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

December 17, 2021

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

Attention: Mr. Patrick Wruck, Commission Secretary

Dear Mr. Wruck:

Re: FortisBC Energy Inc. (FEI)

Biomethane Energy Recovery Charge (BERC) Rate Assessment Report - British Columbia Utilities Commission (BCUC) Order G-35-21

Stage 2 Comprehensive Review and Application for a Revised Renewable Gas Program

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In accordance with BCUC Order G-35-21, FEI hereby files with the BCUC its Comprehensive Review and Application for Approval of a Revised Renewable Gas Program.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Diane Roy

Attachments

cc (email only): Registered Interveners in the FEI BERC Rate Methodology Assessment Report proceeding;
Registered Interveners in the FEI Annual Review for 2022 Delivery Rates proceeding

FORTISBC ENERGY INC.

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

December 17, 2021

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1. INTRODUCTION AND APPROVALS SOUGHT

1.1 *INTRODUCTION AND OVERVIEW*

FortisBC Energy Inc. (FEI or the Company) files this Comprehensive Review and Application for a Revised Renewable Gas Program (Application or Comprehensive Review) in compliance with British Columbia Utilities Commission (BCUC) Order G-35-21 which established a two-stage process for the review of the Renewable Gas Program (formerly referred to as the Biomethane Program). In this Application, FEI provides its comprehensive review and assessment of the Renewable Gas Program and requests approval of a revised Renewable Gas Program including necessary tariff changes, cost recovery methods, and regulatory treatment for new and revised Renewable Gas services. FEI uses the term Renewable Gas throughout this Application to refer collectively to the low carbon gases or fuels that the utility can acquire under the *Greenhouse Gas Reduction (Clean Energy) Regulation* (GGRR), which are: Renewable Natural Gas (RNG or biomethane), hydrogen, synthesis gas and lignin.

The Renewable Gas Program to date has been successful in achieving its objectives based on the policies in place at the time it was designed, and has established Renewable Gas as a low carbon energy that can meet GHG reduction objectives in the Province. However, the Renewable Gas Program now needs to change in response to evolving government climate policies, customer needs for Renewable Gas, and the significant increase in Renewable Gas that FEI is acquiring pursuant to the GGRR. Without a response from FEI, federal, provincial and municipal regulations and policies focused on reducing GHG emissions threaten the long-term viability of the gas delivery system and energy choice for British Columbians. This is due to mandates in the CleanBC Plan and CleanBC Roadmap for overall GHG reductions from the gas supply, regulations and policies that restrict gas service in the new residential construction sector, and GHG reduction mandates or goals that may cause customers to leave the system if there is not a viable Renewable Gas solution to meet their needs.

As set out in this Application, Renewable Gas can provide a low carbon energy solution that meets these challenges, and thereby maintains the long-term viability of the gas delivery system and energy choice for British Columbians. FEI considers that maintaining a diversified energy system is in the best interest of all energy consumers in BC and leverages the combined strengths of the gas and electric systems to deliver energy to British Columbians.

FEI's key proposals in this Application are summarized below:

- FEI proposes a new Renewable Gas Blend for sales customers under which all customers who purchase their gas from FEI (sales customers)[1] will be provided with a base level of Renewable Gas as part of their regular gas service. Subject to available supply, FEI expects to begin a one percent blend on January 1, 2024. FEI will charge customers for the Renewable Gas Blend they receive through a Sales & Transport Low Carbon (S&T

[1] Sales customers are those served by Rate Schedules (RS) 1, RS 2, RS 3, RS 4, RS 5, RS 6 and RS 7.

LC) rider and apply to the BCUC on an annual basis to set this rider. As FEI acquires increased volumes of Renewable Gas as enabled by the GGRR, the Renewable Gas Blend will increase over time to enable FEI to meet the new provincial CleanBC targets for greenhouse gas (GHG) emissions, and balance supply and demand. This service will result in rapid and significant GHG emission reductions across all sectors served by FEI and will be seamless for customers.

- 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.

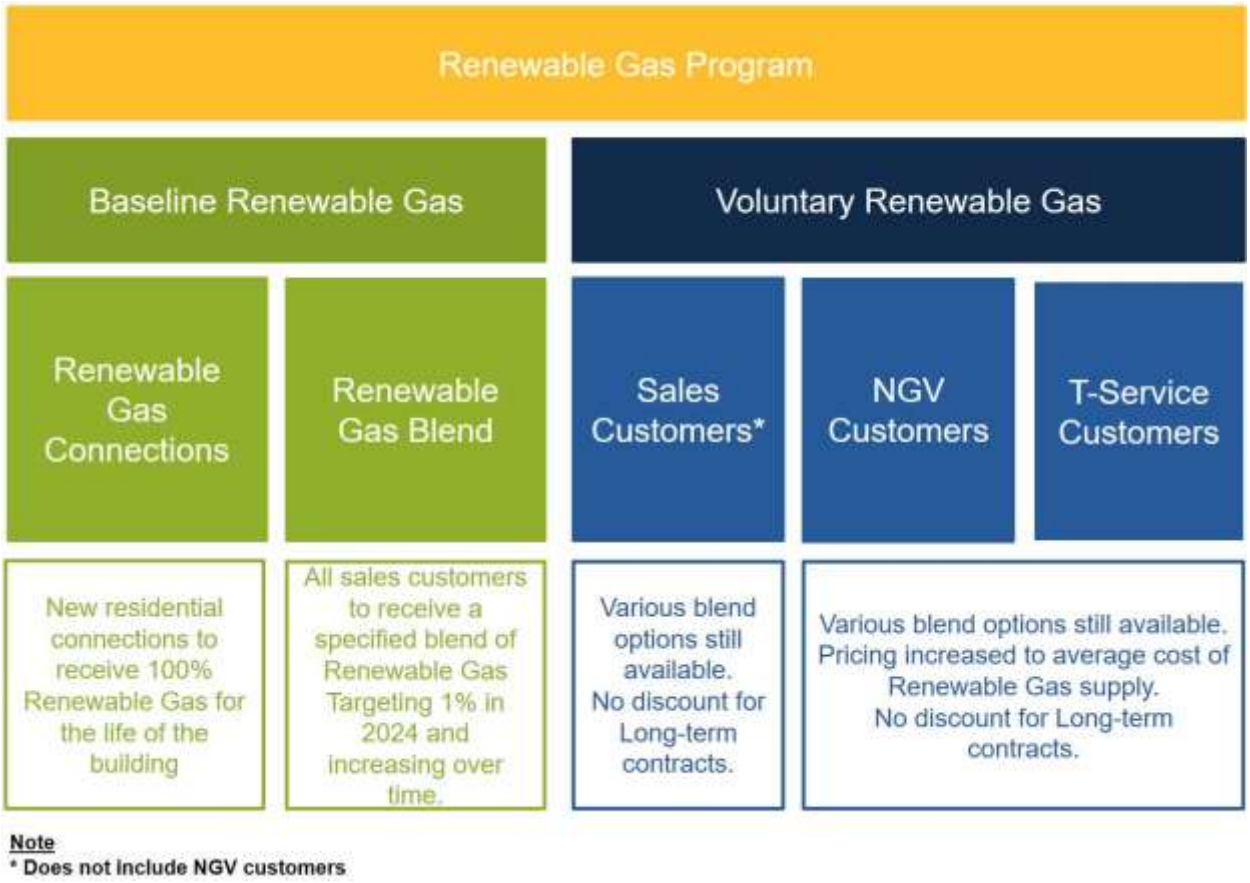
- FEI proposes modifications to its existing Voluntary Renewable Gas offering whereby customers in all rate schedules can choose to purchase up to 100 percent Renewable Gas to meet GHG emission reduction targets. This service will enable FEI to continue to offer a low carbon gas solution to those customers that need to reduce their GHG emissions to meet internal or externally imposed targets. FEI is proposing modifications to extend the Voluntary Renewable Gas offering to Rate Schedule (RS) 7 customers, increase the price for Natural Gas Vehicle (NGV)[2] and Transportation Service (T-Service)[3] customers to equal the weighted average cost of Renewable Gas supply, and eliminate the $1 per GJ discount for long-term contracts. The Voluntary Renewable Gas offering is essential for FEI to meet the needs of and retain customers who require higher volumes of Renewable Gas. Providing a low carbon gas solution for these customers will encourage the efficient use of the gas delivery system and provide energy choice for British Columbians.

The structure of FEI's proposed Renewable Gas Program is illustrated in Figure 1-1 below.

[2] NGV customers have access to the market created by the BC Low Carbon Fuel Standard whereby they can monetize carbon credits to offset their costs and encourage their use of Renewable Gas. In addition, Renewable Gas consumed by this sector will not contribute to the CleanBC Roadmap target for the gas system to reduce emissions from natural gas used to heat homes and buildings and power industries or home. It is therefore appropriate that they pay a rate that recovers the full cost of any Renewable Gas

[3] T-Service customers are large volume customers that purchase their natural gas commodity from a marketer. As T-Service customers will not be subject to the S&T LC rider for sales customers, it is appropriate that they pay a rate that recovers the full cost of any Renewable Gas.

Figure 1-1: Revised Renewable Gas Program



FEI has conducted extensive consultation on its proposals, including engagement with 176 individual stakeholders. The results of this engagement process indicate substantial support for FEI's proposed amendments to the Renewable Gas Program. FEI has received 85 letters of support from stakeholders and one from the Musqueam Indian Band, all of which are attached in Appendix F to this Application.

FEI submits that its Application is in the public interest and should be approved.

1.2 *PERMANENT RATE REQUEST EFFECTIVE FEBRUARY 1, 2022*

FEI is requesting permanent approval of a new Rate Schedule (RS) 7B effective February 1, 2022.

FEI's current Renewable Gas Program does not offer Renewable Gas service to Rate Schedule 7 General Interruptible Service customers. As FEI has received expressions of interest from RS 7 customers, many of whom recently moved back to FEI's bundled sales service from Transportation Service rate schedules, a new RS 7B is required to meet the needs of these customers. With the growth of Renewable Gas supply and the re-opening of FEI's Renewable Gas Program, for consistency and fairness, RS 7 customers should have the same ability to

access the Renewable Gas Program as other customers do under Rate Schedules 1B, 2B, 3B, 5B, and 11B.

FEI's proposed RS 7B is included as Appendix D-1 and aligns with the Renewable Gas Program as currently approved. FEI proposes to begin offering service under the proposed RS 7B commencing on February 1, 2022.

1.3 *APPROVALS SOUGHT*

Pursuant to sections 59 to 61 of the Utilities Commission Act, FEI requests the following approvals to be effective on the beginning of the first quarter[4] that is at least 5 months after the BCUC's final Order in this proceeding:

a) Approval of FEI's proposed Renewable Gas Connections service as described in Sections 7 and 8 of the Application and the corresponding new RS 1PLC, RS 2PLC, RS 3PLC and RS 5PLC in Attachment D-2 of the Application.

b) Approval of FEI's proposed changes to the Voluntary Renewable Gas offering as described in Sections 7 and 8 of the Application, and the corresponding new and amended Rate Schedules in Attachment D-2 of the Application, specifically:

   a. Approval to replace RS 1B, RS 2B, RS 3B, RS 5B, RS 7B and RS 11B with RS 1LC, RS 2LC, RS 3LC, RS 5LC, RS 7LC and RS 11LC as set out in Appendix D-2;

   b. Approval of the amendments to RS 46 in Attachment D-2; and

   c. Approval of the new RS 3VLC and RS 5VLC in Attachment D-2.

c) Approval to change the name of the Biomethane Variance Account to the Low Carbon Gas Account, and approval of the Low Carbon Gas Account as described in Section 8 of the Application.

d) Approval to change the name of FEI's Biomethane Energy Recovery Charge to the Low Carbon Gas Charge.

e) Approval to discontinue the Unsold Biomethane Premium Deferral Account.

Pursuant to sections 59 to 61 of the Utilities Commission Act, FEI requests the following approvals to be effective January 1, 2024 or such later date to be proposed by FEI based on sufficient Renewable Gas supply and the filing of amended rate schedules for review and approval by the BCUC three months prior to the actual implementation date:

f) Approval of FEI's proposed Renewable Gas Blend as described in Sections 7 and 8 of the Application.

[4] i.e., January 1, April 1, July 1, or October 1, in order to align with FEI's quarterly gas cost filings.

g) Approval to cease the Biomethane Delivery rate rider and to begin the use of the S&T LC rider

h) Approval to discontinue the BVA Balance Transfer Account.

A draft order sought is included in Appendix G-2.

1.4 *REGULATORY PROCESS*

FEI considers that a written regulatory process would be appropriate for the review of this Application. The following is an initial proposed regulatory timetable which takes into consideration avoiding deadlines during the school spring break in March.

Table 1-1: Proposed Regulatory Timetable

Action	Dates (2022)
BCUC Issues Procedural Order	Thursday January 6
FEI Publishes Notice	Week of January 17
Intervener Registration	Thursday, January 27
Workshop	Thursday, February 3
BCUC IR No. 1	Thursday, February 10
Intervener IR No. 1	Thursday, February 17
FEI Response to IRs No. 1	Monday, April 4
Written Submissions on Further Process	Thursday, April 14

FEI has proposed a Workshop as part of the regulatory process to review key elements of the Application and answer questions. FEI has provided a draft procedural order in Appendix G-1. FEI notes that the draft procedural order also includes the permanent approval sought with respect to the new RS 7B as discussed in Section 1.3 above.

FEI is seeking a BCUC decision on the Application by October 30, 2022, so that FEI can implement the proposed changes to its Renewable Gas Program by the second quarter of 2023. FEI wishes to implement the proposed changes to its program as soon as practicable to mitigate the impacts of policies that are restricting the use of the gas system. After the BCUC's Decision, FEI will require up to fives months to implement the billing system and other changes to enable the proposed new rate schedules and rates for customer enrolment. FEI will also need to align the proposed rate changes with its quarterly gas filings, meaning that the implementation date will need to be January 1, April 1, July 1 or October 1 of the year.

1.5 *CONCORDANCE TABLE TO SCOPE ITEMS LISTED IN ORDER G-292-20*

In Appendix C to Order G-292-20, the BCUC identified a preliminary list of scope items which FEI confirmed would be addressed in this Application, following its comprehensive review of the

Renewable Gas Program. These are listed below along with the where they can be located in the Application:

Table 1-2: Concordance Table to Scope Items Listed in Order G-292-20

	Scope Item in Order G-292-20	Application Section
1	Considering the BC government's CleanBC Policy and stated objectives, among other factors, what is the market outlook for Renewable Natural Gas (RNG) supply and demand in BC over the next ten years?	FEI described the Clean BC Policy in Section 3.4.1. FEI's Renewable Gas Market Outlook is described in Section 6.3. FEI discusses the forecast volumes of Renewable Gas supply and customer demand in Section 8.6.
2	If the current maximum amount of RNG that FEI can acquire while remaining within the limit set out in the Greenhouse Gas Reduction (Clean Energy) Regulation is insufficient to meet the forecast RNG demand, what options would be available to FEI for resolving the imbalance?	Section 3.6.1 discusses the amendments to the GGRR that have enabled the acquisition of more Renewable Gas.
3	What is FEI's load resource balance for RNG over the next ten years based on its forecast of RNG demand relative to contracted RNG supply? I. How does FEI plan to meet any gaps in the load resource balance? II. To the extent FEI plans to meet this gap with additional supply, how should this be done? III. To the extent that the supply is notional, please explain notional supply, and how it works for RNG purchased outside of BC. IV. To the extent FEI plans to purchase carbon offsets to meet this gap, how should this be done? If carbon offsets are purchased to meet RNG demand, how do the costs of carbon offsets compare with the average cost of RNG supply and how are these costs recovered?	Measures to balance supply and demand are discussed in Section 8.7.
4	Detail the environmental attributes associated with any current or future RNG supply. How should environmental attributes associated with RNG supply be valued and who should be entitled to claim those environmental attributes?	Environmental Attributes can vary by customer segment. For customers in the building sector, see Section 7.4. For NGV customers, see Sections 5.7.2 and 7.4.
5	What is FEI's forecast of the RNG Program costs over the next ten years and the extent of cross subsidization from FEI's non-bypass customers if the current BERC rate methodology is maintained?	FEI discusses customer bill impacts in Section 8.6.

	Scope Item in Order G-292-20	Application Section
6	Considering FEI's load resource balance for RNG, what are the risks that the RNG Program becomes oversubscribed again in the short to medium term if the current BERC rate methodology is maintained?	FEI's Renewable Gas Market Outlook is described in Section 6.3. FEI's proposals include additional Renewable Gas services to balance supply and demand of Renewable Gas as discussed in Section 7.4 FEI's Renewable Gas Market Outlook is described in Section 6.3. FEI discusses the forecast volumes of Renewable Gas supply and customer demand in Section 8.6. Measures to balance supply and demand are discussed in Section 8.7.
7	How does FEI's RNG Program impact its risk profile in the short, medium, long term?	Section 4 of the Application describes how leveraging the gas system to reduce emissions is critical to lowering emissions for British Columbians and reduces risk to FEI and its customers.
8	What should the Panel consider in their evaluation of and any approvals related to the Assessment Report?	The Assessment Report was accepted by Decision and Final Order G-242-21
9	What are the implications of not approving the Assessment Report?	The Assessment Report was accepted by Decision and Final Order G-242-21
10	Any other relevant matters?	FEI has addressed various other relevant matters throughout the Application.

1.6 *ORGANIZATION OF REMAINDER OF APPLICATION*

The remainder of this Application is organized as follows:

Table 1-3: Organization of Application

Section	Section Name	Description
2	Program History and Evaluation	Describes the history of FEI's Renewable Gas Program from the establishment of FEI's Biomethane Program in 2010 to the filing of this Application, including the regulatory background, and provides FEI's evaluation of the program to date.
3	Evolution of Climate Change Policy	Reviews the climate policy that led to the development of the Renewable Gas Program in 2010, and the changes in public energy policies at the federal, provincial and local government levels since that time, which are driving the proposed changes to the Renewable Gas Program in this Application.

Section	Section Name	Description
4	A Diversified Energy System is in the Best Interest of British Columbians	Discusses the value of gas delivery infrastructure for delivering energy to customers and how leveraging the capabilities of the gas infrastructure will enable the reduction of GHG emissions in BC more quickly and with less disruption than other measures.
5	What Customers Need from a Renewable Gas Program	Discusses the diverse segment of customers FEI serves and how their energy needs have evolved to meet their environmental goals. These include complying with policy and regulation and/or corporate Environmental, Social, and Governance (ESG) targets while requiring cost effective and reliable energy.
6	Growth in Renewable Gas Supply	Explains FEI's forecast for the growth in Renewable Gas supply over the next 10 years and describes how this supply side growth is responsive to government renewable energy plans, as well as supply-side risks and mitigation strategies.
7	Proposed Renewable Gas Program	Describes the needs for and FEI's proposed revisions to the Renewable Gas Program required to respond to provincial policies to reduce emissions from the gas supply, local government and other policies restricting gas delivery to the new residential construction sector and the need for Renewable Gas from customers seeking additional emissions reduction.
8	Accounting Treatment, Program Mechanics, Rate Setting and Customer Bill Impact	Describes FEI's proposed regulatory treatment and rate setting framework, including a review of the customer bill impacts.
9	Program Expenditures, Administration, and Reporting	Describes the implementation of FEI's proposed tariffs, the ongoing administration of and reporting on the Renewable Gas Program, and expenditures required for successful implementation.
10	Consultation and Engagement	Details FEI's public consultation and engagement, including interveners, industry and government in relation to this Application along with a overview of the letters of support received for the Application.
11	Conclusion	This section concludes the Application

1

2

2. PROGRAM HISTORY AND EVALUATION

This section provides a history of FEI's Renewable Gas Program from the establishment of FEI's Biomethane Program in 2010 to the filing of this Application, including the regulatory background, and provides FEI's evaluation of the program to date.

In particular, FEI outlines how the Renewable Gas Program has evolved over the past 10 years in response to lessons learned and to changes in market conditions, as well as how the availability of Renewable Gas itself has contributed to changes in policy and customer expectations within BC. FEI then provides an evaluation of the success of the Renewable Gas Program at meeting the objectives identified at the time of its development and through subsequent refinements, which supports FEI's conclusion that the program has been successful at meeting customer expectations and supporting provincial government policy objectives over the past decade.

This section is organized as follows:

- Section 2.1 summarizes how the program was initially developed by reviewing the initial impetus for a Renewable Gas service, and describes how the program evolved through subsequent regulatory proceedings, including the rate setting and cost recovery mechanisms that support the operation of the Renewable Gas Program.
- Section 2.3 provides FEI's evaluation of how the current Renewable Gas Program has fared in pursuit of the objectives identified at the time of its development.

2.1 *PROGRAM ORIGIN AND DEVELOPMENT*

FEI first applied for BCUC approval of the Biomethane Program in 2010 in response to changes in government policy and regulation to reduce GHG emissions and in order to provide a service that addressed evolving customer expectations towards energy at that time. In 2011, FEI was the first utility in North America to offer RNG service for sale to customers, which entailed the purchase of biogas and/or biomethane for sale to its customers through an end-to-end business model. As noted above, the program was developed in response to the evolving energy policy developments that took place around 2010 including, in particular, the introduction of the *Clean Energy Act* (CEA), as described below.

The CEA was introduced by the provincial government in 2010 to address a number of government policies, including the reduction of GHG emissions in BC. Specifically, in 2010 the CEA included the following objectives:[5]

> (d) to use and foster the development in British Columbia of innovative technologies that support energy conservation and efficiency and the use of clean or renewable resources;
> …

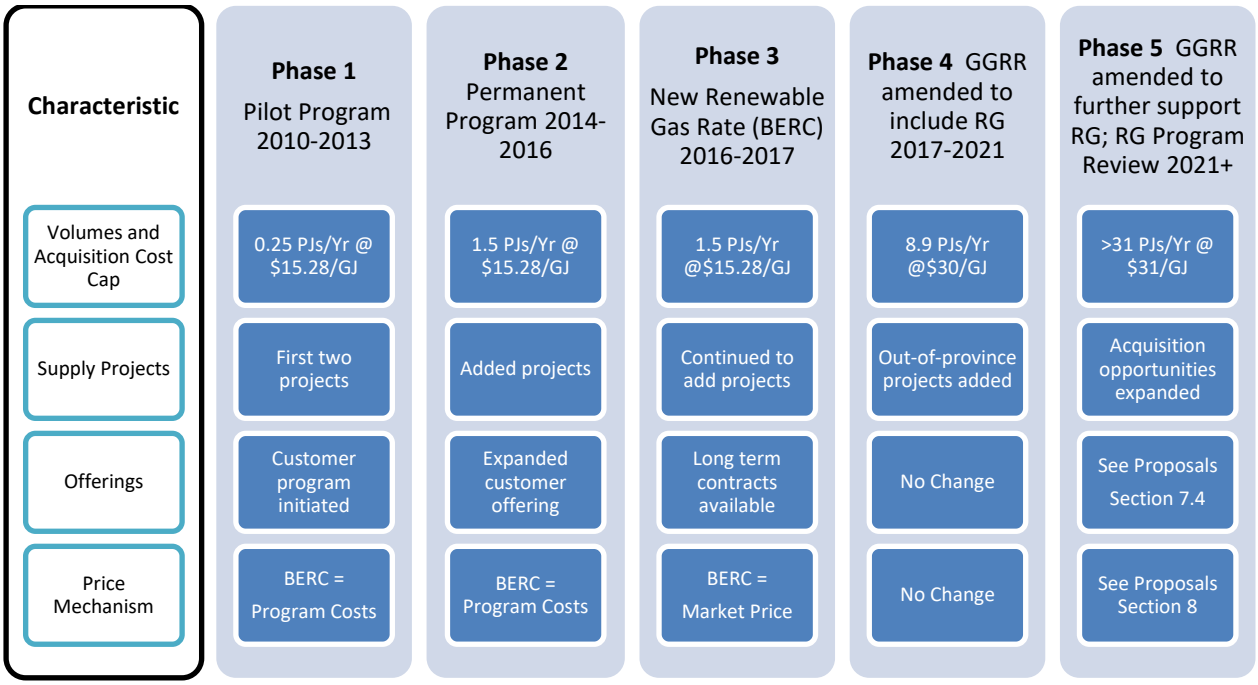
[5] Part 1, Section 2 British Columbia's energy objectives: https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/10022_01

> (g) to reduce BC greenhouse gas emissions;
>
> (i) by 2012 and for each subsequent calendar year to at least 6 percent less than the level of those emissions in 2007….;
>
> …
>
> (h) to encourage the switching from one kind of energy source or use to another that decreases greenhouse gas emissions in British Columbia;
>
> …
>
> (j) to reduce waste by encouraging the use of waste heat, biogas and biomass.

Together, these objectives provided a compelling reason for FEI (Terasen Gas at the time) to pursue a Renewable Gas program, reflecting the need to begin reducing GHG emissions associated with the natural gas system. In FEI's view, the utility had a central role to play in achieving the objectives of the CEA by pursuing innovative initiatives such as developing renewable resources, reducing GHG emissions, reducing waste by using biogas and biomass, and promoting energy efficiency.

During this period, FEI also began seeing a growing desire from its natural gas customers for an alternative to conventional natural gas that had a lower emissions profile. As a utility serving the majority of BC, FEI recognized that it could play a key role in reducing emissions, by introducing Renewable Gas into its gas system and garnering interest from customers for Renewable Gas, and that its competence in operating the gas system was a natural fit with Renewable Gas suppliers. The utility's experience in delivering gas, along with all of the supporting functions associated with this activity, made FEI the appropriate organization to make Renewable Gas broadly available within BC. In the years that followed the program's introduction, FEI has contributed to the growth of Renewable Gas supply, and provided customers with the opportunity to reduce their environmental footprint by subscribing to the Renewable Gas Program. As summarized in Figure 2-1 below, the history of the Renewable Gas Program since 2010 can be described over five phases.

Figure 2-1: Evolution of the Renewable Gas Program



Phase 1: Renewable Gas Pilot Program (2010-2013)

On June 8, 2010, FEI (then Terasen Gas Inc.) filed an Application for the Approval of a Biomethane Service Offering and Supporting Business model, including the approval of two supply projects (2010 Biomethane Application). In the 2010 Biomethane Application, FEI's proposed biomethane service offering was designed to support government policy increasingly focused on the use of renewable energy, energy efficiency and the reduction of GHG emissions.

On December 14, 2010, the BCUC issued its Decision and Order G-194-10 (2010 Decision) on FEI's 2010 Biomethane Application, authorizing FEI to move forward with a Biomethane Program for a two-year pilot period and approving the two supply projects. In its Decision, the BCUC noted:[6]

> The Commission Panel is cognizant of the new post CEA environment which is challenging TGI to innovate and adapt its utility service model. In this regard, the Commission Panel agrees with Terasen and the CEC that it is in the long term interest of all Terasen utility customers that new initiatives contribute to retention and the addition of throughput in the system, which will result in system costs being spread over a larger base.

