emissions Cap

In response to BCUC IR1 12.3.2, FEI provided estimated customer bills assuming the Renewable Gas Connections program is not approved, and renewable gas purchases grow to 30 PJ by 2030.

In response to BCUC IR1 41.5, FEI provided estimated customer bills assuming the Renewable Gas Connections program is approved, and renewable gas purchases grow to 30 PJ by 2030.

In response to BCUC IR1 42.2, FEI provided estimated customer bills assuming the Renewable Gas Connections program is approved, and renewable gas purchases grow to 55 PJ by 2030.

19.1 Assuming that the Renewable Gas Connections portion of the Application is not approved, but the other elements of FEI's proposal are approved, please fill out the following table, showing how FEI would meet its 2030 GHG emissions cap. Please convert and adjust units as needed.

Line		Amount	Note
1	2020 Throughput (PJ)	235	
2	Load Loss by 2030 due to Building Energy Efficiency (PJ)		
3	Load Loss by 2030 due to Industrial Energy Efficiency (PJ)		
4	Load Loss by 2030 due to Building Electrification (PJ)		
5	Load Loss by 2030 due to Industrial Electrification (PJ)		
6	Other Load Changes by 2030 (PJ)		
7	2030 Throughput (PJ)		
8	2030 FEI GHG Emissions Cap (MT)		
9	Customer-side emissions reductions (e.g. CCS) (MT)		
10	2030 FEI Allowable Emissions (MT)		
11	FEI Allowable GHG Intensity (MT / PJ)		Line 10 / Line 7
12	FEI Conventional Gas Purchases (PJ)		
13	Conventional Gas GHG Intensity (MT / PJ)		
14	Conventional Gas GHG Emissions (MT)		
15	FEI Renewable Gas Purchases (PJ)		

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 19

16	FEI Renewable Gas GHG Intensity (MT / PJ)		
17	FEI Renewable Gas GHG Emissions (MT)		
18	Total GHG Emissions (MT)		Equal to Line 10

Response:

This question, which explores the various inputs and measures that FEI may take to meet the emissions cap, is beyond the scope of this proceeding as determined by Order G-165-22A. Order G-165-22A identifies that this proceeding is focused on the design of the revised Renewable Gas Program, the available service offerings and pricing of those offerings, and RNG supply and demand through to 2028.

This question is, however, relevant to FEI's 2022 Long Term Gas Resource Plan (LTGRP) where energy efficiency in buildings, energy efficiency and electrification in industry, and CCS are included as pathways to achieving GHG reductions as set out in the CleanBC Roadmap.

19.2 Please provide a detailed explanation of the assumed GHG intensity of FEI's Renewable Gases and explain how that GHG intensity reflects environmental attributes actually transferred to or retained by FEI, emissions from the upgrading process, and any other relevant factors.

Response:

The GHG intensity (or carbon intensity (CI)) of RNG is based upon industry standard practice and the inputs used in the GHGenius model accepted by the BC Ministry of Energy Mines, Low Carbon Innovation for the BC-LCFS. To determine CI, only the agreed upon attributes are included in the calculation.

Any assumed GHG intensities FEI has used in its calculation are based upon either contractual guarantees or existing CI reports.

Please refer to the response to City of Richmond IR2 14.12 for an explanation on how FEI calculates its portfolio CI.

19.3 Please provide an updated version of the charts shown in response to BCUC IR1 12.3.2, as well as the supporting spreadsheet, corresponding to the scenario depicted in the response to CoR IR2 19.1 above. Please provide the response in

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 20

real 2022\$ to align with other information provided by FEI in IR2 (such as the response to BCUC IR2 46.1).

Response:

Please refer to the response to City of Richmond IR2 19.1.

19.4 Please confirm that in estimating the bill impacts if the Renewable Gas Connections program is not approved, FEI has assumed zero savings in delivery costs due to load losses. If not confirmed, please explain why not.

Response:

Confirmed. Please refer to the response to BCUC IR2 55.1.

19.5 Assuming all portions of the current application (including the Renewable Gas Connections service) are approved, please fill out the following table, showing how FEI would meet its 2030 GHG emissions cap. Please convert and adjust units as needed.