At the time of its approval, the Renewable Gas Program allowed for an annual maximum supply volume purchase of 250 thousand GJs and a maximum supply price for delivered biomethane on the system of $15.28 per GJ, thereby minimizing any impact to non-RNG customers in the event that demand did not materialize as anticipated. The Renewable Gas Program was limited to

[6] 2010 Decision, p. 51.

residential[7] and commercial[8] customers who could take up to a 10 percent volume of RNG. The program was structured to fully recover biogas acquisition and upgrading costs as a commodity cost from voluntary customers with a Biomethane Energy Recovery Charge (BERC) rate set to match projected supply costs. By electing to participate in the program, customers paid the BERC rate on the biomethane portion of their natural gas consumption, which was initially set at a 10 percent biomethane blend.

At the outset of the pilot program, the BERC rate was set at $9.904 per GJ below the maximum price for delivered biomethane on the system of $15.28/GJ. This rate was based on a forecast of program costs and was subject to an annual rate setting (adjustment) process. The BCUC also approved a deferral account, the Biomethane Variance Account (BVA), to capture the costs incurred by FEI to procure and process biomethane as well as the revenues collected through the BERC rate. The BVA accumulated any differences between the program's costs and revenues. The annual rate setting process was arithmetic, taking into consideration the balance in the BVA along with expected sales and purchases over the following forecast period.

During the pilot phase, which took place between June 2011 and the end of 2012, FEI focused on demonstrating that the Renewable Gas Program was viable and that customers would voluntarily subscribe and pay a premium to reduce their emissions. Over 4,600 customers enrolled in the pilot phase of the program, which FEI considered to be a success. Based on this success and forecast demand, FEI determined that a permanent Renewable Gas offering was viable.

Phase 2: Approval of the Permanent Renewable Gas Program (2013)

In December 2012, FEI filed its Biomethane Post Implementation Report and Application for Approval of the Continuation and Modification of the Biomethane Program on a Permanent Basis (2012 Biomethane Application), seeking approval from the BCUC to make the program a permanent customer offering. In addition to making the program permanent, FEI sought an increase in the maximum supply volume to 1.5 PJ/year in order to serve anticipated future demand. In its 2012 Biomethane Application FEI also highlighted how the program advanced policy objectives at all levels of government as follows:[9]

1. Biogas is a renewable energy resource, and upgrading Biogas to produce Biomethane for direct consumption in heating appliances is the most efficient use of that renewable resource.
2. The production and use of Biomethane is carbon neutral because producing and consuming Biomethane will not add to the amount of Carbon released into circulation.
3. The use of Biomethane in place of a GHG-positive energy source (such as natural gas) results, all else equal, in a net reduction in GHGs.

[7] Rate Schedule 1B.
[8] Rate Schedules 2B, 3B, and 11B.
[9] Biomethane Service Offering: Post Implementation Report and Application for Approval of the Continuation and Modification of the Biomethane Program on a Permanent Basis, December 19, 2012, p.17.

On December 11, 2013, the BCUC issued its Decision and Order G-210-13 (2013 Decision). In its 2013 Decision the BCUC approved FEI's request to make the program permanent, noting the program's importance in supporting the province's energy objectives:[10]

> This Biomethane Program is a departure from FEI's traditional distribution role in that FEI has taken on the responsibility for marketing the biomethane. The Panel has approved FEI's continuation in this role because the Biomethane Program supports the Province's energy objectives.

Moreover, the BCUC approved FEI to provide higher proportion blends of RNG (including a 100 percent designation) and expanded the program to customers on Vancouver Island and in Whistler, following the approval of amalgamation and common rates.

In its 2012 Biomethane Application FEI also proposed that biomethane inventory in the BVA that could not be sold at the established BERC rate be sold at a discounted rate and the costs related to the discounted sale be recovered through the Midstream Cost Reconciliation Account (MCRA), subject to approval of the BCUC.[11] In the 2013 Decision, the BCUC approved this proposal and directed that if unsold biomethane inventory was moved to the MCRA, the dollar balance transferred to the MCRA would be calculated using the prevailing Commodity Cost Recovery Charge (CCRC) at the time of the transfer (Commodity Value), for recovery from FEI's sales customers.[12] The BCUC also approved the Unsold Biomethane Premium deferral account (UBPDA) to capture the difference between the Commodity Value of the volume of unsold and unsalable biomethane to be transferred to the MCRA and the selling price of that volume at the BERC rate. UBPDA balances would then be recovered from all FEI non-bypass customers, through a rate rider. To date, FEI has not needed to file an application for the transfer of biomethane from the BVA to the MCRA or to use the UBPDA.

During the period following the 2013 Decision, as biomethane supply expanded and the associated cost of the supply increased, FEI increased the BERC rate to recover these additional costs. In particular, the updated BERC rate reflected modifications to the allocation of costs, such that costs included in the BVA for recovery from biomethane customers included Renewable Gas Program marketing and administration costs and interconnection costs from future supply projects. These costs were not reflected in the BERC rate prior to the 2013 Decision.

The BCUC also recognized in its 2013 Decision that the price of biomethane may rise to a level that discourages participation in the Renewable Gas Program. In such a circumstance, the BCUC's guidance was that it may be appropriate to set the BERC rate below cost, thereby maximizing the volumes sold while minimizing the unsold cost impact borne by the remainder of FEI ratepayers. The BCUC stated:[13]

[10] 2013 Biomethane Decision, p. 45.
[11] 2013 Decision, p. 69.
[12] 2013 Decision, p. 69.
[13] 2013 Decision, p. 72.

> In this circumstance, the Panel is of the view that it may be appropriate to set the BERC at a lower rate, and recover the difference between the BERC and the fully allocated costs of acquiring the biomethane through the Biomethane Premium deferral account previously discussed. This strategy may enable FEI to maximize the revenues from the Biomethane Program.

As a result of this potential, the BCUC directed FEI to make an application for approval of a lower BERC rate should the price of biomethane rise to levels where participation in the program was negatively impacted.

During the period following the 2013 Decision until January 2015, the BERC rate increased from $11.696 per GJ to $14.414 per GJ by the end of 2014. By this time, it was apparent to FEI that the BERC rate had increased to a level that discouraged enrollment in the program and had the potential to result in costs from unsold biomethane not being recovered from the voluntary program participants. In response to this market signal, FEI concluded that the price setting mechanism of the program needed to be adapted to suit market conditions. More specifically, RNG had to be sold at a price customers were willing to pay, otherwise much of the volume of RNG purchased by FEI would go unsold, and therefore, the reduction in GHG emissions enabled by the program would go unfulfilled.

Phase 3: Introduction of a New BERC Rate Methodology (2016)

On August 28, 2015, FEI submitted its Application for Approval of Biomethane Energy Recovery Charge (BERC) Rate Methodology (2015 BERC Application) in response to the lack of growth in program participants due to the rising cost of biomethane. Within the 2015 BERC Application, FEI responded to customer expectations by proposing a new BERC rate based on a partial cost of recovery methodology (as opposed to the prior full cost recovery methodology) and a long term contract offering for large volume customers.

FEI based its BERC rate proposal on an analysis of participation rates in the program versus the BERC rate premium over conventional natural gas, as well as customer feedback. FEI expected that this methodology would minimize the potential rate impact to non-program participants from unsold biomethane volumes. FEI also proposed to use two distinct BERC rates: a Short Term Contract BERC Rate (Short Term BERC Rate) and a Long Term Contract BERC rate (Long Term BERC Rate), as follows:

- **The Short Term BERC Rate** is set once per year effective each January 1 at the BCUC approved Commodity Cost Recovery Charge (CCRC) plus the current carbon tax applicable to natural gas customers and a premium of $7.00 per GJ. The $7.00 BERC rate premium was appropriate based on historical evidence that showed the program had relatively stable growth during the time that the BERC rate was $7.00 to $8.00 greater than the approved CCRC.
- **The Long Term BERC Rate** is calculated using the same method as the Short Term BERC Rate, effective each January 1 in a year where a long term contract is executed, less a discount of $1.00 per GJ. The Long Term Contract offering and the Long Term

BERC Rate are only available to customers who can purchase a minimum volume of 60 thousand GJs of Renewable Gas over a commitment period of not less than five years.

This market-driven update to the program, which was intended to encourage renewed participation in the program, was approved by the BCUC in its Decision and Order G-133-16 (2016 Decision) on August 12, 2016, including approval of the two BERC rates as proposed by FEI. Changing the rate charged to customers in response to market signals (as opposed to the direct cost) and enabling FEI to offer long-term contracts were changes to the program which were favourably received by customers and produced a steady increase in customer demand for RNG in the period following 2016. As discussed above, the BVA was approved in the 2010 Decision to capture the costs incurred by FEI to procure and process biomethane and the revenues collected through the BERC rate, thereby accumulating any differences between costs and revenues. In the 2016 Decision, the BCUC approved the annual transfer of any under-recovered costs captured in the BVA to the BVA Balance Transfer rate base deferral account for recovery from non-bypass customers through the BVA rate rider[14] embedded in delivery charges. The BVA rate rider is approved in FEI's delivery rate setting applications.

Phase 4: Amendment of GGRR to Include Renewable Gas Supply (2017)

In the spring of 2017, the provincial government amended the GGRR which, among other things, indicated that the acquisition of RNG is a prescribed undertaking subject to two conditions, namely:[15]

1. the public utility paying no more than $30/GJ; and
2. the total volume of RNG purchased in a calendar year not exceeding 5 percent of the total volume of natural gas provided by a public utility to its non-bypass customers in 2015 (or 8.9 PJs/year for FEI).

Since that time, FEI has steadily increased the quantity and variety of RNG supply contracts, and sold all purchased RNG volumes to customers. With the combination of increased customer demand for RNG and lower than anticipated supply volumes, FEI temporarily closed the Renewable Gas Program to new subscribers in August of 2019. FEI attributes the increased customer demand for RNG to the perceived value of the Renewable Gas Program in reducing GHG emissions, and importantly, allowing certain customer classes to comply with increasingly stringent emission reduction regulations. Public sector building owners, municipalities, and public transportation entities were all expressing interest in purchasing significant volumes RNG at this time.

[14] The BVA rate rider recovers the cost in the BVA Balance Transfer deferral account.
[15] https://www.bclaws.gov.bc.ca/civix/document/id/oic/arc_oic/0161_2017, accessed Dec 8, 2021.

Phase 5: Further Amendment to the GGRR and Renewable Gas Program Review (2021)

In May 2021, the provincial government amended the GGRR further, increasing acquisition cost cap and volumes and expanding acquisition opportunities:[16]

1. Enabling utilities to acquire and supply green and waste hydrogen, synthesis gas and lignin, in addition to RNG.
2. Increasing the amount of RNG, green and waste hydrogen, lignin and synthesis gas that utilities (such as FEI and Pacific Northern Gas) can acquire and make available to their customers from five percent to fifteen percent of the total annual supply of natural gas;
3. Broadening the methods by which utilities can obtain Renewable Gas to include producing it or upgrading it themselves for injection into the pipeline, paying a third party to produce it or upgrade it for pipeline injection, or purchasing hydrogen, synthesis gas or lignin to displace the use of natural gas at customer facilities; and
4. Increasing the price cap utilities can pay to acquire Renewable Gas from $30 to $31 per GJ for contracts for purchase signed after March 31, 2021[17] and increasing the price cap annually by inflation.

FEI's Renewable Gas Program has remained unchanged since its last update in 2016, despite operating within an evolving environment that has strained the program in its current form, and necessitated the changes proposed in this Application.

The 2016 Decision directed FEI:

> …to file a comprehensive assessment report for Commission approval at the earlier of the application by FEI for a transfer of biomethane inventory from the Biomethane Variance Account to the Midstream Commodity Reconciliation Account or four years after the date of issue of this decision, whichever comes first (Assessment Report). In the event FEI commits all available supply through the Long Term Contract offering prior to the earlier of these two events, FEI is directed to file the Assessment Report at that time.[18]

On August 12, 2020, FEI filled the 2020 BERC Rate Assessment Report, which demonstrates that the revised BERC rate was successful at increasing program participation, associated sales volumes, and resulting revenues.

The BCUC established a two-stage regulatory review process wherein Stage 1 would focus on the review the 2020 BERC Rate Assessment Report in light of the objectives established in the 2016 Decision. The Stage 1 review process concluded with the issuance of the BCUC's Decision

[16] https://www.bclaws.gov.bc.ca/civix/document/id/oic/oic_cur/0306_2021, accessed Dec 8, 2021.
[17] Or, where the utility is producing the Renewable Gas, where the decision to construct the production facilities is made after March 31, 2021.
[18] 2016 Decision, p. 51.

and Order G-242-21 dated August 12, 2021. The Stage 2 review process was established to review FEI's Application for changes to its Renewable Gas service offering (this Application) following FEI's comprehensive review and assessment of the Renewable Gas Program.

2.2 *PROGRAM EVALUATION AND SUCCESS TO DATE*

FEI considers that the Renewable Gas Program has been successful to date as it has achieved the objectives identified at the time of its development. This section provides FEI's evaluation of the program's success at achieving these objectives and explains how the program has been positively received by customers and government. Section 2.3.2 is a condensed version of section 2 of the 2020 BERC Rate Assessment Report.

2.2.1 Meeting the Initial Objectives of the Renewable Gas Program

In 2010, FEI identified several objectives for the Renewable Gas Program when it applied to the BCUC for approval of the program's pilot phase. The primary objectives of the pilot phase were to confirm producer reliability in order to ensure stable Renewable Gas supply, and assess consumer interest in the new Renewable Gas offering. In its communications about the program, FEI sought to:

1. Generate awareness and understanding of biomethane as a renewable energy and its availability today;
2. Generate awareness and understanding about the Renewable Gas program;
3. Stimulate interest and participation in the program; and
4. Maintain participation and support for the program.

More broadly, FEI stated in the 2010 Biomethane Application that the program would:[19]

- Meet the demands of FEI's customers in a safe, reliable and economical manner; and
- Promote government's energy policy objectives favouring the use of renewable energy, the efficient use of energy, and reducing GHG emissions.

The pilot phase of the Renewable Gas Program successfully achieved the above objectives. While the program was novel at the time of its inception in 2010, FEI has gained the confidence of customers who voluntarily signed up to purchase RNG and its suppliers who have made substantial capital investments to reliably supply RNG to FEI over a long period of time.

In particular, and importantly, the program structure has met the needs of FEI's customers by providing them with a variety of service offerings to meet their respective energy goals, including blends or 100 percent RNG. By late 2012, FEI had enrolled over 4,600 customers in the Renewable Gas Program, reflecting an over 400 percent increase from the 1,100 customers

[19] 2010 Biomethane Application, p. 1.

enrolled at the end of 2011. This increase demonstrates the increased awareness of the Renewable Gas Program and interest from customers.

In the 2012 Biomethane Application, FEI reiterated that the Renewable Gas Program would enable FEI to meet the demand of its customers in a safe, reliable and economical manner.[20] FEI further noted that the development of biomethane as an energy resource would promote government policy, including the energy objectives set out in the CEA favouring the use of renewable energy, the efficient use of energy, and the reduction of GHG emissions.[21]

After the program was made permanent in 2013, customer enrolments continued to increase for a period of approximately 2 years. In December 2014, the Renewable Gas Program had over 6,800 subscribers and had delivered over 308 thousand GJs[22] of RNG to its subscribers.

2.2.2 Changes to the BERC Rate to Restore Program Growth

Growth in customer enrolments in the Renewable Gas Program was steady following its launch in 2011; however, by the beginning of 2014, the program began experiencing a challenge to its continued success. As of January 2014, the rate of new enrolments dropped from approximately 200 customers per month to approximately 20 customers per month (a 90 percent decline in new enrolments). As of January 2015, the program's total number of participants began declining from month to month. As FEI described in its 2015 BERC Application, the premium paid for Renewable Gas over conventional gas had increased to the point of discouraging voluntary customers from enrolling in the Renewable Gas Program. In that application, FEI provided feedback from large volume customers that the BERC rate was too high to consider increasing their purchase volumes. As a result, FEI filled its 2015 BERC Application requesting approval from the BCUC to change the BERC rate setting methodology in order to address declining program enrolments due to the apparent price sensitivity of customers. FEI's request was approved, and in its 2016 Decision the BCUC identified three overarching objectives that guided its reasoning in approving the revised BERC methodology:[23]

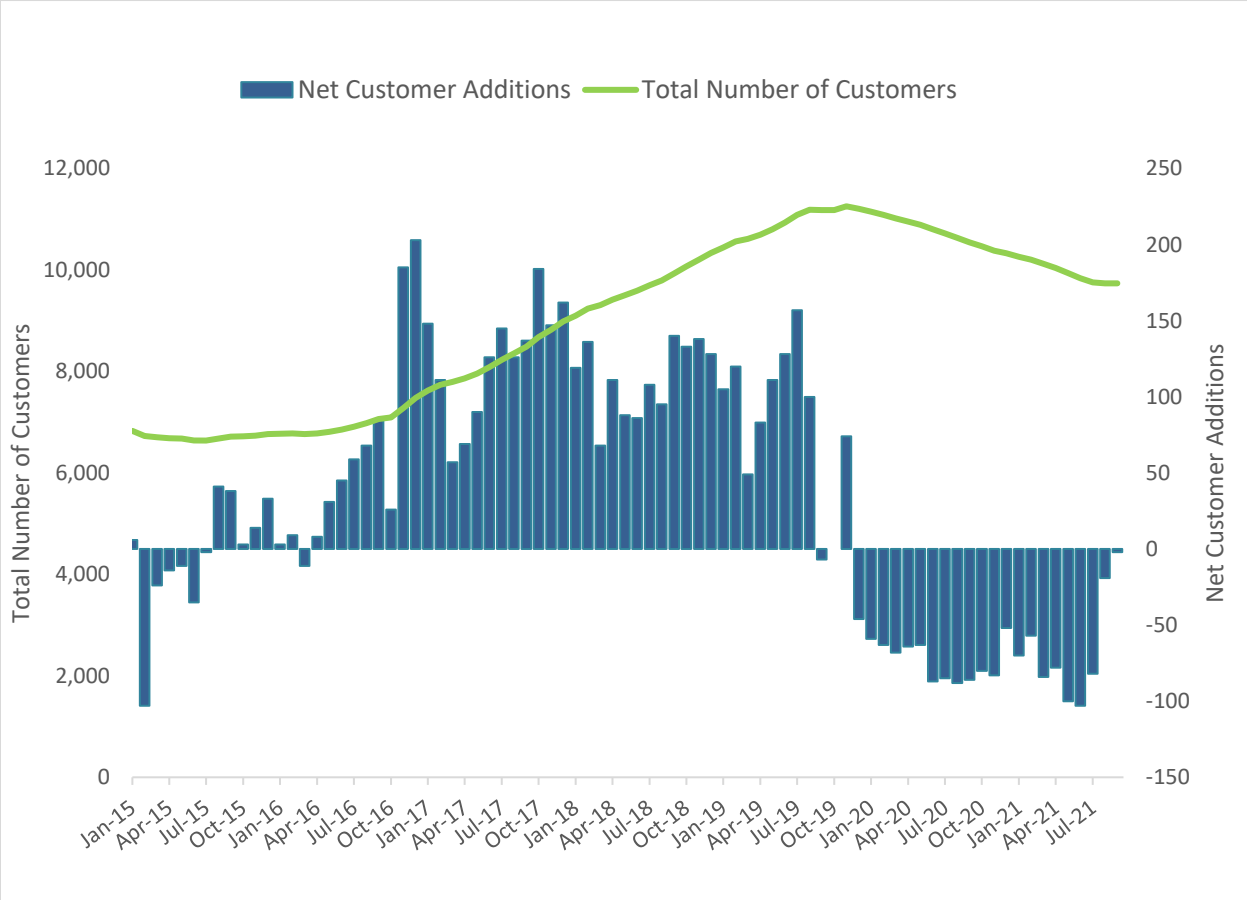
1. Maximize the recovery of program costs from RNG customers;
2. Manage biomethane inventory; and
3. Establish a BERC rate setting mechanism that is robust, effective, and provides regulatory efficiency.

Following this decision, and as explained in brief in Section 2.2 above, FEI implemented the updated Short Term BERC Rate on October 1, 2016, with the price premium for Renewable Gas set to $7.00 above the price of conventional gas plus carbon tax. After introducing the new methodology, the rate of customer additions to the RNG Program again increased steadily,

[20] 2012 Biomethane Application, p. 2
[21] ibid.
[22] Cumulative total of all renewable natural gas volumes delivered to customers between the program inception and December 31, 2014.
[23] 2016 Decision, p. 17.

resulting in an increase in overall customer enrolment. Figure 2-2 below shows the monthly net customer additions and number of total customers enrolled in the Renewable Gas Program during the period of October 2016 to the end of 2019. As the figure shows, the total number of program participants increased by 58 percent from approximately 7,100 customers when the revised BERC Rate was introduced to 11,200 by the end of 2019 (as shown by the solid green line in Figure 2-2).[24] The majority of this growth can be attributed to residential customers enrolling in Rate Schedule 1B.

Figure 2-2: Renewable Gas Program Monthly Net Customer Additions and Total Customers



Similarly, in addition to growth in total customers, the volume of RNG sold and the total RNG revenues FEI earned after the implementation of the revised BERC rate increased. Figure 2-3 below shows how the annual sales volume of RNG increased from approximately 163 Terajoules (TJs) in 2016 (when the revised BERC rate was implemented) to approximately 315 TJs by the end of 2019. Moreover, Figure 2-4 below shows how FEI's total RNG revenues increased after the implementation of the revised BERC rate methodology over the same period.

[24] The reduction in customer enrolments beginning in late 2019, as shown in Figure 2.2, was due to a temporary closure of the Renewable Gas Program to new participants. During this time period some existing customers continued to exit the program for various reasons. This situation was described in the 2020 BERC Rate Report.

Figure 2-3: Renewable Gas Program Annual Sales Volume

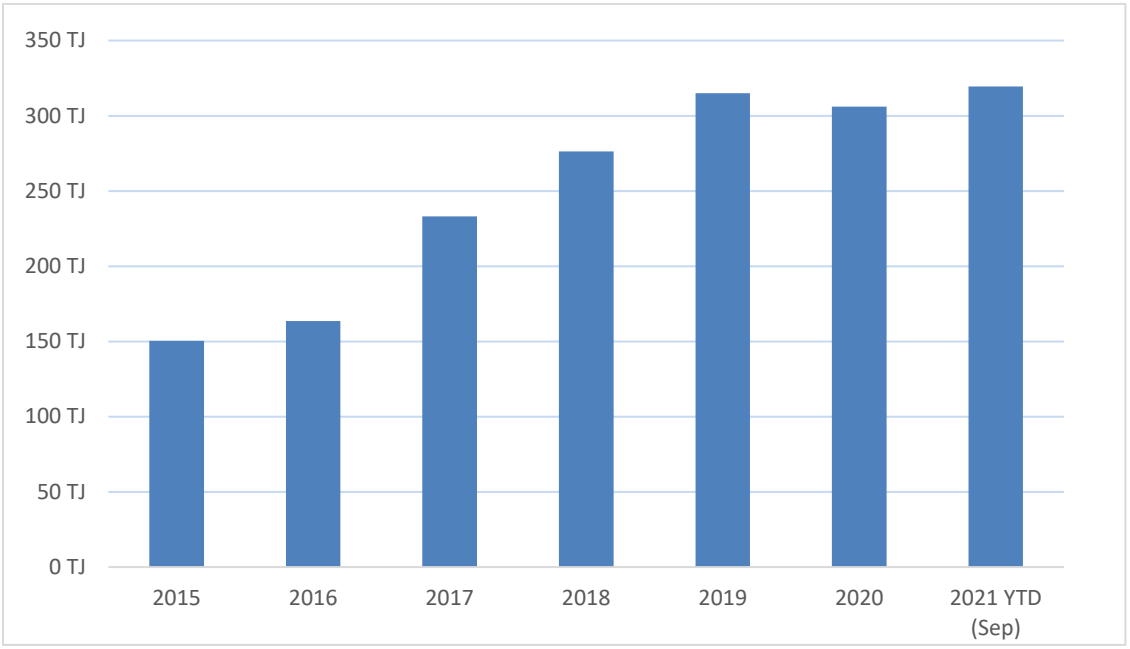
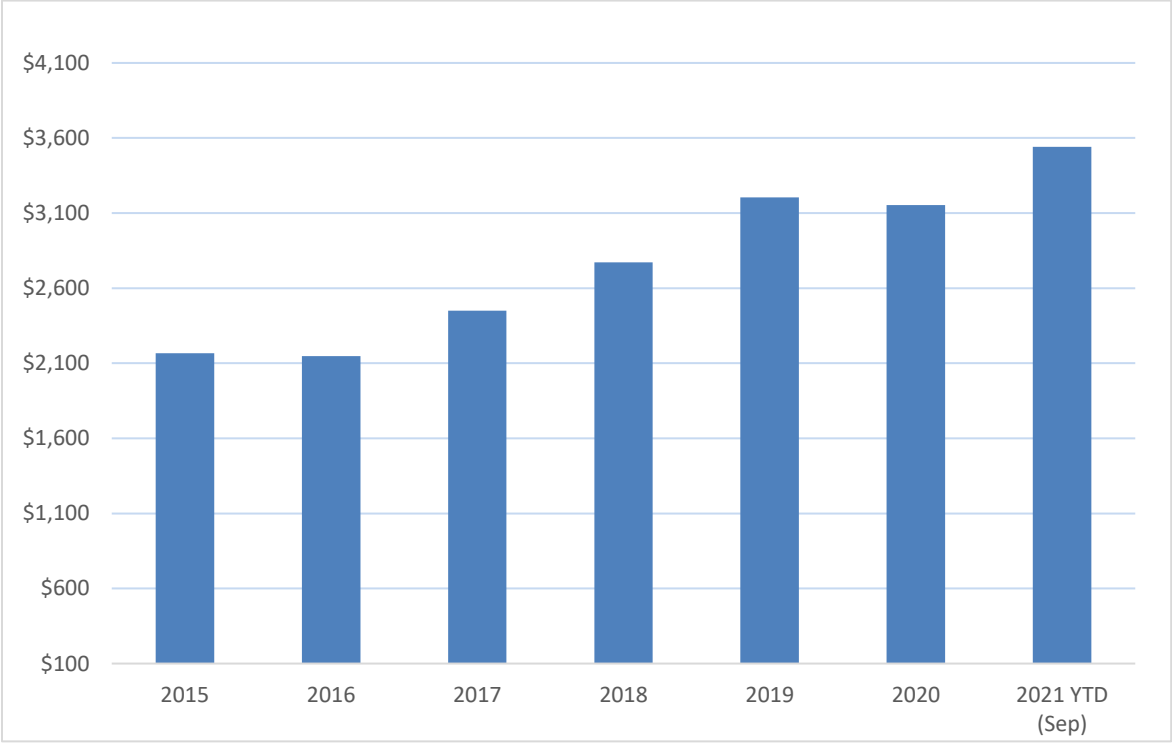


Figure 2-4: Renewable Gas Program Annual Sales Revenue[25]



[25] Note that 2020 BERC Rate Methodology Comprehensive Assessment Report the Renewable Gas Program sales revenue for 2018 was misreported as $3,264 thousand in Figure 4, p. 10. The actual Renewable Gas Program

As evidenced by increased customer enrolments, volumes of RNG sold and associated revenues, the revised BERC rate methodology has proven successful in achieving the three objectives set out by the BCUC in its 2015 BERC Decision. In particular, FEI has generated RNG revenue to a degree that was not possible under the original BERC rate and was able to manage biomethane inventory without the need to transfer any cost of unsold biomethane to non-RNG customers. Ultimately, the BERC Rate mechanism has proved to be robust, effective, and has provided for regulatory efficiency. The BCUC 2021 Decision and Final order G-242-21 stated "*The Panel agrees with all parties that the purposes of Stage 1 have been fulfilled, and that the Assessment Report adequately addresses the reporting requirements directed in Order G-133-16.*[26]"

2.2.3 Feedback from Program Participants

Over the course of its 10 years in market, the Renewable Gas Program has gained the interest, acceptance, and satisfaction of customers. As an opt-in service offering for which program participants pay a premium over the price of conventional natural gas, customer satisfaction is a key metric that FEI considers to be indicative of overall program success. In the 2012 Application, FEI provided feedback it had received from residential and commercial program participants, including the following:

- *"It is an excellent program; a solution for the future."*
- *"It's important that people make choices that lead to better futures and by doing these things as consumers, we help facilitate that change over time."*
- *"I feel a sense of personal satisfaction, being a part of driving change."*
- *"Here's how you can do your bit for the planet in a relatively painless and effortless way. And really, what's it going to cost you? Less than a cup of coffee or a latte."*
- *"We signed up for renewable natural gas because it's good for the environment and good for business."*
- *"Renewable natural gas is another step in the right direction for our business and the environment."*
- *"We want to be a leader. By taking on this initiative, we hope to make an impact on the environment. My suggestion to other businesses is to seriously consider it."*

In 2021, FEI conducted a survey of its current Renewable Gas Program customers[27] and asked, among other questions, how satisfied they were with the program. As shown in Figure 2-5 below, 61 percent of respondents indicated they were either very satisfied or somewhat satisfied and a

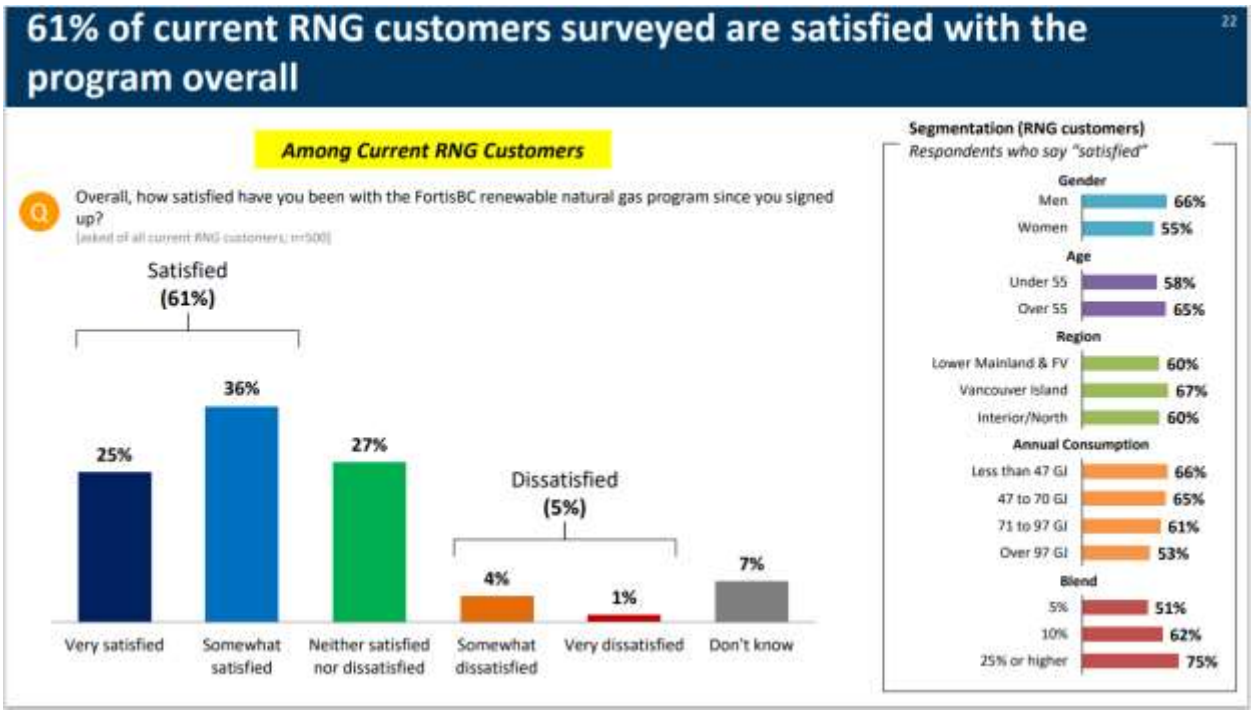
sales revenue for 2018 was $2,771 thousand as shown here in Figure 2-4. The error in the 2020 Report affected only the figure. The tables of monthly revenues provided the correct data.

[26] 2021 Decision, p. 6.

[27] Pleaser refer to Appendix B-1, p. 22.

further 27 percent indicated they were neither satisfied nor dissatisfied. Only 5 percent of respondents indicated they were dissatisfied.

Figure 2-5: Current Renewable Gas Program Participant Satisfaction



Moreover, customers who opted for RNG proportions of 25 percent or higher reported even greater satisfaction than other participants. For this group, the customers that reported being satisfied was 75 percent.

Overall, the feedback and data provided above confirms that the majority of participants are satisfied with the Renewable Gas Program offerings. Currently there are more than 9,500 customers enrolled in the Renewable Gas Program across various rate classes.[28] While most participants in the program are single-family residential customers, interest from large volume institutional and transportation sector customers has increased since 2017. These customer classes are seeking low carbon energy options in response to government regulations or their own Environmental, Social, and Governance (ESG) objectives. RNG is an attractive energy solution for large volume institutional and NGV customers because it enables emissions reductions and, importantly, because it is easily substituted for conventional gas – meaning it does not require any additional upgrades or investment in capital (i.e., RNG is a "drop in" fuel).

These customers have also been attracted by the current price of RNG which, while at a premium compared to conventional natural gas, is attractive given the associated GHG emission reductions. Customers who own and/or operate buildings, and who have firm and committed

[28] RS 1B, RS 2B, RS 3B, RS 5B and RS 11B.

emission reduction targets, have found that the price of RNG is competitive with other energy solutions to achieve these targets.[29] NGV customers have found that the current price of RNG attractive[30] and these customers can also generate credits under BC's Low Carbon Fuel Standard (BC-LCFS),[31] which can then be sold in the credit market to generate revenue. Many large volume commercial and transportation sector customers are interested in the program and those who are eligible often express interest in the long term contract offering in order to ensure security of supply as well as a competitive price.

2.2.4 Acceptance of the Renewable Gas Program by the Provincial Government

The Renewable Gas Program has gained acceptance from the provincial government as a way of providing customers with safe, reliable, lower carbon energy. When the program was launched it became one of several of the utility's initiatives responding to provincial climate policy with the purpose of reducing GHG emissions, including the 2007 BC Energy Plan, 2008 BC Bioenergy Strategy, and the CEA. The importance of Renewable Gas in reducing GHG emissions and achieving the province's energy objectives has been recognized by the provincial government though the implementation of policies and regulations that explicitly contemplate or incentivize the use of biomethane, in particular:

- 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.
- On February 3, 2012, the provincial government announced BC's Natural Gas Strategy which includes developing biomethane opportunities. Line item 6 under the heading "Natural Gas is a Climate Solution" states: "Encourage biomethane opportunities, including offering consumers low-carbon natural gas."
- On October 25, 2012, the BC Climate Action Secretariat confirmed that public sector organizations would receive recognition for their purchases of biomethane as a credit against their obligations to be carbon neutral.

Moreover, the provincial government has recognized the role Renewable Gas will play in decarbonizing the gas system as part of the effort to reduce BC's GHG emissions through both the CleanBC Plan (released on December 5, 2018) and the CleanBC Roadmap (released on October 25, 2021). Therefore, Renewable Gas has been recognized by the provincial government as essential to achieving the province's climate policy objectives.

[29] Appendix B-1.
[30] Ibid.
[31] Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act and Renewable and Low Carbon Fuel Requirements Regulation, known collectively as British Columbia's Low Carbon Fuel Standard.

2.3 *SUMMARY*

The Renewable Gas Program has achieved the objectives for which it was first developed and, with refinement, has continued to address the needs of FEI's customers. The program represents an innovative response to government policy and customer expectations over the past decade. In particular, the program has supported the provincial government's energy objectives by increasing the volume of renewable energy consumed by British Columbians and reducing GHG emissions. Further, FEI's customers that have participated in the Renewable Gas Program have recognized the value of Renewable Gas as a low carbon energy alternative for which they are willing to pay a premium in order to reduce their GHG emissions.

Both customers and government sought a lower carbon energy source enabling reductions in GHG emissions, which the Renewable Gas Program has delivered. In particular, the program's existing framework has worked well in the context of the relatively low Renewable Gas volumes FEI has acquired over this period, which amounted to approximately 250 thousand GJs in 2020. Ultimately, the Renewable Gas Program has delivered benefits to the utility, government and customers over the past decade, within the operating environment for which it was developed.

As discussed in Sections 3, 4 and 5, the program's operating environment has evolved and become more complex. The majority of participants during the first 10 years were fairly homogeneous in their expectations and the regulations addressing GHG emissions were less of driving a factor. Today, different customer segments have increasingly different motivations to purchase Renewable Gas. These motivations appear to be primarily driven by regulatory changes, but may also be attributable to internal objectives to address GHG emissions. In its current form, as a simple opt-in program, the Renewable Gas Program will be unable to provide value to market participants in the years ahead. The next sections explore how the operating environment, including both government policy and customer expectations, has evolved and hence the need to explore how the Renewable Gas Program should be revised to serve all gas customers, and maintain the viability of the gas delivery system into the future.

3. EVOLUTION OF CLIMATE CHANGE POLICY

3.1 *INTRODUCTION*

In this section, FEI reviews the climate policy that led to the development of the Renewable Gas Program in 2010, and the changes in public energy policies at the federal, provincial and local government levels since that time, which are driving the proposed changes to the Renewable Gas Program in this Application.

When FEI first sought approval from the BCUC for the Biomethane Program in 2010, the development of Renewable Gas was still in its infancy and the program was designed to meet the needs of customers who were seeking a lower carbon gas offering. At that time, government climate policy contemplated the reduction of GHG emissions, but did not include specific targets or requirements for the use of energy in specific sectors of the economy. As described in this section, the scope of climate policies has changed since the approval of the Biomethane Program, including the introduction of the CleanBC Roadmap which sets GHG emissions reduction targets across all sectors of the economy and, in particular, the building, transportation and industrial sectors. At the same time, climate policy at all levels of government has recognized the expanded use of Renewable Gas, including RNG and hydrogen, as key to achieving climate targets. In subsequent sections of this Application, FEI identifies how its proposed Renewable Gas Program supports these emission reduction policies.

This section is organized as follows:

- Section 3.2 provides an overview of the evolution of climate policies since the 2010 Biomethane Application.
- Section 3.3 describes federal climate policies.
- Section 3.4 describes provincial climate policies.
- Section 3.5 describes municipal and local government policies.
- Section 3.6 describes the policies encouraging growth in Renewable Gas supply.

3.2 *OVERVIEW OF EVOLUTION OF CLIMATE POLICIES*

FEI developed the Biomethane Program in 2010 in response to provincial climate policy and also as a solution for customers wanting a lower carbon gas offering. At the time of filing the 2010 Biomethane Application, the framework for provincial energy policy was the 2007 BC Energy Plan which committed the province to: (1) addressing climate change by harnessing clean and renewable energy to reduce overall GHG emissions; and (2) a renewed focus on the efficient use of energy sources. The provincial government's commitment to reducing GHG emissions and increasing the development of clean energy were re-affirmed in the 2010 speech from the throne and through the subsequent passage of the CEA. The CEA listed energy objectives to be

considered by the BCUC, as discussed in Section 3.2. Further, the BC-LCFS[32] was enacted in BC in 2008 and provided standard mandates for Carbon Intensity (CI) limits on regulated fuel types, including gasoline and diesel. While this policy did not have an immediate effect on the uptake of Renewable Gas for vehicles, FEI has since enrolled customers that use Renewable Gas in combination with conventional natural gas in their vehicles. Together, these objectives provided a compelling reason for FEI to pursue a Renewable Gas Program. In FEI's view, it had a central role to play in achieving the objectives of the CEA by pursuing renewable resources and in promoting energy efficiency

FEI's proposals in the 2010 Biomethane Application established the Renewable Gas Program, and included proposals for constructing facilities to upgrade biogas to biomethane for injection into the distribution system, and for a Renewable Gas offering. It also advanced the above-noted government policies favouring the use of renewable energy sources and reducing GHG emissions. In particular, the Renewable Gas Program has enabled FEI to play a central role in achieving the objectives of the CEA by pursuing innovative initiatives such as partnering with suppliers to develop renewable energy sources, reducing GHG emissions, and reducing waste by using biogas and biomass instead of conventional natural gas.

Since the 2010 Biomethane Application, policies to reduce GHG emissions at the federal, provincial and local levels have expanded. These policies aim to increase energy supply from renewable sources, including Renewable Gas, in conjunction with the implementation of other initiatives to address climate change. To illustrate the evolution of governmental polices over the intervening period, Figure 3-1 below shows the climate policies at the time of the filing of the 2010 Biomethane Application and policies that have been announced or implemented since then.

[32] Greenhouse Gas Reduction (Renewable and Low Carbon Fuel Requirements) Act and Renewable and Low Carbon Fuel Requirements Regulation, known collectively as British Columbia's Low Carbon Fuel Standard.

Figure 3-1: Growth in Climate Change Policies since the 2010 Biomethane Application

As the figure above shows, the majority of policies have been implemented from 2016 and onwards. In the sections below, FEI describes these federal, provincial and local government policies, including those policies that have yet to be implemented.

3.3 *FEDERAL GOVERNMENT POLICIES*

Following the introduction of the Renewable Gas Program, the federal government released a number of policies targeting a reduction in Canada's GHG emissions, which are discussed below.

In 2016, the federal government published the Pan-Canadian Framework on Clean Growth and Climate Change in collaboration with provincial and territorial governments, and in consultation with Indigenous peoples. The framework was developed to meet Canada's emissions reduction targets, grow the economy, and increase resilience in the face of a changing climate.[33] As the framework recognizes: "taking strong action to address climate change is critical and urgent. The cost of inaction is greater than the cost of action."[34]

In 2018, the federal government introduced a number of policies, including the creation of the Clean Fuel Standard (CFS) and the implementation of a federal carbon taxation system.

First, the CFS targeted GHG emissions by reducing the carbon content of the fuels used for transportation and heating purposes. A draft updated plan was released in 2020 and states that producers and distributors of liquid fuels like gasoline, diesel and oil, which are mainly used in the

[33] https://www.canada.ca/content/dam/themes/environment/documents/weather1/20170119-en.pdf.
[34] https://www.canada.ca/en/services/environment/weather/climatechange/pan-canadian-framework/introduction.html.

transportation sector, must reduce their carbon content by 2.6 percent by 2022 and 13 percent (below 2016 levels) by 2030.[35]

Next, the federal government passed the *Greenhouse Gas Pollution Pricing Act*, implementing a federal carbon taxation system first announced in 2016, under which provinces were required to place a price on carbon of at least $10 per tonne of carbon dioxide equivalent emissions. The price would rise by $10 per tonne a year for the next four years, reaching $50 per tonne by 2022. In December 2020, the federal government announced that it planned to increase the price on carbon as part of a push to meet and surpass Canada's goal of reducing greenhouse gas emissions by 30 percent (below 2005 levels) by 2030. Under this revised plan, the price on carbon would rise by $15 per tonne a year for the next eight years beginning in 2023, reaching $170 per tonne in 2030. As discussed below, the BC provincial government has also implemented its own system of carbon taxation and has announced its intention to align with the latest federal amendments in the CleanBC Roadmap; therefore, the *Greenhouse Gas Pollution Pricing Act* does not apply in BC.

Lastly, in 2020 and 2021, the federal government updated the GHG emission targets for 2030 and 2050. For 2030, the federal government committed to a reduction of 45 percent from 2007. For 2050, the federal government committed to net zero emissions.

3.4 *PROVINCIAL GOVERNMENT POLICIES*

Provincial climate change policy has also developed significantly since 2010, creating new challenges and opportunities for FEI and its customers. Similar to the federal policies outlined above, the provincial government has demonstrated a commitment to reducing GHG emissions.

In 2017, the provincial government enacted the *Climate Change Accountability Act*[36] (CCAA) which included targets for reducing GHG emissions in BC. The CCAA includes targets of 16 percent below 2007 levels by 2025, 40 percent by 2030, 60 percent by 2040 and 80 percent by 2050.[37] The CCAA also includes a climate change accountability framework, which includes an independent advisory committee and detailed annual reporting on actions taken to reduce emissions and manage climate change risks.

The CCAA requires the Minister of Environment and Climate Change to establish sector-specific targets for GHG reductions by March 31, 2021 and to then review these targets by the end of 2025 (and at least once every five years thereafter). In March 2021, sectoral targets for 2030 were established, expressed as a percentage reduction from 2007 sector emissions. The reductions expected are 27 to 32 percent for transportation, 38 to 43 percent for industry, 33 to 38 percent

[35] https://www.canada.ca/en/environment-climate-change/services/managing-pollution/energy-production/fuel-regulations/clean-fuel-standard/about.html.
[36] [SBC 2007] Chapter 42.
[37] https://www2.gov.bc.ca/gov/content/environment/climate-change/planning-and-action/legislation.

for oil and gas, and 59 to 64 percent for buildings and communities.[38] The targets will apply a more focused and directed approach to reducing emissions in these sectors.

3.4.1 CleanBC Plan and Roadmap to 2030

In 2018, the provincial government released its CleanBC Plan aimed at reducing emissions while creating jobs and economic opportunities. This plan laid out a path for BC to reach 75 percent of the 2030 GHG reduction targets, with the remaining 25 percent reduction still to be determined. FEI's target of 15 percent Renewable Gas (equating to approximately 30 PJs by 2030) came out of the 2018 Clean BC Plan.

On October 25, 2021, the provincial government released the CleanBC Roadmap to 2030 (CleanBC Roadmap) as part of its commitment to achieve the provincially legislated GHG reduction target of 40 percent below 2007 levels by 2030.[39] A key aspect incorporated into the CleanBC Roadmap is the sectoral emissions targets. The sector-by-sector approach is intended to help the province meet its GHG emissions reduction goal by 2030 by introducing legislatively enforced accountability measures. The key priorities identified in the CleanBC Roadmap pertaining to these sectoral emissions targets include emissions reductions in the building, transportation, and industrial sectors, including an emissions cap for natural gas utilities. The policies in relation to each of these sectors along with the proposed increases to the carbon tax are described below.

3.4.1.1 CleanBC Roadmap - GHG Reduction Standard: Emissions Cap for Natural Gas Utilities

The 2018 CleanBC Plan enabled gas utilities to reduce emissions by increasing the renewable content of their gas stream to 15 percent renewable content by 2030. Displacing 15 percent of the gas supply with Renewable Gas would increase the annual supply of Renewable Gas in FEI's system to approximately 30 PJs.

The provincial government's approach with respect to the emissions of natural gas utilities was recently updated in the CleanBC Roadmap with the introduction of a GHG emissions cap. The cap, if introduced into legislation, will limit the overall emissions from the gas used by all customers of gas utilities including residential, commercial and industrial sectors. This is the first policy of this kind in Canada which places an obligation on gas utilities to reduce emissions on behalf of their customers. The cap, as laid out in the CleanBC Roadmap, is set at 6.11 Mt of CO_2e per year at 2030. This represents a 47 percent reduction in GHG emissions from 2007 levels, and will require utilities to increase Renewable Gas content, increase investments in energy efficiency and employ other mechanisms to lower emissions. FEI expects that Renewable Gas content exceeding 15 percent will be required to meet this lower emission threshold by 2030. Details on the cap are under development; however, FEI sees the potential Renewable Gas supply requirements being between 45 and 65 PJs by 2030.

[38] https://www2.gov.bc.ca/gov/content/environment/climate-change/planning-and-action/sectoral-targets.
[39] https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/cleanbc/cleanbc_roadmap_2030.pdf.

3.4.1.2 CleanBC Roadmap - Building Sector

A new carbon pollution standard will be incorporated into the BC Building Code to support a transition to zero-carbon new buildings by 2030. The standard will be performance-based and will be achieved using renewable and low carbon fuels, including Renewable Gas, in addition to building and equipment standards. Local governments will initially have the option to voluntarily adopt the new carbon pollution standard; however, the provincial government will mandate the standard through provincial regulation starting in 2024. As the extract from the CleanBC Roadmap provided below shows, the provincial government has identified Renewable Gas as a mechanism to achieve zero-carbon in new construction by 2030:

> **Zero-carbon new construction by 2030**: Current requirements for new construction focus on energy efficiency without directly addressing the issue of GHG emissions. Since natural gas is still a dominant, low-cost energy source for buildings, efficiency requirements alone are not enough to meet our climate targets. That's why we're adding a new carbon pollution standard to the BC Building Code, supporting a transition to zero-carbon new buildings by 2030. We're already working with local governments to develop voluntary carbon pollution standards. Those communities will serve as pilots for future province-wide requirements. The standard will be performance-based, allowing for a variety of options including electrification, low carbon fuels like renewable natural gas, and low carbon district energy. In 2023, we'll review our progress and, based on what we've learned, we'll start phasing in provincial regulations over time (2024, 2027, 2030). We'll also incorporate energy-efficiency standards for existing buildings into the BC Building Code starting in 2024.[40]

In addition, the CleanBC Roadmap lays out a plan that after 2030, all new space and water heating equipment sold and installed in BC will need to be at least 100 per cent efficient. The Roadmap identifies that electric heat pumps, gas heat pumps, and hybrid gas and electric heating systems will be able to be installed after 2030.

3.4.1.3 CleanBC Roadmap - Transportation Sector

The *Greenhouse Gas Reduction (Renewable & Low Carbon Fuel Requirements) Act* and the *Renewable & Low Carbon Fuel Requirements Regulation*, which are collectively known as the BC-LCFS, focus on reducing environmental impacts of transportation fuels. The BC-LCFS sets CI reduction targets each year with the goal of 20 percent total reduction by 2030.

Organizations generate credits by using fuels with a CI below the targets and receive debits for fuels with a CI above the targets. Each credit represents 1 tonne of carbon dioxide equivalent that was either removed from the atmosphere or not released into the atmosphere as the result of

[40] Page 40, https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/cleanbc/cleanbc_roadmap_2030.pdf.

direct, beyond business-as-usual action by a project proponent. These credits can be traded between companies or banked for future use.

Conventional natural gas is below the current CI threshold in the BC-LCFS. FEI's Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) transport customers can earn credits under the BC-LCFS and sell them to other organizations, reducing the cost of adopting a low carbon transportation solution. As an even lower carbon fuel, Renewable Gas presents an opportunity for FEI's customers in the transport sector to further exceed the CI threshold in the BC-LCFS, earn more credits with Renewable Gas, and sell the credits to offset the costs of the Renewable Gas supply.

The CleanBC Roadmap states that the provincial government will increase the stringency of the BC-LCFS. New targets will be developed for medium and heavy-duty vehicles, as the costs and difficulty to electrify these vehicles remain high. The provincial government also intends to modernize the legislation governing the BC-LCFS, including expanding it to cover marine and aviation fuels beginning in 2023. The BC-LCFS is described further below in Section 5.7.2.

3.4.1.4 CleanBC Roadmap - Industrial Sector

The CleanBC Roadmap sets out that all new large industrial facilities need to have a plan to achieve net-zero emissions by 2030 and demonstrate alignment with BC's interim 2030 and 2040 targets. Moreover, emitters of methane will be required to reduce their emissions 75 percent by 2030 and have emissions close to zero by 2035. FEI will explore opportunities for Renewable Gas to serve these sectors as they seek low-carbon alternatives. It is unclear at this point how these industrial requirements overlap with the emission cap for utilities.

3.4.1.5 CleanBC Roadmap - BC Carbon Tax

As discussed above, the provincial government has also implemented its carbon taxation system and, as such, the *Greenhouse Gas Pollution Pricing Act* does not apply in BC. The provincial carbon tax is $45 per tonne ($2.31/GJ) as of April 1, 2021 and is currently proposed to increase at the same level as the federal carbon tax plan – escalating at $15 per tonne per year after 2022 and reaching $170 per tonne by 2030. This would have the effect of increasing the carbon price on a gigajoule of natural gas to approximately $8.40 by 2030. 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,[41] thereby incentivizing customers to transition to a lower-carbon fuel.

3.5 *MUNICIPAL AND LOCAL GOVERNMENT POLICIES*

An area of significant change since the Renewable Gas Program was developed is the evolution of municipal and local government to reduce emissions which have the effect of constraining the

[41] https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/125_2008#part4.1.

use of natural gas in buildings. Before the provincial government released the CleanBC Roadmap in late 2021, the climate and energy policies at the local government level were evolving at a much faster pace than either provincial or federal policy. The majority of local governments in BC signed the BC Climate Action Charter, a voluntary agreement between the BC provincial government and Union of BC Municipalities under which each local government signatory commits to take action on climate change. In doing so, municipalities and local governments began undertaking their own initiatives, in addition to provincial efforts, to reduce emissions. In recent years, 34 municipalities in BC have also declared climate emergencies, including Surrey, North and West Vancouver, Vancouver, Burnaby, Richmond, New Westminster, and Port Moody.

Along with these declarations, a growing number of local governments are implementing changes to their building codes, planning guidelines, or zoning bylaws in order to reduce GHG emissions in new building construction projects and in some cases existing building retrofits and improvements. As discussed in turn below, this is being achieved by: (1) establishing GHGi target limits for new construction necessitating the use of low carbon or renewable energy; and (2) incentivizing developers to use electricity as a low carbon solution (or in some cases to not connect to a "fossil fuel supply grid" system). The existing Renewable Gas Program is not designed to meet these GHGi or related emission intensity targets, necessitating FEI's proposals for Renewable Gas Connections in this Application.

3.5.1 GHGi Target Limits for New Construction to be met with Low Carbon or Renewable Energy

A number of local governments have adopted the BC Energy Step Code (Step Code) along with a GHGi[42] target for new building construction projects. The Step Code is an optional provincial building code that provides the tools for municipalities to adopt a higher level of energy efficiency in new construction that goes above and beyond the requirements of the BC Building Code. Local governments can reference the Step Code in a policy, program or bylaw, requiring that builders then comply with the Step Code for new construction projects. The Step Code is a fuel neutral code (i.e., does not specific the type of fuel used to achieve the target) and focuses on improved energy efficiency for the building, such as a tighter building envelope and the use of higher efficiency mechanical equipment. As its name suggests, the Step Code is structured as a tiered energy performance code with improved energy performance targets applicable in each tier. The Step Code is discussed further in Appendix A.