Line		Amount	Note
1	2020 Throughput (PJ)	235	
2	Load Loss by 2030 due to Building Energy Efficiency (PJ)		
3	Load Loss by 2030 due to Industrial Energy Efficiency (PJ)		
4	Load Loss by 2030 due to Building Electrification (PJ)		
5	Load Loss by 2030 due to Industrial Electrification (PJ)		
6	Other Load Changes by 2030 (PJ)		
7	2030 Throughput (PJ)		
8	2030 FEI GHG Emissions Cap (MT)		
9	Customer-side emissions reductions (e.g. CCS) (MT)		
10	2030 FEI Allowable Emissions (MT)		
11	FEI Allowable GHG Intensity (MT / PJ)		Line 10 / Line 7
12	FEI Conventional Gas Purchases (PJ)		

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 21

13	Conventional Gas GHG Intensity (MT / PJ)		
14	Conventional Gas GHG Emissions (MT)		
15	FEI Renewable Gas Purchases (PJ)		
16	FEI Renewable Gas GHG Intensity (MT / PJ)		
17	FEI Renewable Gas GHG Emissions (MT)		
18	Total GHG Emissions (MT)		Equal to Line 10

Response:

This question, which explores the various inputs and measures that FEI may take to meet the emissions cap, is beyond the scope of this proceeding as determined by Order G-165-22A. Order G-165-22A identifies that this proceeding is focused on the design of the revised Renewable Gas Program, the available service offerings and pricing of those offerings, and RNG supply and demand through to 2028.

This question is, however, relevant to FEI's 2022 Long Term Gas Resource Plan (LTGRP) where energy efficiency in buildings, energy efficiency and electrification in industry, and CCS are included as pathways to achieving GHG reductions as set out in the CleanBC Roadmap.

19.6 Please provide a detailed explanation of the assumed GHG intensity of FEI's Renewable Gases and explain how that GHG intensity reflects environmental attributes actually transferred to or retained by FEI, emissions from the upgrading process, and any other relevant factors.

Response:

Please refer to the responses to City of Richmond IR2 14.2.3, 14.7, and 14.10.

19.7 Please provide an updated version of the charts shown in response to BCUC IR1 12.3.2, as well as the supporting spreadsheet, corresponding to the scenario depicted in the response to CoR IR2 19.5 above. Please provide the response in real 2022\$ to align with other information provided in IR2 (such as the response to BCUC IR2 46.1).

<p style="text-align: center;">FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)</p>	<p style="text-align: center;">Submission Date: September 12, 2022</p>
<p style="text-align: center;">Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2</p>	<p style="text-align: center;">Page 22</p>

1 **Response:**

2 Please refer to the response to City of Richmond IR2 19.5.

3

4

5

6 19.8 CoR IR1 1.3 asked FEI to provide a series of tables for 2024, 2028 and 2032.
7 Please provide a single updated version of the table requested in CoR IR1 1.3, for
8 2030, based on the 2030 renewable gas volume identified in the response to CoR
9 IR2 19.5 above. Please provide the response in real 2022\$ to align with other
10 information provided in IR2 (such as the response to BCUC IR2 46.1).

11

12 **Response:**

13 Please refer to the response to City of Richmond IR2 19.5.

14

<p style="text-align: center;">FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)</p>	<p style="text-align: center;">Submission Date: September 12, 2022</p>
<p style="text-align: center;">Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2</p>	<p style="text-align: center;">Page 23</p>

**20.0 Reference: RENEWABLE GAS PROGRAM, GOVERNMENT POLICY, AND
RENEWABLE GAS SUPPLY**

Exhibit B-17, Section A, BCUC IR1 1.2, pp. 4-5

Evolution of Climate Change Policy - CleanBC Roadmap Targets

In response to BCUC IR1 1.2, FEI lists the main factors that may vary FEI's Renewable Gas supply requirements to achieve the GHG Emissions Cap.

20.1 Please confirm that all other things being equal (e.g., existing customer demand, other GHG reduction measure for existing emissions, the level of the GHG cap, etc.), approval of the Renewable Gas Connections program will increase the amount of Renewable Gas that FEI needs to procure to meet a GHG Emissions Cap. If not confirmed, please explain why not.

Response:

Confirmed. Please refer to the response to Metro Vancouver IR2 5.2

20.2 Please confirm that for Renewable Gas Connections, FEI will be required to acquire Renewable Gas for Renewable Gas Connections regardless of the cost of Renewable Gas relative to the other strategies available to meet the GHG Emissions Cap. If not confirmed, please explain why not.

Response:

FEI confirms that it will need to have sufficient RNG to serve the Renewable Gas Connections service load and, as such, will continue to seek out the lowest cost RNG supply available. As mentioned in the question, the cost of that supply needs to be considered in comparison to other sources of emissions reductions, and alternate low carbon solutions, including incremental electricity.

RNG is not the only approach to reducing emissions to meet the GHG Emissions Cap. For example, demand side management measures can also be used to achieve the GHG Emissions Cap. Improvements in energy efficiency will lower customers' gas consumption and may, in some cases, be more cost-effective per tonne of GHGs avoided than RNG. RNG is, however, the only approach that can reliably satisfy stringent GHGi limitations in buildings, in addition to contributing towards achieving the GHG Emissions Cap. Improved energy efficiency cannot accomplish both of these ends on their own. Further, FEI's customers cannot meet their GHGi targets with carbon offsets as they are not accepted by local governments as a viable GHG emissions reduction solution.

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 24

21.0 Reference: PROPOSED RENEWABLE GAS PROGRAM

Exhibit B-20, Section A, CoR IR1 1.1, pp 1-3

Proposed Renewable Gas Program - Revised Renewable Gas Program

In response to COR IR1 1.1, FEI provided a table identifying which customers would receive the Renewable Gas Blend and be charged the S&T Low Carbon Rider.

21.1 Please confirm that commercial customers taking commodity from FEI, and industrial customers taking commodity from FEI, could avoid the proposed S&T Low Carbon Rider by switching from taking commodity from FEI, to taking commodity from gas marketers under the T-Service program. If not confirmed, please explain why not.

Response:

Confirmed. At this time and without changes to provincial legislation or FEI's tariffs, customers that meet the applicability requirements for FEI's Transportation Service (T-Service) can move from Sales Service to T-Service and avoid FEI's proposed S&T LC rider. These customers would bear any costs and risks associated with utilizing a marketer to procure and transport their commodity to FEI's interconnects.

21.2 Please confirm that the combined 2020 loads of these two customer groups was 68 PJ (53.3 PJ + 14.7 PJ). If not confirmed, please explain why not.

Response:

Not confirmed. FEI has two classes of commercial customer - small commercial and large commercial. Only the large commercial class of customer has a companion T-Service rate schedule. The volume for the large commercial Sales Service customers that could switch to T-Service is 24.6 PJ. Therefore, the customers (volume) that could potentially switch from Sales to T-Service, if they met applicability requirements and it was economical to do so, would equal 39.3 PJ (24.6 PJ + 14.7 PJ).

21.3 Please confirm that, all else equal, if industrial and commercial customers currently taking commodity from FEI instead switch to T-Service, the S&T Low Carbon Rider will increase in \$/GJ terms. If not confirmed, please explain why not.

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 25

Response:

Confirmed.

21.4 In estimating the bill impact in response to CoR IR2 19.5, what assumptions did FEI make regarding the proportion of industrial and commercial customers switching to T-Service to avoid the S&T Low Carbon Rider?

Response:

FEI did not assume any customers would switch from Sale Service to T-Service in its analysis, as there are too many variables for FEI to make an assumption regarding rate switching. FEI expects that T-Service customers will not be exempt from provincial GHG reduction regulations and will, therefore, have costs to bear whether through the S&T LC rider or otherwise.

The decision that a customer makes to switch from Sales Service to T-Service is not simple, as there are many factors that customers consider when selecting between Sales Service or T-Service. A customer's risk tolerance, rate certainty, desire for emissions reductions, the customer's industry market outlook and even potential renewable energy options provided by T-Service marketers are a few examples of some of the factors that a customer may consider in making decisions about their natural gas supply contracting.

Further, FEI is not privy to or informed of the individual terms and conditions of agreements between customers and gas marketers, or how the marketer's terms may evolve over time to meet the various needs of the customer.

21.5 Please fill out the following table and provide explanations as needed of how the requested scenarios compare to the assumptions used by FEI in its analysis.

	2030 S&T Low Carbon Rider (\$ per GJ)
FEI's forecast of 2030 S&T Low Carbon Rider assuming program is approved as requested	
Program is approved as requested and 0% of commercial and industrial customers taking commodity from FEI switch to T-Service	

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 26

Program is approved as requested and 100% of commercial and industrial customers taking commodity from FEI switch to T-Service	
--	--

1
2 **Response:**
3 FEI provides the requested table below. For the reasons provided in response to City of Richmond
4 IR2 21.4, FEI did not forecast any Sales Service customers switching to T-Service. Therefore, the
5 first two rows in the table are equal.