In addition to the Step Code, some local governments have developed and implemented their own GHGi targets for new building construction projects. The addition of GHGi targets, in conjunction with Step Code performance targets, means that only an energy source with lower carbon emissions can be used in new construction.

[42] Greenhouse Gas Emissions intensity (GHGi) is the total annual GHG emissions from all the energy use for the operation of a building. GHGi is calculated per square meter per year, by multiplying the total amount of a building's energy use in one year by the carbon intensity of each energy source and dividing it by the building's gross floor area. The unit of measure is in $kgCO_2e/m^2$ per year.

A building using natural gas for space and water heating cannot meet some of the more stringent GHGi targets; however, the carbon intensity of Renewable Gas is low enough to meet the Step Code and municipal GHGi targets. However, without changes to the Renewable Gas Program, only electricity can currently be implemented in a manner that meets the permanency criteria set by local governments. Local governments have yet to view Renewable Gas as a viable low carbon energy source because of perceived uncertainties around Renewable Gas supply and the voluntary structure of the existing Renewable Gas Program, which allows customers to leave the program at any time. As a voluntary opt-in only service, the program currently lacks permanency and therefore does not provide local governments with certainty regarding the GHGi of new construction projects. Therefore, FEI is proposing a Renewable Gas service offering for the life of a building, enabling long-term GHG emission reductions in alignment with the criteria set by local governments.

Some of the common current GHGi target levels added to the Step Code and their impact on gas appliance use using conventional natural gas are set out in the table below.

Table 3-1: Common Examples of GHGi Targets for New Single Family Homes

GHGi Levels	Natural Gas Appliance Use to Meet Target
6 $kgCO_{2e}/m^2$	Domestic hot water only, or convenience gas appliances only such as fireplace, cooktop and/or BBQ
3 $kgCO_{2e}/m^2$	Convenience gas appliances only such as fireplace, cooktop and/or BBQ. No space or water heating.
1 $kgCO_{2e}/m^2$	No gas appliances. Note: that at current carbon intensity levels, electricity is unlikely to meet this target in many buildings.

One example of a local government adopting its own policies in addition to the Step Code is the District of North Vancouver (DNV), which passed a bylaw adopting a low carbon energy approach in December 2020. The new bylaw came into effect on July 1, 2021 and offers two compliance paths for new construction buildings. Part 9[43] residential buildings (i.e., single family home, coach houses, townhouses) have to be designed and constructed to meet either Step 5 (see Appendix A for detail on the five Step Code levels) of the Step Code with a GHGi of 3kg $CO_2e/m^2/yr$ or Step 3 with a Low Carbon Energy System (LCES). The DNV refers to the LCES as one "*that uses primarily low carbon energy sources to provide heating, cooling, and hot water for a building, and has a total modelled greenhouse gas intensity of no more than 3kg $CO_2e/m^2/yr$.*[44] The current GHGi baseline for new construction using conventional natural gas is in the range of approximately 11 to 27 kg CO_{2e}/m^2 for homes.

In order for FEI to serve a new Part 9 building customer in the DNV, FEI would need to provide Renewable Gas (and the percent of Renewable Gas would vary depending upon many factors including but not limited to the building archetype, see page 6, Appendix A) and FEI must ensure

[43] Part 9 is reference to Part 9 of the BC building code which is intended for single family and small commercial buildings.
[44] https://www.dnv.org/building-development/energy-step-code.

the building occupant uses Renewable Gas for the life of the building. However, with FEI's current Renewable Gas Program, FEI cannot satisfy municipal requirements because of the lack of permanency due to the voluntary nature of the program. As such, FEI is not able to provide service to newly constructed residential homes in the DNV. While some builders and developers may install a convenience gas appliance (e.g., a gas cooktop or BBQ), the additional installation costs mean most builders or developers instead opt to use only electricity.

The adoption of GHGi targets at the local government level has resulted in a complex patchwork of regulations across BC. The implementation of GHGi levels, and the range of targets that have been set vary substantially, from 3-6 $kgCO_{2e}/m^2$, with some municipalities indicating a desire to move to 1 $kgCO_{2e}/m^2$. Municipalities may adopt a GHGi regulation for the entire geographic bounds of a city, as seen in the DNV, but limit the application of such regulation to certain building types or sub-building types. Similarly, GHGi requirements may be set at the permit level for a specific home or development or may be required via a rezoning application. In some cases municipalities may use a combination of one or more of these mechanisms to effect the desired GHG reduction outcome. Therefore, there is no consistency in approach or adoption across FEI's service territory, which makes creating a Renewable Gas offering to meet these inconsistent targets challenging.

To demonstrate the complexity and diversity of rules and regulations at the local government level, FEI provides in Appendix A a description of the approaches taken by a sample of local governments implementing GHGi targets, including the District of North Vancouver, City of Vancouver, City of Burnaby, City of Richmond and City of Surrey.

As noted above, meeting GHGi targets set by local governments can be challenging, leading builders and developers to select electricity, which they perceive to be simpler, instead of gas-based energy solutions. While it is possible for a developer to opt to add in a convenience gas appliance, this adds both costs and emissions which may need to be counted in the building design. This can impact building approval timelines and potentially impact a final building permit approval. Therefore builders and developers design their houses to be 100 percent electricity to ensure a timely approval from a municipality. It is expected that municipalities with policies like North Vancouver and Vancouver will see very few new residential gas attachments as a result of the GHGi targets unless there is a viable Renewable Gas solution.

3.5.2 Incentives to Encourage GHG Emissions Reduction in New Construction

In addition to the variety of GHGi targets being applied to buildings, local governments also rely on incentives for builders to reduce emissions in new construction projects. Similar to GHGi targets, the approaches taken by local governments often differ and may only apply to specific projects rather than the entire geographic scope of the municipality or local government.

FEI provides two public examples of local governments incentivizing developers to use a renewable energy (rather than natural gas) below; however, there are many more instances

where a developer, through the zoning negotiation process, has been deterred from installing natural gas service.

- **City of Surrey:** The council for the City of Surrey has recently approved a Zero Carbon Incentive to be applied to new buildings built in the Darts Hill Neighbourhood.[45] The incentive is intended to encourage the construction of zero carbon operation buildings. The Zero Carbon Incentive allows for additional densities measured in Floor Area Ratio (FAR), or Units Per Hectare (UPH). To qualify for the incentive, buildings must have 100 percent of the operational energy needs of the site and building met with non-polluting energy, including heating, hot water, and cooking, and the building must not be connected to a fossil fuel supply grid. This is in addition to any Step Code and City of Surrey energy and sustainability provisions already in effect.

- **District of Squamish:** On April 20, 2021, the District of Squamish adopted a Low Carbon Incentive Program Bylaw[46] to encourage the construction of buildings that use low carbon energy sources such as electricity rather than high carbon energy sources such as fossil fuels. The focus of the energy use is ongoing operations, most notably space and water heating appliances such as furnaces or hot water tanks. The Low Carbon Incentive would apply community-wide to all new residential development within certain zoning. The proposed incentive structure is to establish a new base maximum floor area ratio in the subject zones that is one third of the existing maximum density. This reduced density would be the density that could be achieved for buildings that use higher carbon energy sources such as natural gas powered furnaces or hot water tanks. Developments that utilize low carbon energy sources could achieve a bonus maximum floor area ratio, which would be the equivalent of the current density. Given the significant density bonus for low carbon development, it is expected that most builders would utilize low carbon energy sources such as electricity to meet the city requirements and gain the added floor area ratio.

In addition to this direct financial impact on developers, city planners exert influence on builders to conform to local government policies that reduce emissions, whether adopted in a bylaw or other policy. Further, city planners currently favour electricity-based solutions, often reflecting a lack of understanding at the planning level or a concern about the existing program's lack of permanence as discussed in Section 3.5.1 above. As a result, city planners are often resistant to builders or developers proposing Renewable Gas solutions for their buildings. From a practical perspective, builders and developers are reticent to unnecessarily add to their project costs (direct financial impact) or cause delay to the approval of permits (indirect financial impact), and therefore, conform to local government policies as implemented by city planners. Ultimately, narrowing the available low-carbon energy solutions to electricity alone impedes the ability of

[45] Darts Hill Neighbourhood Concept Plan: https://www.surrey.ca/sites/default/files/media/documents/DartsHillNCP.pdf.

[46] District of Squamish, Low Carbon Incentive Program: https://squamish.ca/yourgovernment/projects-and-initiatives/2020-zoning-bylaw-update/low-carbon-incentive/.

customers to choose gas as their preferred energy source and prohibits FEI from connecting new customers in this sector.

3.5.3 Local Governments to be Granted Greater Autonomy to set GHGi Targets

The Premier's mandate letter to the Attorney General and Minister responsible for Housing indicates that local governments will be granted greater autonomy to set building policies and emissions reduction targets at their discretion:

> Build on our government's work to require new buildings and retrofits to be more energy efficient and cleaner by supporting local governments to set their own carbon pollution performance standards for new buildings. [47]

Increasing the autonomy of local governments to set emissions reduction targets could further limit energy choices for customers and create unequal access to gas service in FEI's service territory without a viable Renewable Gas solution. A new building in a municipality with a strict building GHGi target will not have access to FEI's gas system and service, while another new building across the street without a GHGi target will be able to continue to use the gas system.

Increased regulatory oversight at the local government level is evident with the release of the CleanBC Roadmap, in which the provincial government describes adding a new carbon pollution standard to the BC Building Code in order to support a transition to zero-carbon new buildings by 2030. Local governments will serve as pilots for future province-wide requirements. The provincial standard will be performance-based, allowing for a variety of options including electrification, low carbon fuels like Renewable Gas, and low carbon district energy. The adoption of the carbon pollution standard into the BC Building Code will pave the way for all new buildings to be zero carbon by 2030, which in the long term could potentially improve the consistency of regulations through a single provincial building code measure across the entire province. It is FEI's understanding that, in the interim, the carbon pollution standard will provide local governments with the regulatory authority to adopt GHGi targets for buildings in their municipality. These communities will serve as pilots for future province-wide requirements.

In 2023, the province will review progress on the GHGi standards and start phasing in provincial regulations over time. In the meantime, local governments will continue to create a patchwork of bylaws and regulations across the province.

3.5.4 Reducing Emissions in Existing Buildings

FEI's existing customers are also affected by the local government regulations and other policies that require reductions in emissions. An example of this type regulation is the City of Vancouver's Climate Emergency Action Plan, which aims, amongst other measures, to cut the carbon pollution

[47] Premier's mandate letter to the Attorney General and Minister responsible for Housing, November 26, 2020: https://www2.gov.bc.ca/assets/gov/government/ministries-organizations/premier-cabinet-mlas/minister-letter/eby_mandate_2020_jan.pdf.

from building operations in half from 2007 levels by 2030. This is to be accomplished by requiring a switch from fossil fuel-based space heating and hot water systems to renewable energy-based systems beginning in 2025. Commercial buildings have similar limits and policies in place.

The following local governments have approved climate action plans to address carbon emissions in existing buildings:

- City of Victoria
- City of North Vancouver
- District of West Vancouver
- Port Moody
- City of New Westminster
- Whistler
- District of Squamish
- Saanich

The above list only includes local governments that FEI is aware of having climate actions plans whereby the emissions from existing buildings is addressed. The list is not necessarily exhaustive.

3.5.5 Municipal and Local Government Summary

Local governments have adopted a number of strategies, policies and bylaws designed to lower emissions in the built environment. The voluntary nature of the current Renewable Gas Program does not meet the permanency requirements of these policies. FEI's proposals in this Application offer an opportunity for FEI to provide a Renewable Gas service that conforms to local government policies, in conjunction with education regarding the benefits and availability of Renewable Gas as a viable solution in the energy market.

3.6 *POLICIES ENCOURAGING RENEWABLE GAS SUPPLY*

The CEA has been the key piece of legislation enabling an increase in the supply of Renewable Gas. When FEI applied for approval of what was then called the Biomethane Program in 2010, the energy objectives in the CEA, including the objective to reduce GHG emissions and reduce waste by encouraging the use of waste heat, biogas and biomass[48] supported FEI's development of the program. Since that time, the Lieutenant Governor in Council (LGIC) has prescribed undertakings to encourage public utilities to acquire Renewable Gas to reduce GHG emissions. These are described below.

3.6.1 Legislative Framework: The CEA and GGRR

On March 21, 2017, the LGIC issued OIC 161/2017 approving an amendment to the GGRR related to RNG as follows:

[48] https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/10022_01#section2.

> (3.7) A public utility's undertaking that is in the class defined in subsection (3.8) is a prescribed undertaking for the purposes of section 18 of the Act.
>
> (3.8) The public utility acquires renewable natural gas
>
> (a) for which the public utility pays no more than $30 per GJ, and
>
> (b) that, subject to subsection (3.9), in a calendar year, does not exceed 5% of the total volume of natural gas provided by the public utility to its non-bypass customers in 2015.

This GGRR amendment has facilitated the growth in RNG supply projects over the last four years by allowing FEI to acquire RNG up to a maximum price of $30 per GJ (supply volumes and projects are further described in Section 6).

More recently, in 2021, the provincial government amended the GGRR to broaden its scope and further increase the production and use of Renewable Gas, including renewable energy from green and waste hydrogen in BC, to reduce GHG emissions. The changes to the GGRR supporting growth in Renewable Gas supply include:

- Enabling utilities to acquire and supply green and waste hydrogen, synthesis gas[49] and lignin, in addition to RNG.
- Increasing the amount of RNG, green and waste hydrogen, lignin and synthesis gas that utilities (such as FEI and Pacific Northern Gas) can acquire and make available to their customers from five percent to fifteen percent of the total annual supply of natural gas;
- Broadening the methods by which utilities can obtain Renewable Gas to include producing it or upgrading it themselves for injection into the pipeline, paying a third party to produce it or upgrade it for pipeline injection, or purchasing hydrogen, synthesis gas or lignin to displace the use of natural gas at customer facilities; and
- Increasing the price cap utilities can pay to acquire Renewable Gas from $30 to $31 per GJ for contracts for purchase signed after March 31, 2021[50] and increasing the price cap annually by inflation.

The GGRR amendment enables FEI to be more flexible, stimulates investments in renewable energy and accelerates growth of Renewable Gas supply in the gas system. The changes to the GGRR will enable FEI to help to achieve the CleanBC Plan objectives, which enable a 15 percent renewable gas content in the natural gas system by 2030. Further, with the recent introduction of

[49] The CleanBC Roadmap inadvertently referred to this as synthetic gas, when it should be synthesis gas. Synthesis gas (or syngas) and lignin can be produced from biomass and used to displace the use of natural gas for industrial heat applications. Please refer to Section 6.3.1 of the Application for further details.

[50] Or, where the utility is producing the Renewable Gas, where the decision to construct the production facilities is made after March 31, 2021.

the CleanBC Roadmap in October 2021, FEI expects supply volumes to exceed 15 percent. This Application is consistent with growth in supply of this kind.

BC is the first province in Canada to pass legislation to encourage the production of Renewable Gas, including hydrogen. The GGRR supports the provincial government's hydrogen strategy, as described below, which includes goals to increase the production and use of renewable and low-carbon hydrogen to help achieve climate targets under CleanBC.

3.6.2 Hydrogen Policies

Hydrogen is a new and viable option for decarbonizing the gaseous fuel stream. While the potential for hydrogen has been around for many decades, the price advantage and robust natural gas supply chain has made if difficult for hydrogen to make inroads in the energy sphere. However, with increasing GHG reduction mandates, hydrogen is now seen as a viable option for decarbonizing the gas system, as recognized in the amendments to the GGGR permitting the acquisition of hydrogen described above.

Both the federal and provincial governments have a hydrogen strategy that is further outlined below.

3.6.2.1 Canada Hydrogen Strategy

The Hydrogen Strategy for Canada lays out a plan to position Canada as a global leader in clean renewable fuels. The strategy shows that, with the use of clean hydrogen, Canada can achieve net-zero goals by innovating and embracing new technologies. Canada is one of the top ten producers in the world today and is well positioned to decarbonize many sectors of the economy. The Hydrogen Strategy aims to position Canada as a world-leading producer, user and exporter of clean hydrogen and associated technologies. Areas of focus include[51] :

> Production: as Canada is rich in feedstocks such as water, electricity, fossil fuels and biomass and it is well positioned to become a top global producer of clean hydrogen.
>
> Distribution and storage: leverage Canada's extensive natural gas pipeline network, combined with new storage and distribution assets, to move hydrogen from production to end-use locations.
>
> Heat and power: develop a suite of tools and resources to blend low-carbon intensity hydrogen into Canada's natural gas networks, for use in both industry and the built environment.

[51] https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/environment/hydrogen/NRCan_Hydrogen-Strategy-Canada-na-en-v3.pdf.

Feedstocks for industry: develop policies that will ensure long-term certainty to encourage private sector investment and innovation for hydrogen can be used as an energy source and feedstock in industrial processes.

3.6.2.2 BC Hydrogen Strategy

For BC to meet its climate targets, renewable and low-carbon hydrogen will play a critical role and the BC Hydrogen strategy[52] lays out the actions that the provincial government will take to growing the hydrogen economy. Recognizing the potential of hydrogen in the province, industry and researchers will work together to outline the provincial government's plan to accelerate the production and use of low carbon hydrogen and be a world leader in the growing hydrogen economy.[53] These government supply strategies provide the backdrop for growing FEI's Renewable Gas supply portfolio.

The provincial government's hydrogen strategy includes 63 actions the province intends to pursue over short, medium and long term durations. The BC Hydrogen Strategy is meant to "accelerate the production and use of renewable and low-carbon hydrogen and be a world leader in the growing hydrogen economy." The Hydrogen Strategy includes:[54]

- Support for blending hydrogen with natural gas 2020-2025:
  - Establish a regulatory framework for injecting hydrogen into the natural gas and propane distribution systems
  - Include hydrogen as a prescribed undertaking under the GGRR
  - Partner with a utility to review the infrastructure requirements to accommodate up to 100 percent hydrogen in the distribution system55
- Support hydrogen injection trials into natural gas and/or propane distribution systems 2025-2030:
  - Mandate that new or modified natural gas or propane pipelines be hydrogen compatible
  - Support the introduction of hydrogen-tolerant equipment
  - Explore the role of hydrogen in meeting the CleanBC 15 percent renewable gas target

[52] https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/electricity/bc-hydro-review/bc_hydrogen_strategy_final.pdf.
[53] Page 5, https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/electricity/bc-hydro-review/bc_hydrogen_strategy_final.pdf.
[54] https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/electricity/bc-hydro-review/bc_hydrogen_strategy_final.pdf.
[55] Some of these activities are already underway.

- 2030-beyond:
    - Support large-scale hydrogen injection into the natural gas and propane distribution systems

In 2019, FEI and the province commissioned the BC Hydrogen Study that identified the significant role that hydrogen could play in achieving deep decarbonization goals.[56] Securing additional sources of Renewable Gas from a diversified group of suppliers will provide greater reliability of FEI's Renewable Gas supply. The study also identifies how the natural gas infrastructure is a strategic asset both for the transportation and the storage of hydrogen, with the ability to blend hydrogen into the natural gas in the system.

3.6.3 Partnering with Local Governments to Increase Renewable Gas Supply

Local governments have played a key role in partnering with FEI to increase the supply of Renewable Gas. Over the last few years, FEI has integrated increasing volumes of Renewable Gas into its system working with local governments such as the City of Kelowna, City of Vancouver, City of Surrey, Metro Vancouver, and the Capital Regional District:

- The Glenmore Landfill supply project was developed working in co-operation with the City of Kelowna to capture biogas created from landfill waste, upgrade it to RNG and inject it into the natural gas distribution system.
- The Surrey Biofuel facility closed loop organics processing operation collects and processes curbside organic waste from Surrey residents and businesses. Biogas produced by the facility is captured and upgraded to Renewable Gas.
- At the City of Vancouver's landfill, the conversion of landfill gas to Renewable Gas will be used in City vehicles and facilities and supports efforts to increase Renewable Gas supply and reduce emissions. The construction of the biogas facility is currently ongoing and FEI anticipates it to be complete by December 2024.
- Through the partnership between Metro Vancouver and FEI, a new facility has been constructed and is operational at the Lulu Island Wastewater Treatment plant in Richmond that generates biogas as a by-product of the wastewater treatment process.
- FEI has signed a supply contract with the Capital Regional District (CRD) for the CRD to supply RNG to FEI. This entails the construction of a new facility that will upgrade the biogas generated at Hartland Landfill to RNG.
- Additional discussions are ongoing with other communities including Indigenous communities, such as the Semiahmoo First Nation, interested in becoming Renewable Gas suppliers.

[56] https://bcbioenergy.ca/resources/bcbn-publications/british-columbia-hydrogen-study/.

FEI believes the gas delivery system and use of its existing gas infrastructure has significant additional potential to reduce emissions in BC across various sectors of the economy quickly and affordably and with minimum disruption. FEI discusses the role of the gas delivery system in the following Section 4.

3.7 *SUMMARY*

In this Section, FEI has described how climate policy at all levels of government is focused on reducing carbon emissions. The level of alignment between governments is indicative of a majority view in Canada, and a consensus in the scientific community, that addressing emissions is a key public interest. Given these realities, it is apparent that a transition to a lower carbon economy is well underway.

Through its Renewable Gas Program and other efforts, FEI has been at the forefront of efforts to decarbonize the natural gas supply to meet policy and customer desires. However, the policy environment has moved beyond what the original Renewable Gas Program was intended to offer. To ensure that Renewable Gas is a viable solution, a comprehensive update to the existing Renewable Gas Program offerings is required. Specifically, a Renewable Gas Program that can offer a permanent Renewable Gas supply for new buildings and a decarbonization of the existing system load is required. The proposals recommended in this Application will support government policy by advancing the use of Renewable Gas, providing our customers with offerings to reduce emissions in the various sectors including buildings, transportation and industry.

4. A DIVERSIFIED ENERGY SYSTEM IS IN THE BEST INTEREST OF BRITISH COLUMBIANS

4.1 *INTRODUCTION*

In this section, FEI discusses the value of the gas delivery system for delivering energy to customers and how leveraging the capabilities of the existing gas system will enable the reduction of GHG emissions in BC more quickly and with less disruption than other measures. A robust gas delivery system also complements other energy systems and ensures greater resiliency and energy affordability for all British Columbians.

FEI's assets will be critical to achieving government GHG emission targets. In particular, the extensive coverage and interconnectivity of the gas system makes the system a critical vehicle to deliver low carbon energy to British Columbians. Further, as a "drop-in fuel", Renewable Gas is an energy source that meets the objectives of all three levels of government (as discussed in Section 3), does not require significant expansions in energy delivery, does not require users to acquire new end use equipment, and as such, leads to relatively quick, easy and cost effective GHG reduction solutions.

This section is organized as follows:

- Section 4.2 explains why a diversified energy system is in the best interest of British Columbians.
- Section 4.3 sets out the significant and valuable benefits of the gas delivery system, including: effectively and efficiently meeting peak demand; maintaining energy redundancy; and keeping energy bills affordable for customers.
- Section 4.4 discusses how the existing gas delivery system can deliver rapid and long-term GHG emission reductions.

4.2 *A DIVERSIFIED SYSTEM IS NEEDED TO TRANSITION TO A LOWER CARBON ECONOMY*

FEI recognizes the important role it will play in an evolving energy landscape and that its contributions, through initiatives like the Renewable Gas Program, are key to reaching emission reduction targets at all levels. As federal, provincial and local governments enact policies that seek to reduce GHG emissions, FEI has proactively responded by aligning its operations and services with the needs of its customers and the need to meaningfully address climate change.

As outlined in Section 3.4, the provincial government has recognized that all potential forms of decarbonization must be leveraged in order to achieve an 80 percent reduction in emissions below 2007 levels by 2050. Reflecting the need to decarbonize the economy, FEI developed the Clean Growth Pathway to 2050 and established its 30BY30 target to reduce its customers GHG emissions by 30 percent by 2030.

As society contemplates the optimal pathways and investments needed to achieve BC's low carbon energy future, it is clear that leveraging the existing gas and electricity energy delivery systems is critical. High performing electric and gas delivery systems provides BC with greater flexibility in its energy options, greater affordability for its residents, greater system reliability and resiliency, and allows the optimal energy source to be used for a given application. FEI has more than 50,000 kilometres of existing piped energy delivery infrastructure located throughout the province and significant energy storage capacity, which are assets that can be leveraged and are needed to meet peak day and seasonal energy demand.

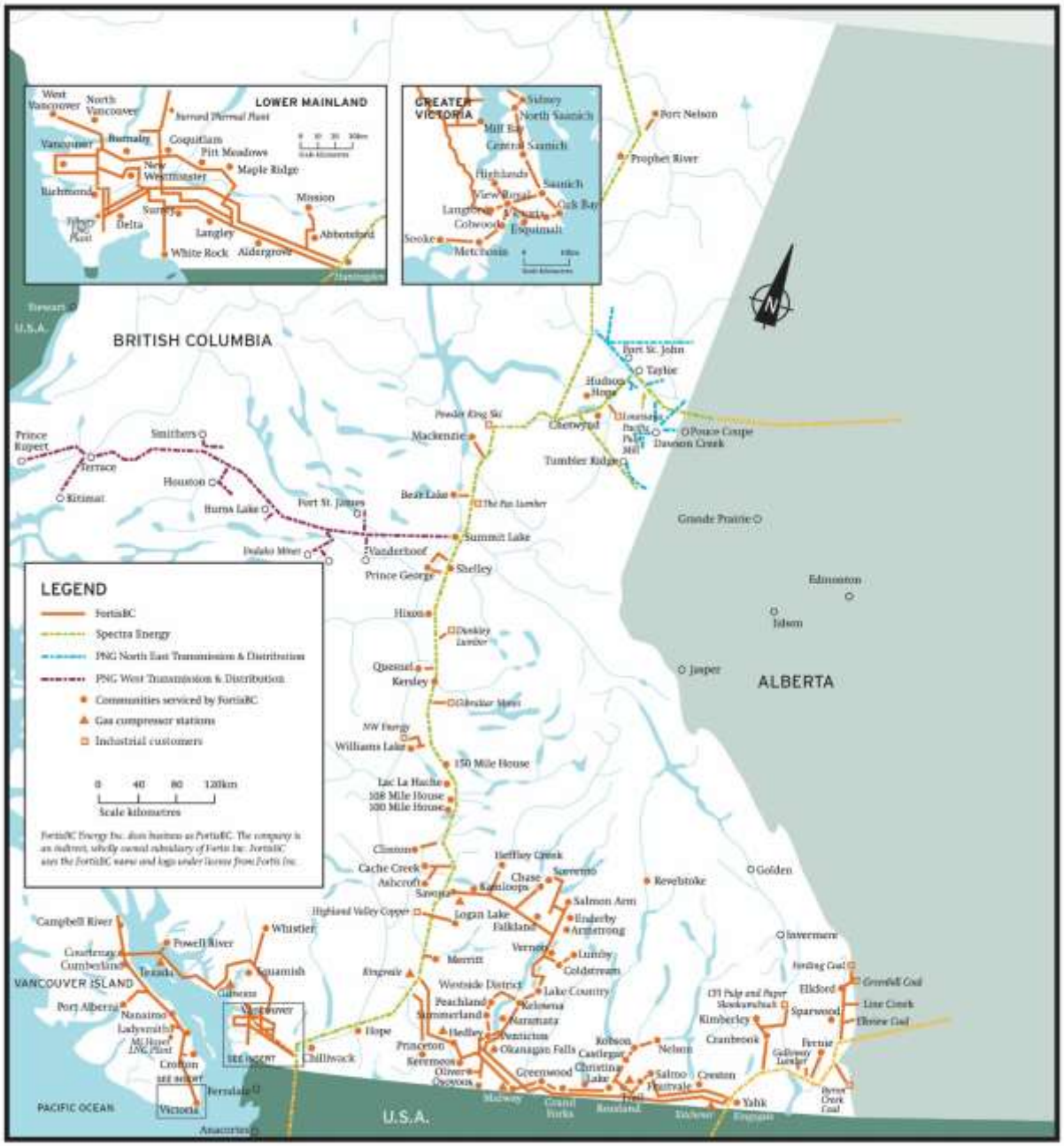
FEI expects that energy efficiency and the increased use of Renewable Gas will be the largest contributor's to FEI's avoided GHG emissions. Moreover, FEI expects new and different low carbon solutions to become commercially feasible over the intervening period, including hydrogen injection, direct hydrogen delivery, electrical energy storage (battery or other forums of storage), discrete generation, and hydrogen fuel cells – a number of which could be delivered through existing gas infrastructure.

In the sections that follow, FEI discusses the significant and valuable benefits of the gas delivery system and how it can deliver rapid and long-term GHG emission reductions to meet the government policies discussed above.

4.3 *THE BENEFITS OF THE GAS DELIVERY SYSTEM ARE SIGNIFICANT AND VALUABLE*

Gas infrastructure in the province is a multi-billion dollar asset, resulting from over 70 years of sustained development, which provides reliable, safe, affordable and high-quality energy services to British Columbians. Building a gas system today to replace the existing system would be cost prohibitive, making the existing system even more valuable to British Columbians. FEI operates over 50,000 kilometres of energy delivery infrastructure and has invested in significant energy storage capacity. Over three million British Columbians currently rely on natural gas service, with over 58 per cent of households in the province using natural gas as their primary heating source. The figure below illustrates the extent of FEI's infrastructure in the province.

Figure 4-1: Natural Gas Infrastructure Serving BC



The benefits of gas are reflected by FEI's continued customer growth. In 2018, FEI achieved its highest rate of customer growth, including new customers converting their home heating systems from high carbon fuels such as heating oil to natural gas helping to achieve the provincial government's GHG reduction targets. The marketplace recognizes that FEI delivers affordable, high-quality, reliable and safe energy services.

The continued use of the gas delivery infrastructure is a critical component of a decarbonized energy system in British Columbia and will mitigate cost of energy impacts to customers over the long term. As such, consumer preference for gas as an affordable energy source that can also be low-carbon should be recognized and harnessed. The proposed changes to the Renewable Gas Program, along with the growth of Renewable Gas supply, will help FEI to leverage the benefits of the gas delivery system, while reducing GHG emissions consistent with government policy, the utility's internal GHG-reduction strategies and the expectation of its customers.

As discussed below, FEI's gas delivery system:

- Has been designed to effectively and efficiently meet peak demand – serving customers when they need it most;
- Maintains energy redundancy in conjunction with other low carbon energy solutions; and
- Keeps energy costs affordable for customers by leveraging existing system benefits in the face of a period of increased investment due to the energy transition.

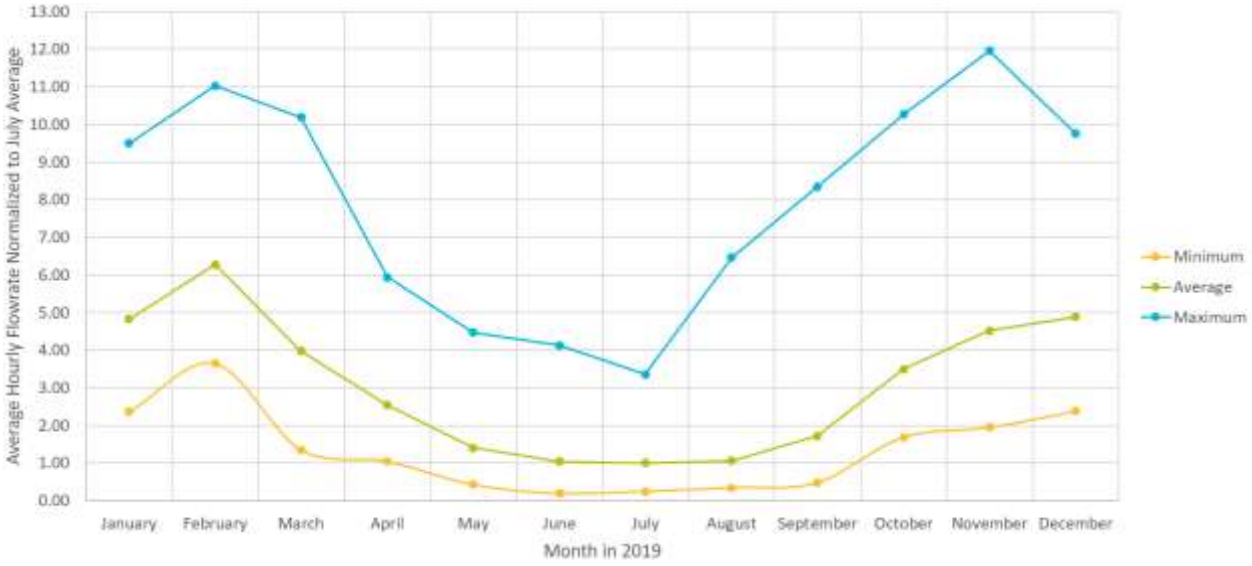
In Section 4.4, FEI discusses how the gas delivery system can deliver rapid and long-term GHG emission reductions in furtherance of government policy objectives.

4.3.1 Effectively and Efficiently Serves Peak Demand

One of the gas delivery system's unique characteristics and primary strengths is its ability to meet extreme peaks in demand, primarily driven by the heating needs of its customers during the winter months. Seasonal changes in heat demand (referred to as "peak load" or "peak demand") can be up to 400 to 500 percent greater than the utility's average demand. FEI's system can store, ramp up, and deliver high volumes of energy on short notice and can handle large changes in volumes over time without operational, reliability, or financial strain. In particular, the gas delivery system is designed to deliver significant volumes of energy in order to meet demand on very cold days.[57] This is demonstrated by the following graphic that shows the variance between summer low delivery volumes and winter high delivery volumes on the FEI gas system.

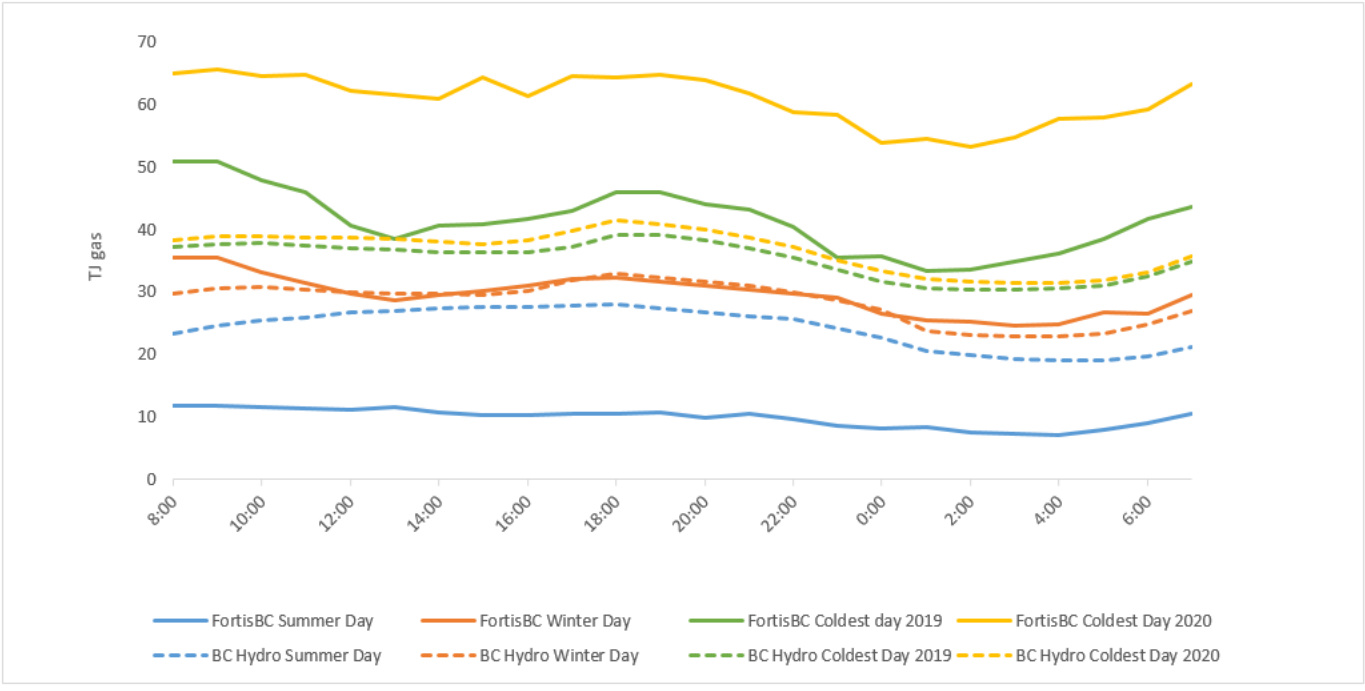
[57] For example, on the coldest day in 2019, the volume of gas delivered was 40 percent higher than an average winter day and over three times the energy delivered on a summer day.

Figure 4-2: 2019 Delivery Volumes on FEI's Gas System



Electricity systems are designed to deliver for peaks as well but the differences between low volume deliveries and peak deliveries are much smaller than the gas system. The following chart shows gas and electricity deliveries over a 24 hour period on summer day, a winter day, the coldest day in 2019 and the coldest day in 2020. As the graph demonstrates, the gas system is able to deliver nearly six times the capacity on the coldest day compared to an average summer day. In addition the gas system delivers twice the capacity of the electricity system on the coldest day.

Figure 4-3: Hourly Gas and Electricity Demand in BC



4.3.2 Maintains the Resiliency of the Province's Energy System

Maintaining the reliability and resiliency of the province's energy delivery system benefits all British Columbians who, as noted above, depend on the natural gas system for a number of essential functions. When energy systems are disrupted, it can cause significant hardship for those affected – as evidenced by the extreme weather-related disruptions in November 2021 caused by heavy rainfall and flooding. Having multiple forms of energy delivery provides for greater resiliency and minimizes the impact to customers when service is disrupted. Currently energy in BC is delivered via three main streams:

1. **Electricity:** Electricity makes up approximately 20 percent of the energy delivered in BC;
2. **Natural and Renewable Gas:** The gas system delivers approximately 23 percent of the energy delivered in BC;
3. **Liquid and Solid Fossil Fuels:** These fuels make up the remaining 55 percent of the energy delivered in the province.

This composition serves to provide greater resiliency to the energy delivery system should one source of energy be compromised. For example, in the event of a power outage, many consumers can still run a gas fireplace or cooktop. Diversification is beneficial to all energy consumers, avoids over-reliance on one energy stream, and ultimately prevents the risk or inconvenience created when a customer is left without energy to heat their home or operate their business. The importance of energy resiliency is magnified in the face of extreme climate-driven weather events.

4.3.3 Keeping Energy Bills Affordable for Customers

FEI's assets will play a critical role in the transition towards a lower carbon economy. Given the critical role of the gas system in transitioning to a lower-carbon economy, FEI has recognized the need for alternative energy products and services, such as the Renewable Gas Program, which leverage its existing assets while also reducing GHG emissions. Transitioning to a lower-carbon future will nonetheless come with increased costs, and FEI remains mindful of the need to continue servicing its customers while expanding its lower-carbon energy solutions to a broader customer base now and in the future. While FEI's need to invest in load growth opportunities in both the traditional and non-traditional parts of its business, investments in the gas system will benefit ratepayers in the long term.

Maintaining or increasing throughput on the system benefits all customers in mitigating increased energy bills. Typically customers that switch to alternative energy sources are those that can most afford to do so, as we have seen with the adoption of electric vehicles, which then leaves those remaining, who are not in a financial position to switch, bearing the increased costs. Furthermore, FEI's Demand-side Management programs, while having the effect of increasing rates, enable customers to invest in energy efficiency upgrades that in-turn decrease energy bills for consumers as their energy use declines.

A new energy economy is emerging, where energy consumers compare their energy bill to the cost of the next source of decarbonization in the future of the low carbon economy. The clean

energy momentum will define energy costs based on low carbon and renewable energy sources and technologies, which will then also shape the measure of affordability for energy. Renewable gas has the benefit of being a drop-in fuel that avoids the cost of conversion and retrofits when there are multiple demands on a household for GHG reductions in the low carbon economy.

The flexibility of a diverse energy system will also enable FEI to innovate and adapt as part of low carbon economy, and in response to continually evolving policy environment, while achieving a balance between affordability and low emissions for current and future customers. FEI considers a diversified energy delivery system, taking advantage of existing gas infrastructure, to be the cost-effective solution for energy consumers over the long term.

4.4 *GAS DELIVERY SYSTEM CAN DELIVER RAPID AND LONG-TERM GHG REDUCTIONS*

The gas delivery system is capable of contributing the largest and most rapid GHG emissions reductions across various sectors of the economy, including the building, transportation and industrial sectors. This can be achieved through the continued use the province's gas infrastructure in conjunction with "drop-in" fuels such as RNG and hydrogen, improvements in energy efficiency, along with other key mitigation options like carbon capture and storage. For example, FEI's contributions towards the achievement of the provincial government's 2018 CleanBC Plan, using Renewable Gas delivered through FEI's existing distribution system, will provide 75 percent of the plan's total emissions reductions in the built environment. The emission reductions under the CleanBC Roadmap will be even greater. The magnitude of these reductions support FEI's view that the provincial government expects the gas system will continue to play a central role in its strategy to reduce GHG emissions in this sector.

FEI's response to government policy has appropriately focussed on developing alternative energy products and services that leverage its existing assets while reducing their lifecycle carbon intensity. As this Application demonstrates, the growth of Renewable Gas as part of FEI's energy portfolio is essential to reducing GHG emissions in the province. As a "drop-in" fuel, Renewable Gas does not require significant expansion in energy delivery and end use infrastructure, meaning the displacement of conventional natural gas can be undertaken in an expedient and cost-effective manner as compared to other energy solutions.

Importantly, FEI's existing gas delivery system will continue to be used and useful, allowing FEI to continue to affordably deliver lower-carbon energy to its customers when they need it most.

4.4.1 FEI's Assets will Play a Role in Decarbonizing Important and Difficult to Decarbonize Sectors in BC

FEI's existing gas infrastructure serves important sectors of the economy in BC, and is well-suited to deliver low-carbon solutions to difficult-to-decarbonize end-uses, including the building, transportation and industrial sectors.

In the building sector, FEI can achieve emissions reductions in several ways, including: by helping its customers invest in energy efficiency upgrades, growing the Company's available Renewable Gas supply, and exploring carbon capture technologies. Over the past 10 years, FEI has invested over $386 million in energy efficiency, reducing customers' annual energy usage by 5.5 petajoules (PJs) on the gas system. The energy savings attributable to the gas delivery system have resulted in a cumulative reduction of 2.3 Mt of GHG emissions. As discussed in detail in Section 6 of the Application, FEI is also rapidly growing its Renewable Gas supply, with the number, scale and diversity of projects growing. Renewable Gas provides a "drop-in" solution to reduce emissions in buildings with homeowners or business owners continuing to use the gas appliances they are familiar with and without the need for homeowners or business owners to replace their equipment or undertake extensive building upgrades.

The transportation sector accounts for 40 per cent of BC's total emissions, making it a key sector where FEI can achieve significant and immediate carbon reductions with technology that is available today. FEI already provides innovative and clean technology enabling lower emissions throughout the transportation sector; however, decarbonization of this sector is challenging and will require the use of all available tools including cleaner transportation systems, increased investment in fuelling infrastructure, the development of clean trade corridors, and, importantly in the context of this Application, displacing high-carbon transportation fuels with cleaner fuels like natural gas, RNG, biofuels or hydrogen.

FEI anticipates that the province can achieve substantial emissions reductions by increasing its efforts to displace higher carbon fuels in the medium and heavy duty vehicle and marine transport sectors. First, by converting medium and heavy duty truck fleets and transit vehicles to liquefied natural gas (LNG) or compressed natural gas (CNG), the utility is helping the province meet its carbon emission reduction goals while helping operators save on fuel costs. Second, BC has had early success in advancing LNG in the domestic marine sector, which represents a foundation to build upon for other marine markets. For example, BC Ferries launched their fifth LNG vessel in 2019 and Seaspan Ferries operates two LNG vessels in BC waters since 2017. Both BC Ferries and Seaspan have plans to add more LNG vessels in 2022.

The gas delivery system will also lead to significant GHG reductions in industry by delivering renewable gas to industrial customers and harnessing the ability of industry to produce and consume renewable energy on-site. Many industrial energy consumers have significant potential to produce and/or consume synthesis gas, lignin and hydrogen that will displace natural gas consumption. These are important opportunities for BC as they will provide sources of Renewable Gas supply as well as providing economic opportunities for BC industries. There are also important opportunities to continue to invest in industrial energy efficiency improvements and other carbon reducing activities such as carbon capture, utilization and storage.

4.4.2 Reducing GHG Emissions Internationally

FEI can also leverage the potential of the gas sector to reduce GHG emissions internationally through LNG marine refuelling (referred to as bunkering) and LNG exports. FEI has the infrastructure in place, as FEI has completed construction of its first LNG expansion project at the

Tilbury facility which includes a new storage tank and additional liquefaction capacity. The Tilbury LNG facility is located on the Fraser River, giving access to vessels transiting international shipping routes, allowing LNG to be efficiently shipped to East Asia and along the west coast of America either by ISO container or bulk carrier. It is also an efficient and cost effective fuel supply for local, coastal, and international ship fleets.

4.5 *SUMMARY*

The climate policy imperatives being implemented at all levels of government are directly influencing and accelerating the need for the decarbonization of the natural gas system. In alignment with these policies, FEI is pursuing projects and changes to its products and services to address the need for emissions reduction, serve customer needs, and maintain the long-term health of the utility. FEI's assets, including the existing gas system, are critical to achieving GHG emission targets while maintaining affordability for British Columbians. Further, the continued use of the gas system will provide significant energy resiliency. The extensive coverage and interconnectivity of the gas network makes the system a critical vehicle to deliver low carbon across the province, and enables reductions in difficult to decarbonize sectors. The potential GHG emission reductions realized through FEI's proposed Renewable Gas Program are ultimately enabled through the versatility of Renewable Gas as a "drop-in fuel" in conjunction with the value of FEI's existing gas delivery system, which together enable FEI to deliver affordable lower-carbon energy to its customers when they need it most.

5. WHAT CUSTOMERS NEED FROM A RENEWABLE GAS PROGRAM

5.1 *INTRODUCTION*

This section summarizes the information reviewed and gathered by FEI through one-on-one interactions with customers and stakeholders, surveys and customer research. As part of its review of the Renewable Gas Program, FEI reviewed information gathered from customers and stakeholders through one-on-one interactions, surveys and other research and reached out to customers and stakeholders to better understand:

- The energy requirements of customers;
- How the need to reduce GHG is affecting the decisions customers make with respect to their energy requirements;
- How customers are reducing their GHG emissions; and
- The role of government, utilities, and energy consumers in reducing GHG emissions.

In general, FEI understands that customers want their gas service to be affordable and reliable, for it to provide comfort and convenience, for it to be efficient, and increasingly, for it to have low emissions. These gas service attributes are raised by each of FEI's customer classes, including its residential, commercial and industrial customers, with the weight placed on each attribute varying between each customer class, and sometimes within a customer class. The focus on reducing GHG emissions has emerged more recently, as customers seek to balance energy costs with reducing emissions.

The existing Renewable Gas Program was originally designed in response to government policy and customer expectations observed in the late 2000s and has served the needs of customers well. The program's early participants were primarily composed of residential customers who were concerned about their personal environmental impact, or provincial public sector organizations that were required to reduce their GHG emissions. In the intervening period, government policy and energy use have shifted to focus on emission reduction measures. For example, customers are now faced with increasing carbon taxes on GHG emissions that are currently expected to reach $8.40/GJ by 2030. In addition, some customers are subject to financial penalties and/or rewards for reducing their emissions, which strongly influences their demand for low carbon gas service. Given this backdrop, many potential program participants have service needs that the existing Renewable Gas Program does not adequately address, including providing a carbon neutral offering to new residential construction. Other customers are financially incentivised to use Renewable Gas, and pricing needs to be set appropriately for these customers.

This section is organized as follows:

- Section 5.2 describes customer feedback, research and surveys that have been completed in recent years.
- Section 5.3 describes the different residential customer segments and their various energy needs.
- Section 5.4 describes small commercial customer and their energy needs.
- Section 5.5 describes large commercial customer segments and their various energy needs.
- Section 5.6 describes industrial customer energy needs for various end uses.
- Section 5.7 describes how natural gas vehicle customer needs have changed over the years.
- Section 5.8 describes the challenges of performing a price elasticity analysis for Renewable Gas customers.

5.2 CUSTOMER FEEDBACK, RESEARCH AND SURVEYS

FEI gathers information regarding customer preferences, energy requirements, and energy use through one-on-one interactions with customers and stakeholders, including builders/developers, architects/engineers, HVAC contractors, and through surveys and customer research. This section outlines the information gathered and some of the key findings with respect to Renewable Gas.

5.2.1 Interactions with Customers and Stakeholders

The majority of feedback and information that FEI gathered from customers and stakeholders, including builders/developers, architects/engineers, and HVAC contractors, was through one-on-one interactions with FEI staff. FEI has approximately 40 staff in the roles of Residential/Commercial Energy Solutions Managers and Commercial and Industrial Account Managers who primarily work with their respective customer segments to assist them with their energy needs and provide energy solutions. Each staff member has an average of five interactions with customers a day, amounting to more than 1,000 interactions annually. These interactions can range from brief conversations, for example, to confirm unknown or outstanding information, to multi-hour conversations that require in-depth problem solving.

FEI staff work with builders and developers from the initial conception of a building project to its subsequent occupancy, which, for a large project, can amount to hundreds of hours of work. Further, FEI staff regularly meet with developers to help define building plans and locations for heating equipment and bring in equipment providers to facilitate education sessions for interested customers. Through these interactions with customers, FEI learns about the requirements of its customers, their energy needs, their goals or the goals of the project being developed, and how energy solutions can be tailored to service their energy needs.

Working with HVAC contractors, as well as equipment manufacturers, FEI staff learn about the qualities and benefits of their products and gain further understanding about the various end uses customers are looking for. FEI staff also learn about the competing electric options and what contractors and manufacturers believe are customers' perceptions of the gas and electric products. With the benefit of this information and understanding, FEI staff are in a position to promote gas equipment options to builders and developers as well as other HVAC contractors.

The efforts described above collectively amount to over 40,000 interactions, and thousands of hours of conversations with customers and stakeholders. Since the late-2000s, when FEI implemented a renewed focus on customer attachments and account management, FEI's capture rate for new residential construction has increased to over 80 percent annually.[58] As a result, FEI has increased its gas throughput over the last decade from the addition of these new customers which has helped to keep rates affordable for all customers.

From the insights gained from customers and stakeholders through these interactions, FEI has a robust understanding of the energy needs of consumers. Given the evolution of government policy with respect to emission reductions, FEI is well-placed to participate in, and contribute to, the transition to a lower-carbon economy. In particular, and importantly, these customer insights reinforce the need for the suite of solutions proposed in this Application.

Based on knowledge and discussions with customers some of the broad themes that emerge are:

1. **Customers Value Multiple Attributes of Gas Service:** Customers want gas service to be affordable, reliable, provide comfort and convenience, and to be efficient and have low emissions. These attributes are present in all customer classes, with the weight of each attribute varying between the circumstances of each customer class.
2. **Need to Balance Affordability and Emission Reductions:** Many customers want to reduce emissions, but also want the source of their energy to be affordable.
3. **Natural Gas is Preferred More Than Other Energy Sources:** Feedback from customers indicate they would rather have a home with natural gas over other energy forms. This is corroborated in Section 5.2.2.2 below from FEI's Renewable Gas Surveys.
4. **Customers Value the Benefits of Natural Gas:** For many years, FEI's customers have indicated that they want natural gas and the benefits it provides them in their home or business. In recent years, customers have increasingly sought to reduce their emissions and energy usage, and are looking to FEI to provide solutions that do not compromise the affordability, comfort, convenience and reliability of conventional natural gas.
5. **Customers Are Not Always Aware of Emissions Reduction Policies:** There is often a knowledge gap between FEI and its customers regarding the governmental policies that have been or are being implemented to reduce GHG emissions in BC and what these policies might mean to the energy services they currently receive.

[58] In the late 2000s, FEI's capture rate was approximately 57 percent.