6 **Table 1: 2030 S&T Low Carbon Rider with Sales to Transport Service Customer Switching**

	2030 S&T LC Rider (\$ per GJ)
FEI's forecast of 2030 S&T LC Rider assuming program is approved as requested	3.023
Program is approved as requested and 0% of commercial and industrial customers taking commodity from FEI switch to T-Service	3.023
Program is approved as requested and 100% of commercial and industrial customers taking commodity from FEI switch to T-Service	4.775

<p style="text-align: center;">FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)</p>	<p style="text-align: center;">Submission Date: September 12, 2022</p>
<p style="text-align: center;">Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2</p>	<p style="text-align: center;">Page 27</p>

1 **E. OFFSETS**

2 **22.0 Reference: PROPOSED RENEWABLE GAS PROGRAM**

3 **Exhibit B-20, Section A, CoR IR1 3.7, p. 16**

4 **Renewable Gas Connections - Mitigating Risk of Demand and**
5 **Supply Balancing**

6 In response to CoR IR1 3.7, FEI indicates offsets cannot be used to supply Renewable
7 Gas Connections. These are only admissible for use under Low Carbon Gas Service and
8 Vehicle Low Carbon Gas Service rate schedules.

9 22.1 Please confirm that in the event of a shortfall in RNG supply, this would mean that
10 Renewable Gas Connections, which do not pay the full cost of their RNG supply,
11 would receive priority over customers receiving Low Carbon Gas Service and
12 Vehicle Low Carbon Gas Service, which are paying the full cost of their RNG
13 supply. If not confirmed, please explain why not.
14

15 **Response:**

16 Confirmed. In the event of a shortfall in RNG supply, Renewable Gas Connections service
17 customers would receive priority access to RNG over other customers. Please note that all
18 customers receiving RNG via the Renewable Gas Connections, the Voluntary Renewable Gas
19 (including NGV and T-Service) and the Renewable Gas Blend services collectively pay for all the
20 costs of the Renewable Gas Program.

21 FEI will take a proactive role in managing the supply and demand of RNG. This demand and
22 supply forecasting exercise will allow FEI to allocate supply to meet the anticipated demand from
23 the various program components and take active steps to manage demand in order to mitigate
24 the risk of any supply versus demand imbalance. Please refer to the response to BCUC IR1 10.2.

25
26

27
28 22.2 Given limited and uncertain supply of RNG, does the additional requirement for
29 FEI to supply Renewable Gas Connections on a permanent basis and in first
30 priority increase the probability of purchasing offsets for the customers receiving
31 service under the Low Carbon Gas Service and Vehicle Low Carbon Gas Service
32 compared to a situation where all RNG customers receive the same level of
33 priority?
34

35 **Response:**

36 FEI does not have a limited or uncertain supply of RNG. FEI currently has over 18 million GJs of
37 RNG contracted annually, which is equal to the output of BC Hydro's Site C dam. As such, FEI

<p>FortisBC Energy Inc. (FEI or the Company)</p> <p>Revised Renewable Gas Program Application – Stage 2 (Application)</p>	<p>Submission Date:</p> <p>September 12, 2022</p>
<p>Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2</p>	<p>Page 28</p>

1 does not believe that the requirement for FEI to supply RNG to Renewable Gas Connections
2 service customers on a permanent basis, and on a first priority basis, materially increases the
3 probability of purchasing offsets for customers receiving service under the Low Carbon Gas
4 Service and Vehicle Low Carbon Gas Service compared to a situation where all RNG customers
5 receive the same level of priority. Further, to mitigate this risk, FEI will be proactively managing
6 supply forecasts, the demand from the Voluntary Renewable Gas offering and the Renewable
7 Gas Blend level.

8

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 29

1 **F. GOVERNMENT POLICY**

2 **23.0 Reference: RENEWABLE GAS CONNECTIONS**

3 **Exhibit B-17, Section D, BCUC IR1 17.1, pp. 98-100**

4 **Renewable Gas Connections – Level Playing Field**

5 In response to BCUC IR1 17.1, FEI states:

6 “BC Hydro, the provincial government and the federal government offer significant
7 subsidies and incentives to customers installing electric heat pumps, which are much
8 greater than the relatively modest incentives offered by FEI on certain high-efficiency
9 furnaces and boilers. For example, the BC Hydro website currently indicates that a
10 potential rebate of up to \$11,000 is available for installation of electric heat pumps.”

11 23.1 Please confirm the quote above is with reference to rebates available for switching
12 existing homes from natural gas to electricity, and does not actually apply to new
13 construction, which is the target of the proposed Renewable Gas Connection in
14 this application. If not confirmed, please explain why not.

15
16 **Response:**

17 The quote above is in reference to all of the policy levers, incentives (BC Hydro, CleanBC, local
18 government, etc.), including provincial taxes (savings) being applied in FEI’s service territory, that
19 encourage the adoption of electric heating equipment. This creates an uneven playing field.

20 Heat pump rebates are just one example of a multi-pronged effort to promote and encourage
21 consumers to use electricity for heating applications in both new and existing buildings.