5.2.2 Renewable Gas Surveys

In order to better understand the current views and attitudes of customers regarding Renewable Gas, FEI engaged a third party consultant, Innovative Research, to carry out several customer surveys on its behalf. The survey methodology was designed to ensure an impartial result and all survey and interview responses were anonymized to preserve the privacy of respondents. The surveys and interviews performed involved mass market customers, small business and existing RNG customers. The results indicate that respondents:

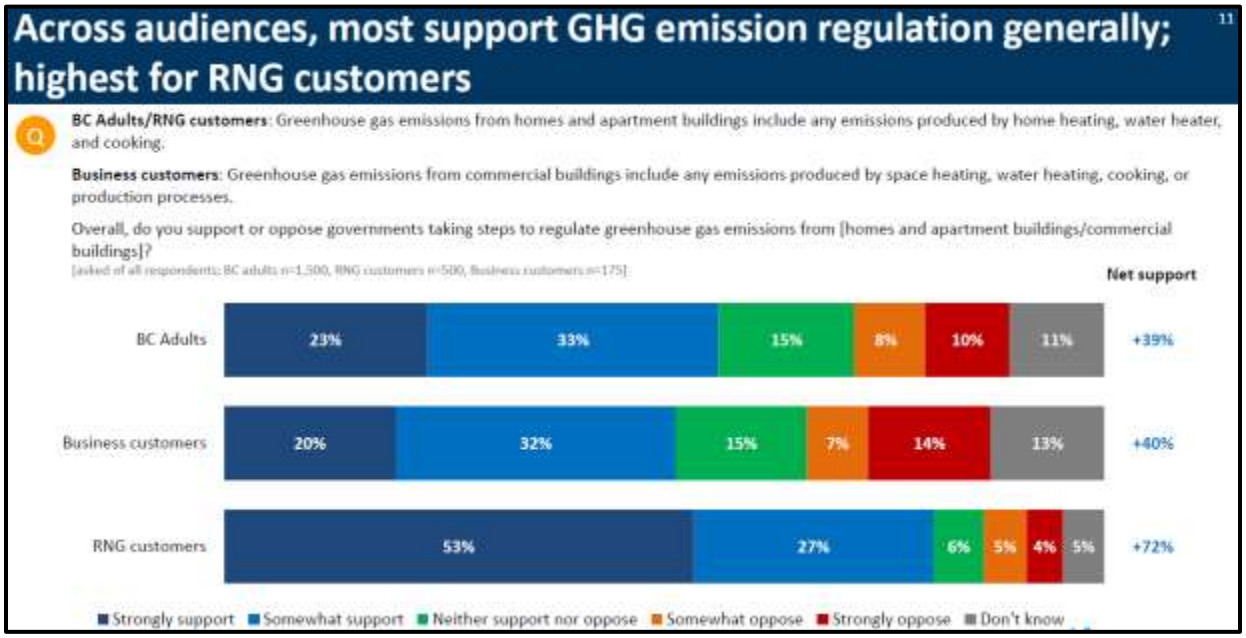
1. Support emissions regulations for building projects that are consistent across the province.
2. Desire continued access to natural gas service.
3. Support FEI's Renewable Gas investments and consider Renewable Gas to be part of the solution for reducing GHG emissions.
4. Remain conscious of the cost of Renewable Gas.

Summaries of the survey results are provided in Appendices B1 and B3 and summarized below.

5.2.2.1 Support for Consistent Building Emissions Regulation

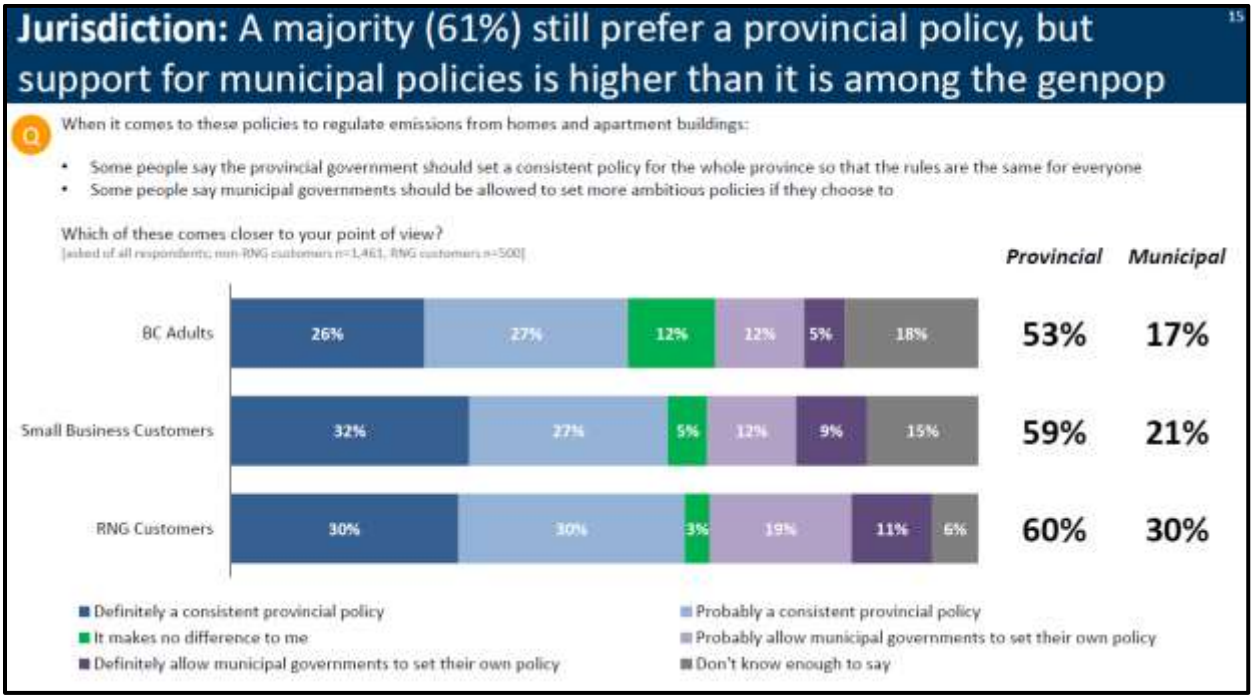
There is support among survey respondents for regulating building emissions to address climate change.

Figure 5-1: Support for Building Emissions Regulation



However, the majority of respondents indicated a preference for a consistent approach across the province with respecting to building-related policies, as opposed to those at the local government level.

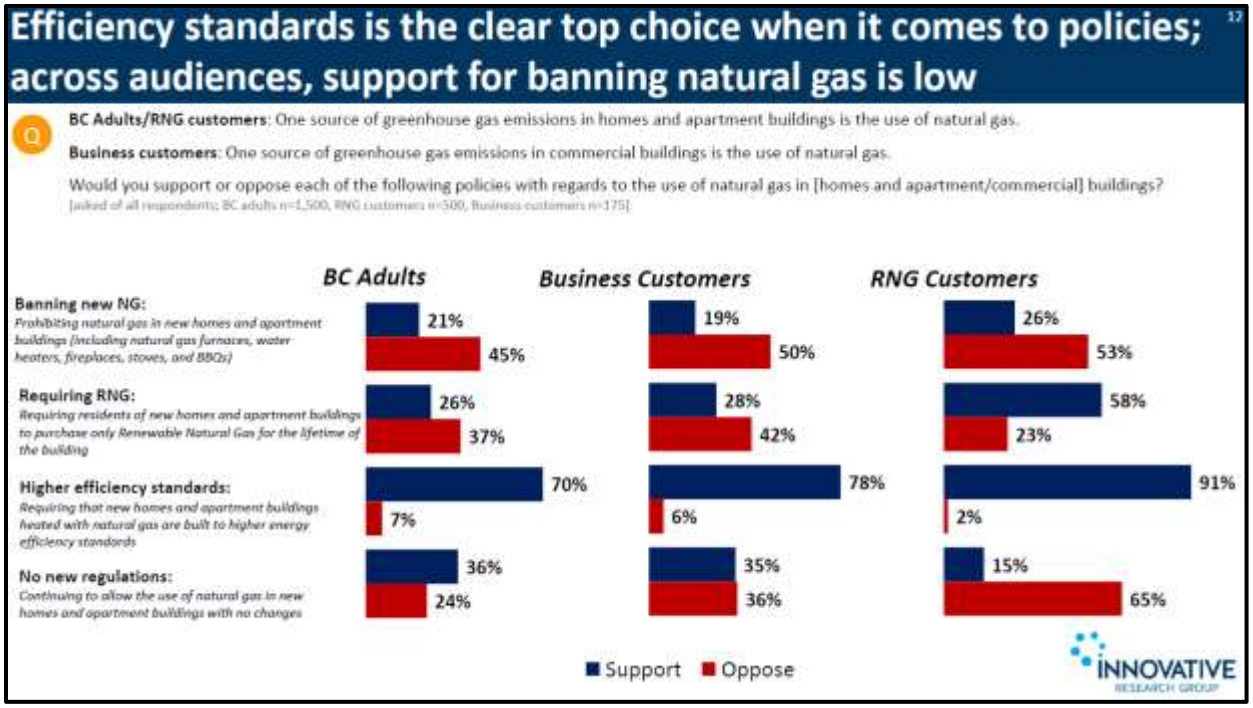
Figure 5-2: Preference for a Consistent Province Wide Policy



5.2.2.2 Support for Maintaining Access to Gas Service

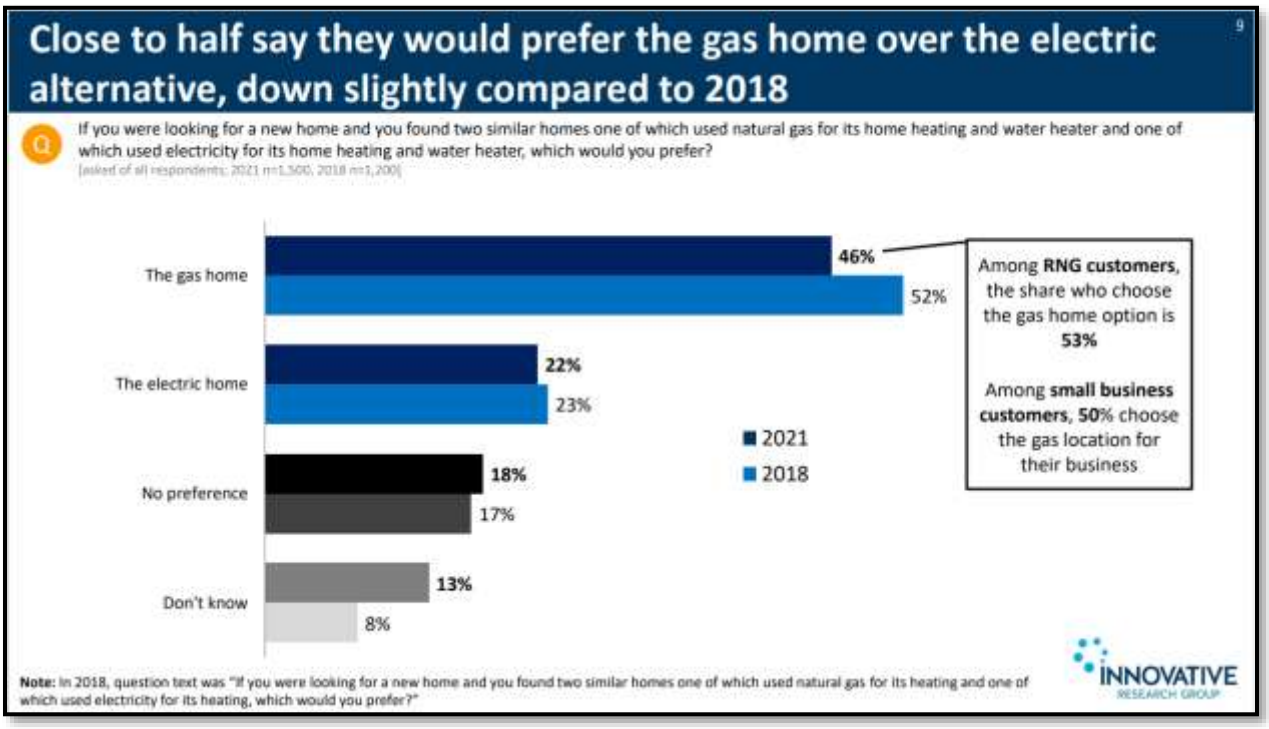
The survey indicates that there is little support for policies that would ban or limit access to natural gas. Respondents indicated a preference for energy efficiency policies as compared to other policies, including banning natural gas in new buildings.

Figure 5-3: Opposition to Restricting Access to Natural Gas



Further, if given the choice, most respondents would prefer to have the option of gas rather than electricity alone.

Figure 5-4: Preference for a Home with Natural Gas



5.2.2.3 Support for Renewable Gas Investments and the Role of Renewable Gas in Emission Reductions

The majority of respondents support investments being made into Renewable Gas, and believe that Renewable Gas has a role to play, among a mix of energy sources, in reducing GHG emissions in BC.

Figure 5-5: Support for FEI Investing in Renewable Gas Program

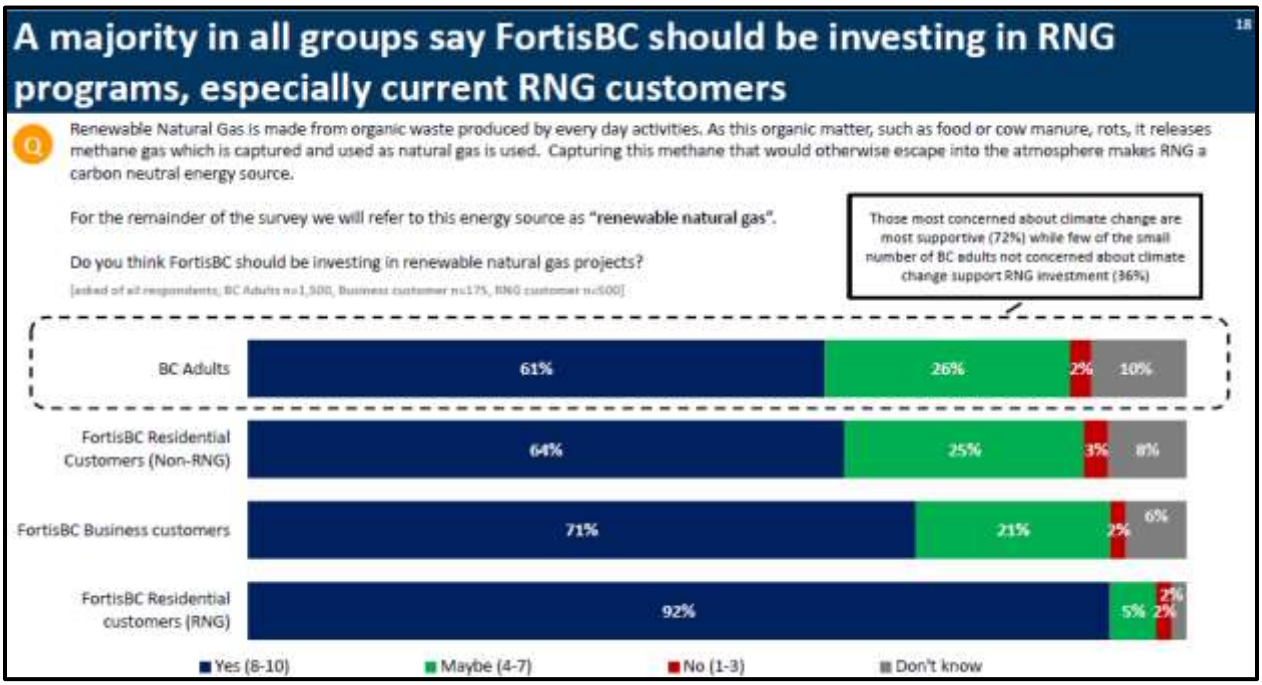
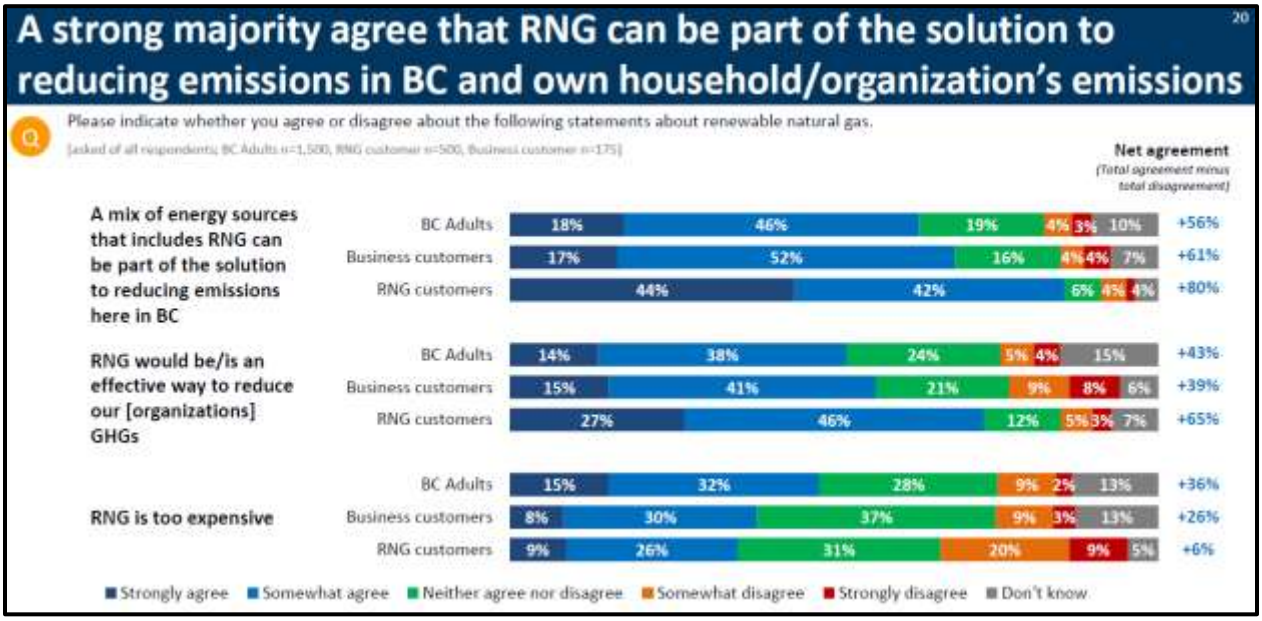


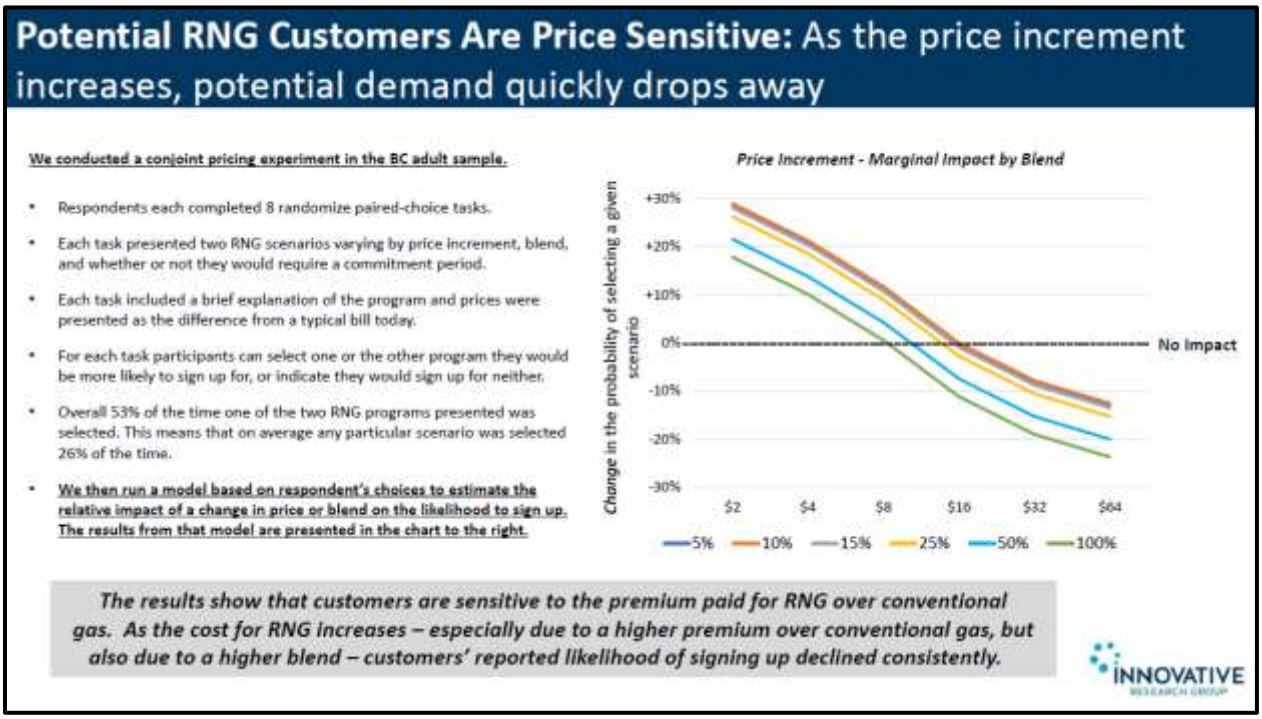
Figure 5-6: Support for Renewable Gas as Part of the Solution for Reducing BC's Emissions



5.2.2.4 Affordability of Renewable Gas Remains a Concern

As discussed in Section 2.2, in response to the rising costs and the associated drop in program participation, the BCUC approved an adjusted BERC rate methodology in 2016. All customer segments remain sensitive to the premium paid for Renewable Gas above conventional natural gas, and therefore, the likelihood of signing up for Renewable Gas service declines as the cost to the consumer increases.

Figure 5-7: Potential RNG Customers are Sensitive to the Premium for Renewable Gas versus Conventional Gas



Based on the survey results summarized above, customers want safe, reliable and affordable gas service. Customers enjoy the comfort and convenience of gas in their homes and buildings and want to be able to choose their preferred energy source to meet their specific needs, as evidenced in the supporting letters discussed in Section 5.3 below. Customers also value consistency across the province in meeting building emission regulations and want the ability to use Renewable Gas to meet governmental policy objectives where they can avoid costly retrofits of their equipment. Importantly, all customer classes are concerned about the price paid for energy services and are sensitive to the premium paid for Renewable Gas above conventional natural gas.

The sections that follow describe the expectations of residential, commercial and industrial customers in more detail.

5.3 RESIDENTIAL CUSTOMERS

Residential customers can be broadly categorized into three segments:

1. those in an existing home connected to the gas system;
2. those in an existing home converting to gas service from another energy source (such as propane); and
3. those constructing or moving into a newly constructed home.

FEI Key Account Managers have thousands of interactions with builders, end use customers, contractors and manufactures every year. Through these one on one interactions, FEI has gained significant understanding of the needs and desires of the market segment. This, combined with survey data, has helped FEI understand the segment and as a result see strong customer attachments. This information is also valuable in shaping the Renewable Gas Program.

All of these residential customer segments are cost conscious, while other attributes, including comfort, convenience, reliability and energy efficiency, all factor into their selection of energy solutions. While environmental goals rank highly, these goals do not come at the expense of other attributes provided by natural gas. A discussion of these residential segments follows.

5.3.1 Existing Homes Connected to the Gas System

Residential customers make up the largest proportion of FEI's customer base. Even though there are many differences between the customers in this group, it is still considered the most homogenous of FEI's rate schedules. Below FEI highlights some common expectations among residential customers.

First, energy use is not top of mind for residential customers with existing homes that are already connected to the gas system and, as a result, there is low engagement and low awareness of energy. Energy costs for some customers make up only a small portion of their daily or monthly expenses, while for other residential customers, energy costs make up a large portion of their expenses, forcing customers to choose between competing financial priorities. Based on internal customer billing research, FEI understands that so long as a customer's bill is stable, or at a minimum what the customer expected, then they are more likely to be content with their gas service. However, if the bill is higher than expected, then the customer may not be content and their opinion of gas as their preferred energy source can change.

Secondly, these customers expect their gas service to be operational when it is needed, providing them with heating (space and water), gas for cooking, and other uses (e.g., convenience appliances). FEI understands through conversations with customers that this segment of residential customers want a comfortable and warm place to live and a convenient way to cook when they need it, as opposed to an energy solution. Energy, in the form of natural gas, is therefore the tool for meeting those needs, and importantly, must be reliable in order to serve the various needs of residential customers. In particular, customers have remarked that they are able to continue using gas during power outages (for cooking, fireplaces, BBQs and also water heating). This highlights the resiliency benefits of a diversified energy supply. Customers are also increasingly installing natural gas back-up generators to provide power during electrical outages.

Third, this segment of residential customers is concerned about the environment and wants to reduce their GHG emissions; however, they often do not know how to reduce emissions in practice. Customers require assistance in this regard and look to utilities, like FEI, to help provide them with energy solutions. While these customers are willing to pay an incremental amount to reduce the emissions of the gas supply they use, like other customer classes, they are not willing to pay more than they have to and would want to pay less if they could.

The existing Renewable Gas Program is instructive when translating what customers say they want (i.e., to reduce their GHG emissions) into what people are actually willing or able to do (i.e., to sign up and pay a premium for Renewable Gas). To date, FEI has approximately 9,500 residential customers receiving Renewable Gas out of a residential customer base of approximately 970,000. Most of these customers have elected to take either 5 or 10 percent Renewable Gas blends. At these Renewable Gas blend levels, a customer currently pays approximately $5 - $10 more per month on their bill. Despite research suggesting that 46 percent of customers place a priority on emission reductions and the environment, only one percent of customers have elected to participate in the Renewable Gas Program, which represents only 0.1 percent of the throughput on FEI's gas system. This suggests that while customers say they want to reduce their GHG emissions and say they are willing to pay a premium to do so, only a very small number actually take action and sign up for Renewable Gas.

5.3.2 Existing Homes Converting to Gas Service

Conversion customers are homeowners that are converting from oil, propane, wood or other energy sources, to natural gas alone or in combination with other energy sources.

There are typically three reasons for a customer to fuel switch:

- **Equipment Failure:** The most common driver for customers wishing to convert to gas service is when their original energy equipment fails and needs to be replaced, often at the end of its useful life. This type of customer will be incurring costs no matter the solution selected and the customer generally aware of the efficiency and cost advantage of natural gas equipment, but is not able to justify the expense of replacement equipment until it is absolutely necessary**.**
- **Major Renovation:** This type of customer is upgrading their existing home to either enhance their lifestyle, or update a home that was recently purchased. Either way, the customer understands the lifestyle, comfort and convenience of gas equipment and appliances, along with the associated energy cost savings, and wants to incorporate gas equipment in their renovation.
- **Economic:** While not as common a reason for customers to undertake fuel switching, this type of customer is motivated to realize energy cost savings and sees moving to natural gas (and away from another energy source) as a way to meet this goal.

Based on survey data and one-on-one interactions with customers and potential customers, the following are the priorities and expectations of customers converting to natural gas.

- Benefiting from cost savings in the both short and long term;
- Obtaining safe and reliable service installation and equipment;
- Installing high efficiency rated equipment; and
- Enhancing their lifestyle and increasing their comfort and convenience.

While the reduction of GHG emissions rarely arises with this group, FEI has had opportunities to engage conversion customers on this topic. Almost unanimously, these customers are concerned for the environment and are motivated to make some moderate adjustments in their lives so long as there is little or no additional incremental cost. Moreover, for customers moving from higher GHG-emitting fuels such as oil or propane, they understand the benefits of moving away from higher carbon fuels.

Ultimately, most conversion customers are willing to take Renewable Gas service so as long as there is very little or no cost to them. Very few of this customer type are aware of Renewable Gas as an energy solution or its associated benefits, and consider that the attributes of conventional natural gas meet their expectations. FEI's proposed changes to the Renewal Gas Program have been designed to address these barriers by, in particular, shifting away from an opt-in only structure.

5.3.3 Newly Constructed Homes

New homes can be built in areas that were not previously occupied by housing, or as part of the turnover of the existing housing stock. The turnover of building stock through the tearing down of existing buildings is particularly important in British Columbia as the province's teardown rate is nearly double the national average (at approximately 2 percent in 2020).[59] If this teardown rate remains unchanged, all of the province's building stock will be replaced within 50 years. A high tear down rate presents both an opportunity and a challenge as a relatively large proportion of the existing building stock is replaced annually. These customers require a service that will continue to provide them with the option to connect to the gas system.

There are also two types of new construction activity, "spec builders" who build homes for the mass market and "custom home builders" who build homes on a one-off basis.

Spec builders often choose equipment to maximize profit, whereas custom home builders choose equipment in consultation with their client, the home owner. In both cases, the builder or developer is generally seeking to return a profit and complete the required work expeditiously. Builders and developers incorporate gas appliances and equipment into their buildings in an effort to sell the homes more quickly and to obtain the targeted profit. Each type of new construction activity is discussed below.

[59] Teardown rate from FEI's 2021 Conservation Potential Review.

Spec Builders

Natural gas equipment and appliances (like all home appliances) are installed only if the builder believes they will assist in selling the home. As discussed in Section 3.5, municipalities and local governments are increasingly incorporating more stringent GHG emissions standards into the building approval process which can have the effect of removing gas as a building solution.

The spec building market is highly competitive and, as a result, builders and developers are generally only concerned with the universal application of policies and regulations to avoid competitive disadvantage to them as compared to other builders and developers. This means they have not resisted the imposition of local government policies that have the effect of excluding natural gas equipment, as there is no competitive advantage or disadvantage if a builder and all of its competitors cannot install natural gas.

In jurisdictions where the installation and use of natural gas is discouraged or disallowed by local government policies, a spec builder expects FEI to address the policy concerns directly with the implementing government. To the extent that the Renewable Gas Program represents a solution to government policies, spec builders and the home buying public will expect the cost of this service to be at or near to the cost of conventional natural gas.

Custom Home Builders

While the vast majority of homes built in BC are constructed by spec builders, there are a significant number of homes built by custom home builders.

Customer satisfaction is very important to custom home builders and they are therefore more sensitive to the needs of their client. Similarly, clients see custom home builders as a “subject-matter expert” on all things related to building a home, including the choice of energy and the installation of associated appliances. Custom home builders expect safe and convenient installation of gas service to the building, and that the appliances and uses of gas should enhance the building and comfort of the client. They also tend to expect that the gas service will be installed at no cost to them, though depending on the circumstances of their project this is not always possible.

Like spec builders, custom home builders may not actively oppose governmental policies that prevent the installation of natural gas, but are nonetheless well-positioned to educate their clients on the benefits of gas (or Renewable Gas) as a viable option. Renewable Gas can offer a way that spec builders can deliver the benefits their clients are looking for, while complying with local government policies.

5.4 *SMALL COMMERCIAL CUSTOMERS*

FEI’s commercial Energy Solutions Managers and Key Account Managers gain valuable insight into the small commercial customer segment from many one-on-one interactions with customers each year. FEI understands that Small commercial customers are more similar to residential customers than to large commercial or industrial customers from an energy understanding and

usage perspective. However, the businesses are not homogeneous and range from strip malls, to restaurants, coffee shops, fitness studios, large retail space, and laundromats etc. As noted above, for many residential customers energy use is not top of mind and they typically have not explored energy costs and options for reducing emissions or how policy could effect their use of energy. This is no different in the small commercial sector. Small commercial customers are generally less sophisticated than large commercial customers and this is reflected in their choice and use of energy. Broadly speaking, energy is an input into the business operations for most small commercial customers (restaurants, laundromats and some other manufacturing facilities are an exception). The use of natural gas in this sector also mirrors that of the residential sector, with natural gas primarily used for space heating, hot water heating and cooking (for food service customers). There is some process load for these customers such as small laundromat and light manufacturing but the primary use is to for space and water heating.

Cost is the primary driver when selecting an energy source for small commercial customers, followed by ease of use and reliability, because customers in this sector generally have tight profit margins. Any way to reduce costs or keep costs down is appreciated because it has a direct effect on the business' bottom line. Therefore, to date, natural gas has proven to be an attractive option given its price advantage over electricity.

Small commercial customers also value ease of use and reliability when selecting an energy source. Gas equipment is easy to use, extremely reliable, can last many years, and be repaired rather than replaced in many cases, making it desirable for small commercial customers. Further, in general, gas transmission and distribution systems experience significantly fewer outages than electric networks. This is a desirable trait of gas systems as the more frequent disruptions of the electric system can have a substantial effect on small businesses. In many cases, buildings can still be heated with gas boilers during a power outage, which would not be possible if heating was provided by electricity. In addition, more customers are installing back-up gas generators to provide added reliability.

Through one-on-one interactions with small commercial customers, FEI understands that these customers' sentiments regarding climate change and GHG reductions are similar to residential customers. FEI's experience is that they believe that GHG emissions should be reduced and are in favour of efforts to do so; however, more than residential customers, small commercial customers only want to reduce emissions to the extent it does not impact the cost or reliability of their energy service. This is illustrated by the low adoption of Renewable Gas within this sector to date.[60] Ultimately, a large proportion of small commercial customers do not want to pay more than they have to for energy to reduce their emissions.

[60] Far less than one percent of commercial customers currently receive Renewable Gas service.

5.5 *LARGE COMMERCIAL CUSTOMERS*

Similar to the residential and commercial sectors, FEI's Key Account Managers have thousands of interactions with Large Commercial Customers annually. Through these interactions, FEI has gained valuable insight into how this customer segment is addressing emission reduction.

FEI's large commercial customer segment covers a diverse group of customers with unique drivers when it comes to their desire to purchase Renewable Gas. The segment includes institutional customers such as schools, universities and hospitals, public sector customers such as municipal, provincial and federal government customers, and various commercial establishments encompasses retail, office, hotels, property management and manufacturing, etc.

When it comes to reducing their GHG emissions, these customers have a range of alternatives available to achieve their internally or externally mandated emissions reduction targets. The available alternatives include purchased carbon offsets, investments in energy efficiency, fuel switching to electricity or opting into Renewable Gas service. Moreover, all of these alternatives can be combined in ways to suit their buildings or their budgets. For example, a customer could choose to electrify their domestic hot water heating, while replacing their conventional space heating boiler with a high efficiency model, and subscribing to 100 percent Renewable Gas.

As the size and complexity of the building system increases, so do the possible permutations for achieving reduced GHG emissions using the available alternatives. Large commercial customers are sensitive to the price of Renewable Gas and, if they believe the price is too high to suit the specific context of their building, they will use other alternatives to meet their energy needs and emissions obligations.

Large commercial customers can be subdivided into two categories that strongly influence their choice of Renewable Gas:

1. Those with government mandated GHG emission reduction targets, and who must incur costs to comply with those targets; and
2. Those that do not have such mandates, but may increasingly adopt corporate ESG climate change targets. While this customer segment may not be required to meet specific emissions targets, the CleanBC Roadmap may place an indirect obligation on all customer segments including large commercial customers to reduce emissions.

Both categories of customers are subject to increasing carbon tax on natural gas consumption, and both may be subject to further regulation as a result of the CleanBC Plan and CleanBC Roadmap. Each group bases their decisions related to energy on a variety of factors such as safety, reliability, resiliency, affordability, diversity, and GHG emissions. The first customer category is subject to direct regulations that require them to reduce their emissions and incur costs to do so and, as such, they have been more motivated to purchase Renewable Gas, and more likely to have expectations relative to any Renewable Gas service offering than the second large commercial customer category. Each customer category is addressed below.

5.5.1 Customers with Mandated Emission Reduction Targets

Public sector organizations in BC, such as hospitals, universities, schools and other provincial government entities must comply with BC's Carbon Neutral Government requirements. Introduced under the *Climate Change Accountability Act* in 2007, the Carbon Neutral Government Program requires these customers to achieve carbon neutrality via a number of means, including purchasing Renewable Gas. The Carbon Neutral Government Program creates a willingness amongst these customers to participate in the Renewable Gas Program as a means of achieving carbon neutrality; however, given the available alternatives to reduce emissions (e.g., electrification and/or energy efficiency), the economics of Renewable Gas are an important consideration driving this category of customers.

The energy choices of municipalities are driven by emission reduction targets that are largely self-adopted and have a strong motivation to purchase Renewable Gas if it is competitive and feasible when compared to the other alternatives. Climate change policies and GHG emission targets are a recent development at the municipal level and represent a change in these customers' expectations relative to the energy they consume.

5.5.2 Customers without Directly Mandated Emission Reduction Targets

For other large commercial customers such as those that occupy office towers, manage retail stores, or hotels, manufacturing, and restaurants etc., the motivation to participate in a Renewable Gas offering is not as strong. Many of these customers prefer to continue with using conventional natural gas. The decision to purchase Renewable Gas and integrate it into their energy mix is impacted by multiple considerations such as meeting their corporate mandates related to ESG investment, complying with local government policies and most importantly, managing their operating costs.

However, there are indications that the expectations of some of these customers relative to their energy consumption may change in the lead up to 2030 due to: (1) the increase in the carbon tax through 2030; (2) the growing importance that many larger organizations are placing on corporate ESG initiatives, often targeting reduced GHG emissions; and (3) while these customers may not be directly mandated to reduce emissions, the CleanBC Roadmap provides for an indirect obligation for these organizations to advance and support the province in meeting its climate policy targets. Taken together, these changes may prompt non-public sector large commercial customers to seek out or expect low carbon options for their energy supply.

5.6 *INDUSTRIAL CUSTOMERS*

FEI's industrial customer group represents a wide range of industries and end uses including pulp and paper, forest products, mining, refineries, chemical, cement, various manufacturing industries, greenhouses, agriculture and food and beverage processors. Natural gas equipment is the primary means of generating heat for manufacturing processes, including product drying, process heating, and industrial processes, in addition to space heating. For many of these process there is a requirement for thermal heat produced from combustion that electrical

appliances are not able to meet. Natural gas is often the best alternative for this customer group as it has the lowest emissions of the fossil fuels, is reliable and low cost.

The industrial sector is generally focused on managing their costs and the competiveness of their business, potentially both locally and internationally. Decisions related to energy are based on a variety of factors such as safety, reliability, resiliency, profitability, diversity, and their corporate sustainability and ESG plans as a tool to help them meet their corporate sustainability goals.

While the industrial sector has not shown interest in Renewable Gas during the initial ten years of the Renewable Gas Program, more recently, inquiries from industrial customers have been on the rise and more industrial customers are adding ESG goals to their corporate objectives. As such, industrial customers are beginning to show interest in Renewable Gas as both a potential Renewable Gas purchaser and/or a Renewable Gas supplier.

Managing operating costs will be a key driver of this customer segment. As many of these customers compete internationally, and are energy intensive and trade-exposed industries, increased costs for energy can drive them to move to different jurisdictions. In other words, carbon policies that are too stringent or result in increased costs can lead to "carbon leakage" - the movement of a business to a jurisdiction that has less stringent policies. FEI expects that the ability to use Renewable Gas with their existing natural gas equipment to meet their sustainability goals could be an important factor for the industrial sector to manage the overall capital and operating costs.

5.7 *NATURAL GAS VEHICLE CUSTOMERS*

FEI has observed a considerable shift in the thinking of transportation sector customers in recent years. During the first six years of the Renewable Gas Program's operation, this segment of customers, known as NGV[61] customers, expressed only minor interest in purchasing Renewable Gas. During that period, the Program did not have any subscribers from this customer segment. More recently however, NGV customers have shown increased interest in Renewable Gas.

5.7.1 Drivers for Compressed Natural Gas (CNG), Liquefied Natural Gas (LNG) and Renewable Gas for NGV Customers

FEI has observed increased pressure in Canada and globally for the transportation sector to find innovative solutions to reduce its GHG emissions to fight climate change. The transportation industry at large is seeing demand for zero and near-zero emission solutions. While electric vehicles are effective for light duty transportation requirements, there are few credible low carbon alternatives to Renewable Gas today for medium to heavy transportation customers. Moreover, for customers who already use CNG, the switch to Renewable Gas to achieve emission reduction

[61] In order to avoid naming confusion with T-Service or "Transportation" customers, for the purpose of this application, customers who use gas for in vehicles and shipping will be referred to as "Natural Gas Vehicle" (NGV) customers, instead of "Natural Gas for Transportation" customers.

targets is relatively easy as Renewable Gas is a direct substitute for conventional natural gas, requiring no incremental capital investment to the NGVs or infrastructure.

Existing CNG and some LNG customers are requesting Renewable Gas to meet their own corporate emission targets, in addition to supporting government policy.[62] As a drop-in fuel, Renewable Gas can reduce emissions from CNG and LNG vehicle operation even further. For example, a natural gas bus operating on CNG reduces GHG emissions by approximately 33 percent,[63] nitrous oxide (NOx) emissions up to 45 percent,[64] sulphur oxide emissions up to 60 percent[65] and particulate matter emissions over 90[66] compared to the equivalent diesel bus. A natural gas bus operating on renewable compressed natural gas (RCNG) will achieve all of the NOx, SOx and particulate matter reductions as a CNG bus, but the GHG emissions of the RCNG bus will be 90 percent lower than a diesel bus.[67] Switching from diesel to natural gas provides the first line of reducing emissions, with the adoption of Renewable Gas is effective means of reducing emissions further.[68]

5.7.2 BC's Low Carbon Fuel Standard (BC-LCFS)

The BC-LCFS was enacted in BC in 2008. The standard mandates Carbon Intensity (CI) limits on regulated fuel types, including gasoline and diesel as described in Section 3.2. These CI limits are currently below the actual CI of diesel and become increasingly stringent each year.

The BC-LCFS has created an incentive for NGV customers to become fuel suppliers to generate credits for sale in the carbon credit market. NGV customers are eligible to become fuel suppliers once they purchase CNG, or in some cases LNG, under an applicable FEI tariff. Customers can generate credits by switching from diesel to CNG or LNG as these fuels have lower carbon content. Customers can increase the credit if they take a further step to move to Renewable Gas. Once credits have been generated, and validated by the province, they can be sold in the credit market. The sale price of credits is not stable, as it is influenced by both supply and demand. The credit price has generally increased in recent years, and most recently has been in excess of $400/credit.

[62] Appendix B-2, Large Volume Customer Interviews, p. 9.
[63] British Columbia Low Carbon Fuels Compliance Pathway Assessment, Accessed December 9, 2021 at: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/transportation/renewable-low-carbon-fuels/pathway_assessment_2017.pdf.
[64] An Emission and Performance Comparison of the Natural Gas C-Gas Plus Engine in Heavy-Duty Trucks, Accessed Dec 9, 2021 at: https://afdc.energy.gov/files/pdfs/32863.pdf.
[65] Guidance Document on the Sulphur in Diesel Fuel Regulations, Accessed December 9, 2021 at: https://ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=0885D2DC-1&offset=5.
[66] An Emission and Performance Comparison of the Natural Gas C-Gas Plus Engine in Heavy-Duty Trucks, Accessed Dec 9, 2021 at: https://afdc.energy.gov/files/pdfs/32863.pdf.
[67] British Columbia Low Carbon Fuels Compliance Pathway Assessment, Accessed December 9, 2021 at: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/transportation/renewable-low-carbon-fuels/pathway_assessment_2017.pdf.
[68] Appendix B-2, Large Volume Customer Interviews, p. 40.

For context, for an NGV customer using Renewable Gas instead of diesel, the sale of carbon credits at $400/credit would equate to approximately $25/GJ.[69] While there is no guarantee that these price levels will hold, even at a more modest $180/credit sales price, NGV customers could earn revenue from the sale of credits of approximately $11/GJ consumed.[70] This potential revenue stream has generated increased interest from NGV customers in Renewable Gas[71]. Currently, only in-province Renewable Gas supply is recognized under the BC-LCFS. FEI is working with the province to allow for out-of-province Renewable Gas supply to be recognized and approved under the regulation and therefore allow all Renewable Gas volumes to earn and monetize credits.

The current BERC was designed as a postage stamp rate applied to all customer segments including NGV customers. However, the nature of the BC-LCFS credits and the benefit NGV customers could derive from the sale of BC-LCFS credits was not well understood. Today, NGV customers can access the BC-LCFS credits, while the building sector customers cannot, suggesting a need to align the offering for NGV customers with existing policy.

5.8 *CUSTOMER SENSITIVITY TO PRICE OF RENEWABLE GAS*

In the 2016 Decision the BCUC identified one of the objectives of the revised BERC methodology as being to maximize the recovery of program costs from RNG customers. In the information requests to the 2020 BERC Rate Assessment Report, questions were raised by the BCUC, the Commercial Energy Consumers of B.C., and the BC Old Age Pensioners et al. on the revenue maximizing price. FEI has attempted to determine the elasticity of demand for Renewable Gas offered to customers through an opt-in program. The elasticity of demand could be used to identify the revenue maximizing price for Renewable Gas. Data limitations, however, make it impractical to perform a robust analysis that could serve as the basis for Renewable Gas price setting.

Price elasticity studies require demand and price data that reflect market forces with consumer demand being driven by the pricing of competitive options. Price elasticity measures the response of consumers to changes in market prices. This kind of market data is not available for voluntarily purchased Renewable Gas. Due to the nature of the various BERC rate setting mechanisms the price has never been based on market forces and has not been allowed to rise and fall with demand.

FEI does have historical program participation data versus the premium charged for Renewable Gas, as described in the 2015 BERC Rate Application. Even so, this information is not truly market data since customers' Renewable Gas purchase decisions are determined by social and environmental considerations which are less stable than consumer preferences for the goods and

[69] Estimated based on 2022 maximum allowable limit under the BC-LCFS and assuming 1,000 GJs Renewable Gas consumption per year. 1,000 GJs equals to approximately 64 credits under the BC-LCFS. Calculation is as follow: 64 credits times $400 per credit divided by 1,000 GJs.
[70] Calculation is as follow: 64 credits times $180 per credit divided by 1,000 GJs.
[71] Refer to Appendix B-2- Large Volume Customer Interviews, pg. 7.

services for which elasticity is normally measured. Elasticity is also likely influenced by customer obligations and alternatives for reducing emissions, which are changing rapidly. The information presented in the 2015 BERC Rate Application pointed to a maximum premium of approximately $8/GJ, beyond which enrolment subsequently fell. Since the update to the BERC, the price premium for RNG has been fixed at $7/GJ. As this number has not varied, any participation data collected since the new BERC was implemented provides no insight into the demand response to changes in price, which is the consumer behaviour that is being measured by price elasticity.

FEI considered using its customer surveys as a potential alternative source of data as they may collect information on customer perceptions of a fair price for a good or service, including Renewable Gas. The customer surveys described above did query the respondents on price. While survey results can provide some directional insight into customers' thinking on price, there can be a gap between customers' responses to a survey, and the act of enrolling for a service that will cost them more. The history of the program suggests that relatively few customers actually subscribe to a voluntary program, and when they do, they generally opt to receive only five to ten percent Renewable Gas in order to limit the cost impact.

A further alternative that FEI considered for gaining insight into price elasticity was to examine the price elasticity of demand for Renewable Gas in other similar markets. This alternative is not practical, however, since comparable offerings are not available elsewhere (as described in Section 7.3). Even if there were similar offerings in other jurisdictions, comparisons could be problematic. Decisions on energy purchases are made within a jurisdictional context where various energy options with different environmental attributes are available at prices that do not necessarily correspond to those found in BC. Attitudes to climate change and consumer action to mitigate societal impacts will strongly influence customer preferences in differing jurisdictions. Without suitable comparable offerings, a cross jurisdictional analysis simply cannot be performed.

5.9 *SUMMARY*

Despite changing regulations and a greater drive to reduce emissions, customers still broadly favour natural gas as it is affordable, reliable and provides customers with comfortable heating and other requirements. However, customers are looking for the utility to reduce emissions on their behalf. Many customers are required to reduce the carbon intensity of the energy they consume while others may be interested in doing so to suit their own objectives. Beyond the carbon tax, which is set to rapidly increase to $8.40/GJ by 2030, different customer types face different financial penalties and/or rewards for reducing their emissions. These differential circumstances impact the value that Renewable Gas provides and strongly influence the demand for Renewable Gas service from different customer segments. Customers generally want to minimize their cost of compliance. They will therefore not respond to an indirect policy measure that does not directly assign an obligation, like a GHG reduction standard. They will not likely purchase sufficient volumes of Renewable Gas to meet such a standard voluntarily. FEI's Renewable Gas Program must therefore be adapted to suit the needs of the different segments of customers FEI serves and the changing policy landscape.

6. GROWTH IN RENEWABLE GAS SUPPLY

6.1 *INTRODUCTION*

In this section, FEI describes the history, current status, and future of its Renewable Gas supply. FEI's Renewable Gas supply started small, with only one supplier providing approximately 41 thousand GJs of RNG per year in 2011. Since then, the number, scale and diversity of projects has grown, and FEI expects a continued expansion of supply projects and Renewable Gas volumes. A significant amount of Renewable Gas will need to be acquired by FEI to meet the 15 percent target set through the CleanBC Plan, and even more will be required to meet the GHG emissions cap for natural gas utilities identified in the CleanBC Roadmap. FEI's current growth outlook is to attain the 15 percent Renewable Gas target set through the CleanBC Plan,[72] and grow the Renewable Gas supply portfolio on a trajectory to meet the targets in the CleanBC Roadmap.[73] To meet these targets, FEI will incorporate new types of Renewable Gas, including green and waste hydrogen, lignin and synthesis gas, which are becoming commercially viable solutions. FEI also believes that the inclusion of these newer forms of Renewable Gas will allow FEI to scale up its gas purchases to meet the requirements of the CleanBC Roadmap. Based on the experience it has gained over the first 10 years of the Renewable Gas Program, FEI is in a position to rapidly grow its Renewable Gas supply to support government climate policy targets and reduce GHG emissions for the benefit of all customers and British Columbians.

The subsections below are organized as follows:

- Section 6.2 discusses how FEI's Renewable Gas supply has grown from 2011 to 2021 and how the pace of growth is expected to increase in the coming years and is on track to meet the 15 percent CleanBC Plan target by 2030.
- Section 6.3 explains how FEI is diversifying its supply portfolio to include hydrogen, lignin and synthesis gas and is forecasting to meet the 15 percent CleanBC Plan target by 2030.
- Section 6.4 describes how FEI is mitigating Renewable Gas supply risks by diversifying the projects in its portfolio along with other strategies.

6.2 *FEI'S RENEWABLE GAS SUPPLY HAS BEEN INCREASING*

FEI has significantly increased its supply of Renewable Gas since starting the Renewable Gas Program in 2010. This section discusses FEI's current supply status, recent growth performance, ongoing supply development, and the near-term supply outlook. This section also demonstrates FEI's proven capabilities and experience in developing Renewable Gas production capacity and building a network of suppliers across North America. These capabilities have enabled FEI to offer the most significant and longest running Renewable Gas program in North America.

[72] A 15 percent Renewable Gas target corresponds to an annual throughput of approximately 30 PJs of Renewable Gas.
[73] https://cleanbc.gov.bc.ca/.

6.2.1 Growth in Supply Has Been Substantial Since Program Inception

The number of operating facilities supplying FEI with RNG has increased from one in 2011 to ten in 2021, and FEI has increased annual purchases of RNG each year over this time period. Much of the growth in new supply projects has occurred over the last three years, and has included innovations such as the first RNG supply from out-of-province, and the first RNG supply delivered via virtual pipeline. In 2021, FEI saw the greatest increase to both the number of suppliers and the volume of supply since the Program's inception, with the addition of three new RNG producing facilities. FEI is currently receiving RNG from ten operating RNG plants located both within and outside of BC. An eleventh is currently producing and storing RNG until it can begin delivering it to FEI in January 2022. By the end of 2022, FEI expects to see a total of seventeen facilities supplying RNG. Please refer to Figure 6-1 below which shows the number of RNG supply projects in each year since the Renewable Gas Program was introduced.

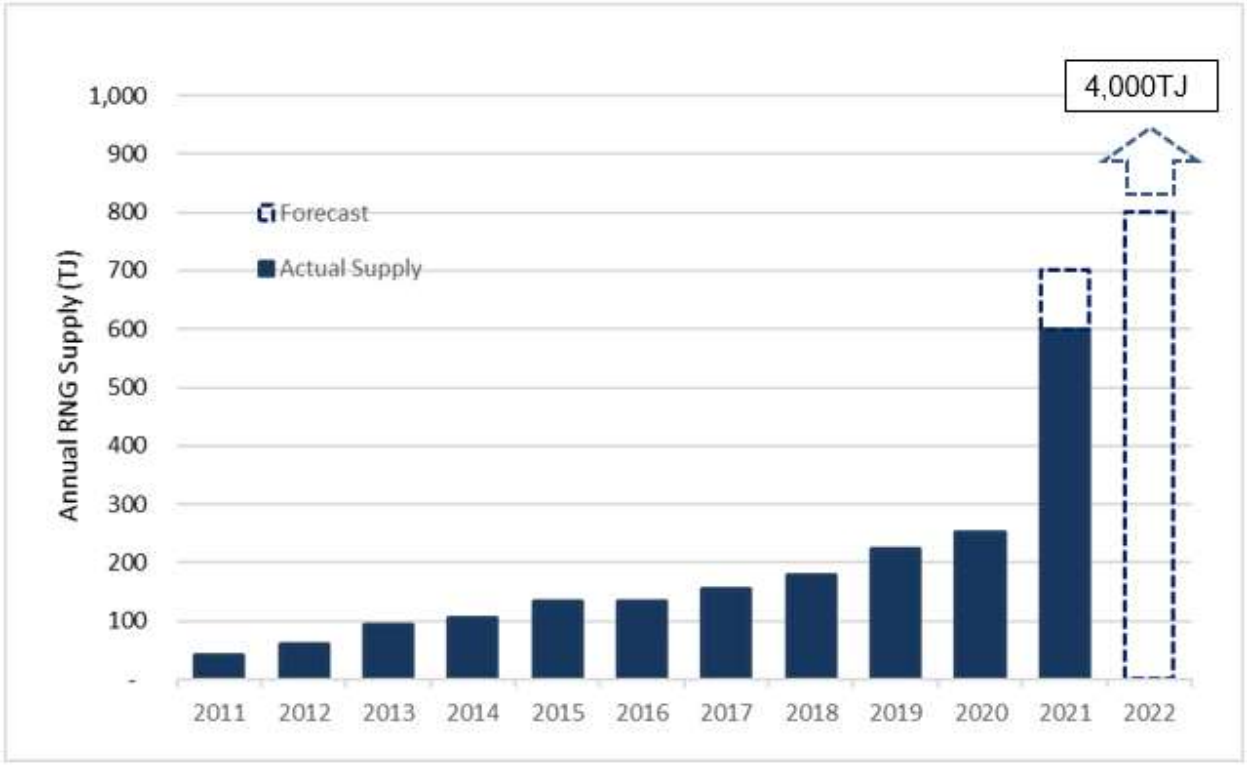
Figure 6-1: Number of Operating RNG Supply Projects

The volume of RNG supply acquired by FEI has also grown each year since 2011. In 2011 the volume of RNG delivered was 41 thousand GJs. By the end of 2021, the volume delivered is expected to be between 600 and 700 thousand GJs. Further, FEI projects that the volume of RNG supply produced by FEI's current 10 RNG supplying facilities in 2022 will be greater than in 2021 because FEI will be able to acquire a full year of supply from the new facilities rather than a partial year as was the case in 2021.