22 From FEI’s understanding of the program, a customer could receive up to \$11,000 if they are fuel
23 switching. However, a consumer would not know if their building/project was eligible for incentives
24 until they investigate or begin the process of applying for the rebate.

25

26

27

28 According to the BC Hydro’s website

29 (<https://www.bchydro.com/powersmart/residential/buying-a-home.html>):

30 **“Rebates from CleanBC**

31 The CleanBC Better Homes New Construction Program provides rebates for the
32 construction of new, high-performance, electrically-heated homes. The program is
33 available to builders and developers constructing new single-family homes,

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 30

laneway homes, duplexes and townhomes in B.C....The program is funded by the Province of British Columbia and administered by BC Hydro.”

23.2 To FEI’s knowledge, does BC Hydro currently provide any rebates for heat pumps in new construction that are in addition to the rebates administered by BC Hydro from CleanBC above?

Response:

FEI is not aware of equipment incentives for heat pumps from BC Hydro for new homes, but CleanBC does provide incentives for new homes. Additionally, a number of local governments also offer heat pump incentives.

23.3 What is the total level of rebate(s) available for heat pumps in new residential construction in B.C.?

Response:

Please refer to the table below, which shows the rebates available under CleanBC Better Homes New Construction Program and is current as of September 6, 2022. The link to this information is: <https://betterhomesbc.ca/rebates/cleanbc-new-construction/>.

Please note that the federal government and a number of municipalities also offer heat pump incentives.

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 31

Heat Pump Pathway

Build a home that uses an electric heat pump for space heating and/or water heating, regardless of BC Energy Step Code level.

Heat Pump Type	Requirements	Rebate	Northern Top-Up*	Energy Advisor Support Rebate
Air source heat pump	Ductless mini-split heat pump, ductless multi-split heat pump, or central ducted heat pump (Tier 2) HSPF ≥10, SEER ≥16 Variable speed compressor Must be on the Qualifying Product List	\$3,000	+\$3,000	\$1,000 per individually modelled home or unit • \$800 to the builder • \$200 to the Energy Advisor OR \$2,000 per individually modelled home or unit if northern top-up eligible* • \$1,600 to the builder • \$400 to the Energy Advisor
Air-to-water heat pump	Must be on the Qualifying Product List	\$3,000	+\$3,000	
Combined space and hot water heat pump	Must be on the Qualifying Product List	\$4,000	+\$3,000	
Heat pump water heater	Must be on the Qualifying Product List	\$1,000	No top-up	

- Note (*): To qualify for the northern top-up, eligible homes must be located north of and including the District of 100 Mile House (latitude 51.628°N) and have a building permit issued on or after April 1, 2022.
- Builders are eligible for a maximum of one primary space heating system rebate and one primary water heating system rebate per home or unit, regardless of the number of systems installed.
- Heat pumps with fossil fuel back up are **not eligible** unless the home is eligible for and participating in the northern top-up offer.

23.4 How long are these rebates available for?

Response:

The CleanBC program rebates for electric appliances are developed by the provincial government. FEI is not aware of the longevity or plans for these rebates.

23.5 Is the magnitude of rebates currently capped? If so, what is the cap?

Response:

FEI does not know if there is currently a cap on the magnitude of rebates.

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 32

23.6 To FEI's knowledge, are government rebates normally provided for measures that meet minimum requirements in building codes, or only for voluntary measures that exceed minimum requirements in building codes?

Response:

FEI does not track the majority of government rebates or funding programs and is not in a position to comment on all the initiatives.

In terms of housing construction, FEI is aware that funding was provided by the provincial government for housing projects across British Columbia, in order to increase the supply of housing in the province.⁵ FEI does not know if these housing projects were required to exceed minimum building code requirements.

23.7 Please summarize the treatment of changes in building codes or other standards in the calculation of cost-effectiveness of utility-sponsored DSM Programs under the British Columbia Demand-Side Measures Regulation.

Response:

This question is outside the scope of this proceeding as set by Order G-165-22A.

⁵ <https://www.bchousing.org/projects-partners/Building-BC/homes-for-BC>

<p style="text-align: center;">FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)</p>	<p style="text-align: center;">Submission Date: September 12, 2022</p>
<p style="text-align: center;">Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2</p>	<p style="text-align: center;">Page 33</p>

24.0 Reference: Comprehensive Review and Application for Approval of a Revised Renewable Gas Program

Exhibit B-11, Section 1.1, p. 2, Section 2.2.4, p. 23, Section 3.1.4.5, p. 31, and Section 7.4.2, p. 100

Introduction and Overview, Acceptance of the Renewable Gas Program by the Provincial Government, CleanBC Roadmap – BC Carbon Tax, and Renewable Gas Connections

In its Application, FEI states:

“FEI proposes a new Residential Gas Connections service under which FEI will permanently provide 100 percent Renewable Gas to new residential dwellings attaching to the system by a service line installed on or after the date of implementation of the service. This new service will allow FEI to provide a low carbon gas service to the new residential construction sector that satisfies local and provincial government requirements for these new buildings. Renewable Gas Connection customers will pay a Low Carbon Gas Charge (LCG Charge) equal to the combination of the Commodity Cost Recovery Charge (CCRC) plus carbon tax, i.e. the equivalent rate as other gas customers. This new service will enable FEI to continue to add customers, encouraging the efficient use of the existing gas delivery system and providing energy choice for British Columbians.” (p. 2)

“Order-in-Council 245/2011 amended the Carbon Tax Regulation to provide a refund of the carbon tax paid on volumes of biomethane purchased in BC. This meant that purchasers of biomethane were exempt from carbon tax on the biomethane portion of their natural gas.” (p. 23)

“In BC, the provincial government has recognized the emission reduction benefits of Renewable Gas through a biomethane credit which provides a benefit to purchasers of biomethane blended with conventional natural gas. The credit is equal to the carbon tax payable on the specified volume or percentage of biomethane, thereby incentivizing customers to transition to a lower-carbon fuel.” (p. 31)

“...an existing residential customer pays for the commodity (via the CCRC) as well as a carbon tax, and a customer served under the Renewable Gas Connections tariff served 100 percent Renewable Gas will pay a rate equal to the CCRC + carbon tax.” (p. 100)

In response to CoR1 4.1 (Exhibit B-20), FEI confirmed that Renewable Gas Connections will receive the Program Environmental Attributes.

<p style="text-align: center;">FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)</p>	<p style="text-align: center;">Submission Date: September 12, 2022</p>
<p style="text-align: center;">Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2</p>	<p style="text-align: center;">Page 34</p>

24.1 Please confirm that Renewable Gas Connections will receive Environmental Attributes from biomethane that are equivalent 100% of their natural gas consumption. If not confirmed, please explain.

Response:

Confirmed.

Renewable Gas Connections customers will receive the Environmental Attributes (as defined in a) and b) below) associated with biomethane which comprises 100 percent of their natural gas consumption. The benefits which then accrue to Renewable Gas Connections customers are:

a) Compliance with GHGi building requirements, and thereby the right to make use of a connection to the gas system; and

b) A reduction in payable carbon taxes.

All gas consumed by customers attracts the carbon tax. For those volumes that are biomethane (RNG), the carbon tax is credited back to the customer on their bill. The net effect is that the Renewable Gas Connections customers that have 100 percent RNG will not pay the carbon tax since they receive only RNG which is entirely composed of biomethane.

The proposed LCG charge will satisfy the requirements of the Carbon Tax Regulations allowing the customer relief of the carbon tax because RNG is composed entirely (100 percent) of biomethane.

24.2 Please explain whether under FEI's proposal, Renewable Gas Connections customers will pay carbon taxes on the basis of receiving Environmental Attributes for Biomethane that are equivalent to their total natural gas consumption or whether they will pay carbon taxes as if they are receiving the Environmental Attributes that are equivalent to the Renewable Gas Blend only.

Response:

Please refer to the response to City of Richmond IR2 24.1.

24.3 Please explain whether this is permitted under the Carbon Tax Regulation which provides that purchasers of biomethane are exempt from carbon tax on the biomethane portion of their natural gas.



FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 35

1

2 **Response:**

3 Please refer to the response to City of Richmond IR2 24.1.

4

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 36

25.0 Reference: INTERACTION WITH MUNICIPAL PERFORMANCE REQUIREMENTS

Exhibit B-20, Section C, CoR IR1 6.1, p. 23

Evolution of Climate Change Policy – Benefits of Renewable Gas Connections

As a response to CoR IR1 6.1, FEI states:

“While the BC Building Code currently does not include any regulations with respect to GHGi, FEI understands that the provincial government is contemplating changes to the BC Building Code to include provisions for local governments to adopt a GHGi metric and that both Renewable Gas and electricity will be energy sources that can be used to meet this metric. Depending on when these revisions are adopted and implemented, future updates to the Renewable Gas Connections service may be required.”

25.1 Given that the proposed Renewable Gas Connections program would provide 100% renewable gas to new residential customers, what potential revisions to the BC Building Code would require FEI to update the Renewable Gas Connections service in future?

Response:

Further amendments to the Renewable Gas Program, and possibly an expansion or variation of Renewable Gas Connections service, could be required if future revisions to the BC Building Code included carbon limits for existing buildings. For example, if the BC Building code were to place limits on carbon emissions for existing buildings that were higher than the proposed Renewable Gas Blend service, then one possible solution would be to expand the scope of the Renewable Gas Connections service to include existing customers replacing their gas appliances. This is because, in order for these customers to meet this hypothetical Building Code requirement, they may require a higher Renewable Gas percentage than the base supplied to all Sales service customers through the Renewable Gas Blend service, and also for the remaining life of the building (i.e., permanency).

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 37

1 **26.0 Reference: RETROFITS / CONVERSIONS**

2 **Exhibit B-20, Section G, CoR IR1 10.3, p. 34**

3 **Proposed Renewable Gas Program – Renewable Gas Connections**

4 As a response to CoR IR1 10.3, FEI states:

5 “It is also FEI’s understanding that the provincial government is consulting with
6 district energy providers to determine appropriate guidance in setting GHG
7 emissions for DES. The current direction is that local governments should make
8 public GHG emissions factors for the district energy systems operating in their
9 communities and not establish GHG targets for buildings compelled to connect to
10 district energy systems where emissions reductions cannot be reasonably
11 achieved.”

12 26.1 Please provide the source of FEI’s understanding of the provincial governments’
13 consultation activities, as well as FEI’s understanding of the “current direction”
14 referenced in the preamble. Please include any relevant written communications
15 between FEI and the provincial government.

16
17 **Response:**

18 The source of the understanding is from the provincial government. FEI does not have any further
19 information it can share beyond the information provided in the response to City of Richmond IR1
20 10.3.

21

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 38

1 **G. OTHER JURISDICTIONS**

2 **27.0 Reference: Comprehensive Review and Application for Approval of a Revised**
3 **Renewable Gas Program**

4 **Exhibit B-11, Section 7.3.1, pp. 89 – 91 and Appendix C, p. 9**

5 **Renewable Natural Gas Programs in Other Jurisdictions**

6 FEI states it reviewed other RNG programs both in Canada and internationally to
7 determine which features or best practices, if any, could be incorporated into FEI's
8 Renewable Gas Program to meet the needs for a revised Renewable Gas Program.

9 FEI concludes that:

10 “...RNG programs in other jurisdictions are generally either at an early stage of
11 development, similar to FEI's program prior to the 2015 BERC Application, or they
12 are of comparatively limited in scale or scope compared to FEI's program needs.”
13 (p. 91)

14 A jurisdictional review by a third-party consultant is found in Appendix C. The review is
15 dated September 2021. The consultant's review notes a California bill approved in 2018
16 which requires the CPUC to:

17 “consider adopting specific biomethane procurement targets or goals for each gas
18 corporation so that each gas corporation procures a proportionate share, as
19 determined by the commission, of biomethane annually.” (Appendix C, p.9).

20 The main body of the application does not reference this finding directly, but only the
21 voluntary program in California.

22 The CPUC Decision issued a decision on February 24, 2022, which adopted a Renewable
23 Gas Standard (RGS) for California's gas utilities. The decision was approved by a
24 unanimous vote. Pursuant to SB 1440 (2018), the CPUC Decision introduces a formal
25 requirement for California's Gas Utilities to procure a certain amount of RNG as a portion
26 of core customer demand in the state through 2040.

27 27.1 California has aggressive GHG reduction goals and stringent requirements for new
28 construction. Please confirm whether there is any program proposed or approved
29 in California to provide RNG to new buildings in excess of the RGS that would not
30 be considered part of a voluntary RNG offering. If not confirmed, please explain
31 why not.

32
33 **Response:**

34 FEI has had conversations with representatives from SoCalGas about its Renewable Gas Tariff
35 application which it filed with the CPUC on February 28, 2019. FEI also understands that the

<p style="text-align: center;">FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)</p>	<p style="text-align: center;">Submission Date: September 12, 2022</p>
<p style="text-align: center;">Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2</p>	<p style="text-align: center;">Page 39</p>

application submitted by San Diego Gas and Electric for a Renewable Gas Tariff is the same as that submitted by SoCalGas. On December 17, 2020, the CPUC adopted D.20-12-022, establishing a three-year voluntary pilot RNG Tariff program for SoCalGas and San Diego Gas and Electric.

FEI is not aware whether Pacific Gas and Electric or Southwest Gas currently offer, or plan to offer, RNG for sale to customers as a differentiated product, although it appears as though biomethane is injected into their respective gas systems.

Based on the above, FEI believes that the only approved means of delivering RNG to new buildings in excess of the RGS, in the respective jurisdictions, would be the through the three year voluntary pilot RNG Tariff program approved for both SoCalGas and San Diego Gas and Electric. However, these pilot programs do not yet appear to have been launched by either SoCalGas or San Diego Gas and Electric, and therefore, FEI cannot confirm this with certainty. FEI is also not aware of why no other program has been proposed or approved in California to provide RNG to new buildings in excess of the RGS. FEI suspects that this is largely attributable to the comparative lack of experience with RNG in California versus British Columbia, and the different geographical contexts in each jurisdiction. For example, California has a greater potential than BC for producing solar power and also due to the warmer climate the heating needs for Californians are much lower than for British Columbians.

Moreover, as described in Section 7.3.1 of the Application, FEI's Renewable Gas Program design is a "made in British Columbia" solution due to the province's unique circumstances. FEI reviewed other RNG programs both in Canada and internationally to determine which features or best practices, if any, could be incorporated into FEI's Renewable Gas Program to meet the needs identified in Section 7.2 of the Application. Through that review, it was identified that outside of BC, RNG programs are not yet common, and those that exist are generally in an early stage of development.

27.2 Please confirm the pricing for voluntary RNG purchases in California is based on the cost of acquiring RNG. If not confirmed, please explain how voluntary RNG offering is priced in California.

Response:

The following is an excerpt from the description of the RNG commodity charge, available on the CPUC website:

The RNG Commodity Charge will be comprised of... (5) a premium for RNG purchases defined as the difference in the estimated monthly weighted average cost of RNG purchases (including the cost of any renewable attributes or credits

<p style="text-align: center;">FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)</p>	<p style="text-align: center;">Submission Date: September 12, 2022</p>
<p style="text-align: center;">Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2</p>	<p style="text-align: center;">Page 40</p>

that are bundled with the RNG purchases) and the estimated monthly weighted average cost of traditional natural gas purchases,

FEI understands that the pricing for voluntary RNG purchases in California is based on the cost of acquiring RNG. Customers select a fixed monthly dollar premium they wish to pay for RNG, and this premium is divided by the cost of RNG to determine how much RNG they receive. Commercial customers may alternatively select the percentage of RNG they wish to receive and pay the cost of RNG on any volumes they purchase.

Additional details may be found in the Proposed Decision of Administrative Law Judge Liang-Uejio, Decision Adopting Voluntary Pilot Renewable Natural Gas Tariff Program, October 27, 2020, CPUC Application Number 19-02-015.⁶

27.3 Please compare California's RGS (in absolute volume terms and as a percentage of gas sales) with:

- a. The acquisition cap in B.C.'s GGRR
- b. The amount of RNG FEI is anticipating will be required to meet the mandated GHG cap i) without any Renewable Gas connections; and ii) with Renewable Gas Connections.

Response:

FEI understands that the CPUC Decision establishes the following mandatory RNG procurement targets for California's gas utilities:

1. A short-term target of 17.6 BCF/year (approximately 19 PJ/Year) by 2025.
2. A mid-term target of 72.8 BCF/year (approximately 78 PJ/Yr) by 2030 and beyond – equal to approximately 12.2 percent of annual statewide gas Investor Owned Utility core customer consumption in 2020.

In contrast, the GHG emissions cap described in the CleanBC Roadmap would require that the gas system limit emissions to 47 percent below 2007 levels by 2030. As described in the response to BCUC IR1 1.1, FEI estimates that it would require approximately 59 PJ of Renewable Gas annually to meet the proposed provincial emissions cap. This 59 PJ is equivalent to approximately 75 percent of the California procurement target, and 39 percent of the 2020 gas throughput for FEI sales customers, and 25 percent of FEI's total gas throughput for 2020. Over the next five years, FEI does not expect the total volume of Renewable Gas acquired for

⁶ <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M349/K624/349624040.PDF>

FortisBC Energy Inc. (FEI or the Company) Revised Renewable Gas Program Application – Stage 2 (Application)	Submission Date: September 12, 2022
Response to the City of Richmond, the City of Surrey, the District of North Vancouver, the District of Saanich, the City of Victoria and Lulu Island Energy Company Ltd. Information Request (IR) No. 2	Page 41

1 customers would diminish if there was not a Renewable Gas Connections service. Please also
2 refer to the response to BC Hydro IR2 2.6.

3 It is important to note that the GGRR does not limit the amount of Renewable Gas that FEI can
4 purchase. The GGRR allows FEI to purchase up to 30 PJ of Renewable Gas annually where the
5 price does not exceed the maximum amount stipulated in the regulation. However, upon approval
6 of the BCUC, FEI may purchase volumes in excess of the amount contemplated in the GGRR.

7