Figure 6-2 below depicts the annual RNG supply volumes that FEI has received from its suppliers over the past ten years and forecasts for 2021 and 2022. The year-over-year growth in supply

demonstrates continued performance improvement. In 2022, FEI is forecasting RNG supply volumes to reach 4,000 TJs, marking a significant increase in supply compared to previous years. The 4,000 TJs is the aggregate of all volumes expected from the 10 facilities currently supplying RNG to FEI, plus the additional 6 facilities FEI expects to begin supplying in 2022.

Figure 6-2: Total RNG Supply History and Short Term Forecast



6.2.2 Near-Term Supply Outlook Supports Meeting the CleanBC Plan

FEI has gained significant experience over the last 10 years in both securing and managing Renewable Gas supply, and expects to meet the CleanBC Plan target of 15 percent Renewable Gas by 2030.

From an operations perspective, FEI has increased its operating competence and has been interfacing with a greater number of facility operators, including experience with suppliers from outside of BC. This experience has improved FEI's ability to secure and manage Renewable Gas supply, and will provide a strong base to continue to grow both the number of suppliers and the volume of Renewable Gas.

Table 6-1 below provides details on all of FEI's current contracted supply projects and their associated volumes. The table includes projects that are providing RNG in 2021 and projects that are anticipated to begin providing RNG in the near future.[74]

Table 6-1: Contracted RNG Supply Projects

	1	2	3	4	5	6	7	8	9
	Project	Type	Province/State	BCUC Approval Status	Start/Anticipated Start Date (Month-Year)	Contract Max Annual Volume (TJ/Yr)	Proportion of Total Max Contract Volume (%)	Expected Annual Volume (TJ/Yr)	Proportion of Total Expected Volume (%)
Existing	Fraser Valley Biogass	Farm Digester	BC	Approved	Sep-10	91	0.7%	67	0.7%
Existing	Columbia Shushwap Regional Dist.	Landfill	BC	Approved	Jan-13	40	0.3%	16	0.2%
Existing	Kelowna Landfill	Landfill	BC	Approved	Jun-14	118	0.9%	62	0.6%
Existing	Seabreeze Farms	Farm Digester	BC	Approved	Feb-15	120	0.9%	90	0.9%
Existing	City of Surrey	Organics Processing	BC	Approved	Jul-18	160	1.2%	75	0.8%
Existing	Tidal Stormfisher	Organics Processing	ON	Approved	Aug-20	237	1.7%	180	1.8%
Existing	Lulu Island Waste Water	Waste Water	BC	Approved	Jun-21	100	0.7%	40	0.4%
Existing	Lethbridge Biogas	Farm Digester	AB	Approved	Aug-21	475	3.5%	225	2.3%
Existing	Shell Energy	Waste Water	IA	Approved	Aug-21	692	5.1%	519	5.3%
Existing	Faromor CNG	Farm Digester	ON	Approved	Oct-21	120	0.9%	60	0.6%
Existing	**Total Existing (TJ/Yr)**					**2,153**	**15.9%**	**1,334**	**13.7%**
Anticipated	Assai Energy	Landfill	PA	Approved	Jan-22	1,600	11.8%	1,200	12.3%
Anticipated	Dicklands Farm	Farm Digester	BC	Approved	Jul-22	160	1.2%	100	1.0%
Anticipated	Walker RNG	Farm Digester	ON	Approved	Jul-22	160	1.2%	120	1.2%
Anticipated	Tidal Niagara	Landfill	ON	Approved	Aug-22	694	5.1%	675	6.9%
Anticipated	Net Zero Waste	Organics Processing	BC	Approved	Oct-22	173	1.3%	130	1.3%
Anticipated	GrowTEC	Farm Digester	AB	Approved	Oct-22	140	1.0%	80	0.8%
Anticipated	Evergreen (Oshawa) Environmental	Organics Processing	ON	Approved	Oct-22	390	2.9%	300	3.1%
Anticipated	City of Vancouver	Landfill	BC	Approved	Nov-23	298	2.2%	250	2.6%
Anticipated	Matter	Farm Digester	BC	Approved	Jul-23	100	0.7%	75	0.8%
Anticipated	Tidal GSE	Hydrogen Reduction	ON	Approved	Sep-23	800	5.9%	600	6.1%
Anticipated	Delta RNG	Landfill	BC	In Progress	Jan-23	1,200	8.8%	740	7.5%
Anticipated	EPCOR	Waste Water Treatment	AB	Approved	Mar-23	280	2.1%	210	2.1%
Anticipated	RDFFG	Landfill	BC	In Progress	Mar-23	94	0.7%	80	0.8%
Anticipated	Tidal Rockford	Landfill	IL	Approved	Jun-23	841	6.2%	486	5.0%
Anticipated	Bradam Hamilton	Carbon Energy	ON	Approved	Jul-23	1,500	11.1%	1,125	11.5%
Anticipated	Capital Regional District	Landfill	BC	Approved	Sep-23	280	2.1%	238	2.4%
Anticipated	Bradam Napanee	Carbon Energy Recovery	ON	Approved	Oct-23	1,500	11.1%	1,125	11.5%
Anticipated	REN Energy	Wood Biomass	BC	Approved	Dec-23	1,200	8.8%	900	9.2%
Anticipated	**Total Anticipated (TJ/Yr)**					**11,410**	**84.1%**	**8,434**	**86.3%**
	Grand Total Volume (TJ/Yr)					**13,563**	**100.0%**	**9,768**	**100.0%**

Columns 6 and 8 of Table 6-1 above show the contracted maximum volume (column 6) and the expected annual volume (column 8) for each RNG supply project. The expected annual volume is the volume FEI presents in its volume forecasts and takes into account FEI's past experience with the initial output of new RNG supply projects. In particular, new supply projects have not historically operated at the full maximum value at first and may take time to ramp up their production to maximum volumes. As shown in the bottom row of column 8, FEI's total Expected Annual volume is approximately 9,768 TJs per year.

Columns 7 and 9 of Table 6-1 show the proportion that each project represents as a percentage of FEI's total maximum contracted volume (column 7) and as percentage of FEI's total expected annual volume (column 9). These percentages provide an indication of the supply side risk associated with an interruption from any one supplier. As columns 7 and 9 show, most suppliers

[74] Among existing projects the Quadrogen project ceased operations in June 2021. It is not included in the total number of current operating facilities.

provide a small proportion of FEI's total supply volume. As such, increasing the number of suppliers will tend to further reduce the supply-side risk associated with any one project's volume.

Based on the totals set out Table 6-1, FEI has already secured contracts with suppliers to provide half of the supply required to meet the CleanBC Plan target of 15 percent Renewable Gas by 2030. Given the scope of business development activities including discussions with additional suppliers currently underway, FEI believes it will be able to meet or exceed the targets set through the CleanBC Plan, and is well placed to meet the more stringent targets contemplated in the CleanBC Roadmap.

6.3 *FEI IS DIVERSIFYING THE COMPOSITION OF ITS PORTFOLIO AND PLANNING TO MEET THE CLEANBC PLAN TARGET*

As described above, FEI has increased volumes substantially since the inception of the Renewable Gas Program. Based on the totals in Table 6-1, FEI is halfway to meeting the CleanBC Plan target of 15 percent Renewable Gas by 2030. FEI also recognizes that with the recent release of the CleanBC Roadmap and the GHG reduction standard described therein, the amount of Renewable Gas required to support public policy will exceed 15 percent. In this section, FEI describes the future makeup of FEI's Renewable Gas portfolio, diversification of supply, and short and long-term forecasted volumes, demonstrating how FEI will substantially increase its Renewable Gas supply portfolio to meet provincial climate action objectives.

6.3.1 Diversifying the Composition of the Renewable Gas Portfolio

FEI's current Renewable Gas portfolio consists solely of RNG. However, as permitted under the GGRR, FEI is also working with suppliers to acquire hydrogen, synthesis gas and lignin. FEI expects that it will be able to meet the target in the CleanBC Plan with the inclusion of these additional Renewable Gases. In the subsections below, FEI describes each of the Renewable Gases that FEI plans to include in its Renewable Gas portfolio.

6.3.1.1 Renewable Natural Gas (RNG)

RNG (or biomethane) is produced via anaerobic digestion processes that contribute GHG savings through reduced methane emissions, displacement of fossil fuels, reduced fertilizer use and in some cases, direct use of the CO_2 produced. The biomethane is produced as organic material is broken down by bacteria (anaerobic decomposition) and would be generated regardless of any human intervention. RNG provides the benefit of capturing and upgrading this methane, which would otherwise be released into the atmosphere, for use as a renewable fuel that displaces conventional natural gas.

Further, in the absence of a project that captures and uses this methane, it would have otherwise been released into the atmosphere adding to global warming impacts. The global warming potential, or "atmospheric heating equivalency", of methane and carbon dioxide, which is the main greenhouse gas constituent emitted from the combustion of methane, is stated in the 2020 BC

Best Practices Methodology For Quantifying Greenhouse Gas Emissions[75] as 25 and 1, respectively. In simple terms, this means that each molecule of methane has 25 times heat trapping potential as one molecule of CO_2. Utilizing RNG for heating and other purposes converts biomethane to carbon dioxide, preventing it from directly entering the atmosphere, thus reducing overall greenhouse gas emissions.

Existing BC Government policy considers RNG (biomethane) captured from organic waste (including agriculture, landfill, or wastewater sources) to be a carbon-neutral fuel source.[76,77,78] In this context, carbon-neutral status means that both combustion and life-cycle emissions do not contribute any net carbon dioxide emissions to the atmosphere. The CO_2 generated from combustion of RNG is considered to be biogenic, or non-additive to atmospheric carbon.

From a lifecycle perspective, the emissions savings from displacing conventional natural gas production with RNG far outweigh biomethane production emissions. The expected greenhouse gas sinks in the biomethane life cycle that reduce greenhouse gas emissions include:

- Methane capture and destruction from landfill gas, manure management, and wastewater treatment. Under baseline conditions, organic material would typically decompose and release methane directly into the atmosphere;
- Avoided emissions from the combustion of conventional natural gas, and
- Avoided life cycle emissions from the extracting and processing natural gas.

6.3.1.2 Hydrogen Gas

Hydrogen is a gaseous chemical element with the symbol ‘H’ and atomic number ‘1’ that is composed of two hydrogen atoms. When burned, hydrogen produces no carbon emissions.

As described in Section 3.6.2, hydrogen presents a significant opportunity to complement RNG in decarbonizing the provincial gas supply. There is strong policy support to develop hydrogen as a low-carbon fuel within the energy mix to meet long-term decarbonization goals. For instance, the BC Hydrogen Strategy states: “Large-scale deployment of renewable and low-carbon hydrogen will play an essential role in reducing B.C.’s emissions.”[79]

FEI is involved with multiple national and international joint initiatives that aim to rapidly develop a hydrogen ecosystem capable of producing and distributing hydrogen affordably as part of a lower carbon energy supply. Through its involvement, FEI intends to learn best practices from pioneering hydrogen projects that may be applied in BC. As FEI’s understanding of hydrogen

[75] https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2020-pso-methodology.pdf.
[76] https://www2.gov.bc.ca/assets/gov/taxes/sales-taxes/publications/ct-001-natural-gas-biomethane-sellers.pdf.
[77] http://www.energybc.ca/cache/biofuels/www.energyplan.gov.bc.ca/bioenergy/PDF/BioEnergy_Plan_005_0130_web0000.pdf#:~:text=The%20BC%20Bioenergy%20Strategy%20sets%20us%20on%20a,into%20bioenergy.%20Bioenergy%20provides%20new%20opportunities%20for%20agriculture.
[78] https://bcbioenergy.ca/wp-content/uploads/2011/07/Bioenergy-Guide-2010-final-updated-May-2011.pdf
[79] CleanBC, BC Hydrogen Strategy (2021), p. 5. Accessed at: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/electricity/bc-hydro-review/bc_hydrogen_strategy_final.pdf.

production, distribution and end-use applications develops, FEI will pilot projects that will test the use of hydrogen in closed systems. FEI is currently progressing to pre-feasibility planning and technical analyses for introducing hydrogen into the gas distribution network before 2025 and is evaluating large-scale projects for the centralized production and distribution of hydrogen.

Currently, natural gas is the primary resource used globally for hydrogen production and, in conjunction with technologies such as carbon capture, the resulting hydrogen is considered a low-carbon energy source. Further, when using renewable primary energy resources such as clean electricity or biomass, the resulting hydrogen is considered carbon-free. Therefore, hydrogen represents the largest potential source of carbon-free Renewable Gas.

6.3.1.3 Synthesis Gas

Synthesis gas (or syngas) is a gaseous fuel produced through the gasification of biomass. Gasification is a thermochemical process that occurs when biomass is heated in an oxygen-starved environment to produce a synthetic gas, which contains carbon monoxide and hydrogen. Any reasonably dry biomass can be converted to synthesis gas.

While synthesis gas is not suitable for direct injection into the natural gas system, it can displace conventional natural gas at a point of use or be used as a feedstock for upgrading via a methanization process step to create RNG (which can then be injected into the existing natural gas system).

6.3.1.4 Lignin

Lignin is a complex, energy-rich organic molecule found in large quantities in biomass (wood). It is the natural glue that holds a tree and other plants together. Lignin is generated as a by-product of the kraft[80] pulping process contained in the liquid black liquor.[81] Lignin can also be precipitated out of black liquor in a refined form. Biomass-based fuels such as lignin can offer a zero-carbon alternative to natural gas using a displacement business model. Lignin is not a gas, and therefore cannot be injected into the gas system. Rather, if an industrial customer is able to use lignin instead of natural gas, it can provide an option to reduce emissions.

6.3.2 FEI's Short and Long-Term Supply Forecast to Meet the Clean BC Plan

Based on a 10-year forecast of Renewable Gas supply, FEI anticipates that by 2032 it will have surpassed the 15 percent (of approximately 30 PJs) target for Renewable Gas set through the CleanBC Plan. FEI developed the 10-year forecast based on actual historical purchases of

[80] The kraft process is a method for producing paper. It entails the treatment of wood chips with a hot mixture of water, sodium hydroxide, and sodium sulfide and includes several steps, both mechanical and chemical in the production of paper.

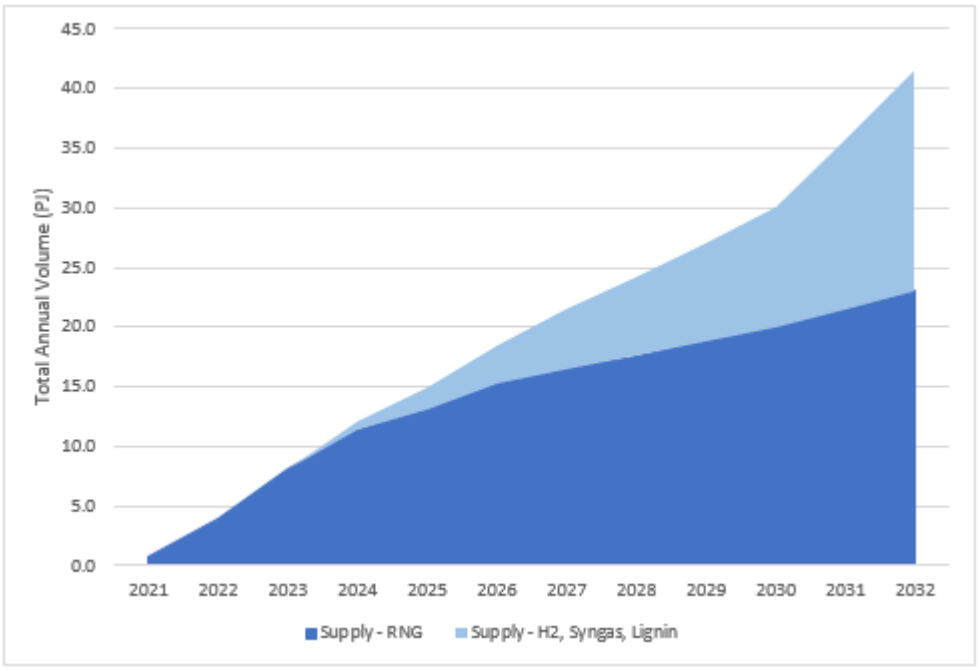
[81] Black liquor is a by-product of the kraft process, which removes the lignin, hemicelluloses and other extractives from the wood to free the cellulose fibers.

Renewable Gas, executed supply agreements, prospective supply agreements and an extrapolation of the current acquisition trend out to 2032.

Figure 6-3 below shows the result of FEI's 10-year Renewable Gas forecast. The forecast can be divided into two time periods, as described below:

- The forecast until 2026 is based primarily on existing and prospective supply agreements. During this period, FEI also expects to begin pilot and pre-commercial stage projects using alternate forms of Renewable Gas; however, these volumes are expected to be relatively low initially. Commencing in 2025, FEI expects to increase supply from alternate forms of Renewable Gas, such as hydrogen and synthesis gas.
- From 2027 and onwards, the forecast incorporates FEI's expectation of further growth in the use of hydrogen, synthesis gas and lignin.

Figure 6-3: 10-Year Renewable Gas Supply Forecast



Over the 10-year period shown in Figure 6-3, FEI's Renewable Gas portfolio is forecasted to grow from approximately 0.7 PJs in 2021 to 41 PJs in 2032 – the latter being equivalent to 11,389 GWhs of low carbon energy provided to British Columbians.[82] This is more than twice the anticipated energy output from the Site C dam, and enough energy to heat approximately 891,000 homes in BC.[83,84]

[82] 1 PJ = 277.778 GWh.
[83] Assumes 46 GJs/Year consumption to heat each home.
[84] Site C will provide 1,100 megawatts (MW) of capacity, and produce about 5,100 gigawatt hours (GWh) of electricity each year: https://www.bchydro.com/energy-in-bc/projects/site_c.html.

Below FEI explains the basis for the short-term forecast (from 2022 to 2026) and then discusses the longer-term period (from 2027 to 2032).

6.3.2.1 Short-Term Supply Forecast: 2022-2026

FEI developed its short-term supply forecast (2022-2026) by considering existing and prospective supply agreements, consisting primarily of RNG supply from within and outside of BC. FEI has made significant progress in increasing contracted Renewable Gas supply for future deliveries beyond 2021. FEI currently has 27 RNG supply agreements that have been approved by the BCUC[85]. These projects are expected to supply a total volume of Renewable Gas of just under 10 PJs per year, with a potential maximum supply volume of approximately 13 PJs annually once these RNG facilities are fully operational between 2025 and 2026.

FEI's past experience with RNG projects over the last decade has provided important understanding of the development of projects of this kind and how these projects come on-stream. FEI used this information to model the probability of supply volumes and timing of projects using Monte Carlo simulations. The model was used to validate the supply projections described in Figure 6-3 above and gives FEI added confidence in its 10-year supply forecast for RNG supply.

6.3.2.2 Long-Term Supply Forecast: 2027-2032

FEI's Renewable Gas forecast (from 2027 to 2032) builds on the existing expected Renewable Gas projects up to 2026, adding potential projects from that point forward. The supply forecast for this period (years 6 to 10 of the forecast) uses the existing trajectory of RNG acquisition and then layers on forecast acquisition of the other forms of Renewable Gas. Due to a lower relative certainty in this period, the supply forecast is based upon current trends, current rates of successful acquisition contracts, and available data. FEI also recognizes that future changes to the policy environment in BC may result in changes to FEI's supply forecast, including the need to increase supply by 2030. However, it is clear that the potential for Renewable Gas growth is significant based on FEI's view of the market.

FEI also relied on available research data to gauge the long-term RNG market supply potential, including various studies that forecast the range of achievable Canadian RNG supply potential.[86,87,88] These studies show that there is approximately 61 to 82 PJs of supply potential per year by 2030. Other studies forecast the current range of achievable RNG supply potential in

[85] One of these is the Quadrogen project which ceased operations in June 2021 and therefore not included in Table 6-1 above.
[86] Salim Abboud et al., Potential Production of Methane from Canadian Wastes, 2010.
[87] Canadian Biogas Association, Canadian Biogas Study: Benefits to the Economy, Environment and Energy - Technical Document, 2013.
[88] TorchLight Bioresources Inc., Renewable Natural Gas (Biomethane) Feedstock Potential in Canada, 2020.

the United States, indicating approximately 350 to 460 PJs per year of supply that rises to 630 to 857 PJs per year beyond 2030.[89,90,91]

As discussed in Section 6.3.2 above, FEI has forecast an increase in alternative forms of Renewable Gas (i.e., hydrogen, synthesis and lignin). These gases are expected to be produced at an achievable scale of up to 400 PJs per year in BC, entering the supply mix beginning in 2024/2025 and increasing until 2032, reflecting the province's abundant natural resources.[92]

Therefore, as FEI continues to acquire RNG from suppliers in BC and across North America, and starts developing and scaling alternative forms of Renewable Gas, FEI expects there to be sufficient supply available to meet or exceed the CleanBC Plan target of 15 percent Renewable Gas by 2030. Furthermore, FEI is currently working with the provincial government to complete an updated Renewable Gas Potential study that will further increase the future supply available to FEI's Renewable Gas Program.

6.4 *STRATEGIES TO MITIGATE POTENTIAL RISKS IN SUPPLY GROWTH*

FEI has developed and implemented strategies to mitigate Renewable Gas supply growth risk. The current supply forecast for Renewable Gas can be affected by external factors such as equipment failure, feedstock supply challenges and weather events. In this section, FEI will discuss how these supply risks are mitigated by increasing FEI's supply volumes within BC and outside of BC, monitoring new technology, diversifying the supply portfolio, working with stakeholders to get products ready for market and working with government to update policies in order to enable growth.

6.4.1 Diversity of Supply Mitigates Risk of Lower than Expected Volume

FEI faces supply risk where volumes from suppliers are lower than expected. As noted in Section 6.2.2 above, FEI's experience is that new RNG supply projects typically take time to ramp up their production and may not operate at their contracted maximum volume. Operating projects may experience lower than expected performance due to issues, including:

- **Equipment Failures:** RNG facilities are a relatively new energy forum and, as such, the equipment used to create RNG can fail more often than conventional technologies.
- **Feedstock Supply Issues:** Some RNG production facilities (e.g., farm facilities) can have difficulty securing manure or green waste supplies, reducing RNG output.

[89] American Gas Foundation, The Potential for Renewable Gas: Biogas Derived from Biomass Feedstocks and Upgraded to Pipeline Quality, September 2011.
[90] National Research Energy Laboratory, Energy Analysis: Biogas Potential in the United States, October 2013.
[91] American Gas Foundation, Renewable Sources of Natural Gas: Supply and Emissions Reduction Assessment, December 2019.
[92] https://www2.gov.bc.ca/assets/gov/government/ministries-organizations/zen-bcbn-hydrogen-study-final-v6_executivesummary.pdf#:~:text=The BC Hydrogen Study was conducted by Zen,study ran from February 2019 to June 2019.

- **Natural Weather Events:** Weather events, such as storms or floods, can cause damage to facilities, reducing RNG supply.
- **Pandemics:** The spread of diseases globally, such as the COVID-19 pandemic, can impact supply chains and reduce energy production generally.

The primary means of mitigating the risk of lower than expected production is to diversify the supply portfolio. Today, FEI has a diverse mixture of supply projects that use different feedstocks and technologies and are located in geographically separate areas. This diversity helps to reduce supply volume risks to the portfolio as all projects in the portfolio will not be subject to the same types of risks. As FEI acquires Renewable Gas from new projects, this will diversify the portfolio further and reduce risk. In addition, there are now suppliers that are themselves aggregators of RNG supply, meaning they have a diverse supply of projects within their own portfolio – thereby reducing supply risk. By contracting with these aggregators, FEI may be able to secure a firmer supply, effectively transferring supply risk to the supplier.

6.4.2 Early-Mover Advantage Mitigates Competition Risk

A second supply risk is competition from other purchasers of Renewable Gas. FEI has mitigated this risk to an extent by being a "first-mover" in the market and has an established regulatory path with known guidelines for supply agreements, particularly with respect to RNG. This established history in the Renewable Gas market is attractive to suppliers who are interested in long-term offtake agreements with a high degree of certainty of regulatory approval.

Even so, an increasing number of entities in other jurisdictions, including Énergir in Quebec, are now seeking Renewable Gas supply. Further, the market for RNG is maturing and competition for supply is increasing. Over time, more and more market actors will develop the expertise and proven pathways to purchase RNG and other Renewable Gases. Therefore, to ensure FEI has access to supply at reasonable costs, FEI is working to secure biogas-derived Renewable Gas supply early in this decade rather than waiting for the market to mature further.

6.4.3 Gas System Readiness Risk Mitigation

There are technical and regulatory barriers to integrating alternate forms of Renewable Gas, such as hydrogen, into the gas system. These barriers could delay the use of hydrogen, synthesis and lignin to provide FEI's customers with low carbon energy services. FEI is undertaking steps to ensure that the existing gas pipeline system can accommodate other forms of Renewable Gas and, as applicable, that there are alternative methods to deliver these gases to customers. FEI is working internally, with the federal and provincial governments, and other industry participants including other utilities to remove barriers and advance the adoption of hydrogen for the whole of the province. The steps taken by FEI to date are discussed in the sections below.

6.4.3.1 Gas System Readiness, System Planning and Deployment Strategy

FEI has over ten years of experience acquiring and injecting RNG into the existing gas system. As volumes of Renewable Gas increase, further system wide feasibility analysis is required to ensure that the gas system can manage these increasing volumes, including in particular:

- Examining system extensions and upgrades required to connect producers of Renewable Gas where these producers are located in regions of BC without gas pipeline infrastructure connecting to the existing gas system.
- Assessing the blending of hydrogen into the gas supply, including a technical readiness evaluation. FEI is also in the process of testing how hydrogen interacts with pipeline materials, components and other equipment on its system, enabling hydrogen transport as a blend in the gas system, and the feasibility of hydrogen transport via repurposed high-pressure transmission pipelines with a long-term goal of repurposing segments of existing natural gas networks for the delivery of 100 percent hydrogen gas.
- Analyzing how the gas system can accommodate distributed gas production, at a scale large enough to meet FEI's Renewable Gas objectives, as more geographically diverse supply is brought on the system.

These efforts and analyses will provide insight into how FEI can evolve its operational practices to allow more flexibility within its existing system, allowing for increased Renewable Gas injection into the system.

6.4.3.2 Industry Collaboration, Research and Development, Feasibility Work and Sector-Specific Approaches

The development of hydrogen, wood-to-RNG, synthesis gas, and lignin as low-carbon fuels will require a number of innovative solutions. FEI's understanding of Renewable Gas production, distribution and end-use applications continues to expand. As such, FEI has also begun developing pilot and pre-commercial demonstration projects that will test hydrogen, synthesis gas and lignin production and the use of these newer forms of low-carbon fuels in a closed system. Given the rapid evolution of technology and the scale-up of Renewable Gas production needed to meet GHG emission reduction goals, FEI expects that there will be opportunities to acquire lower cost supply.

6.4.3.3 Codes, Standards and Regulations

FEI is engaging with the NRCan Codes and Standards working group task force to modify and develop safety and technical standards and set longer-term objectives to transition the regional natural gas network to adopt hydrogen and synthesis gas and lignin. This includes hydrogen-ready infrastructure initiatives, such as the certification of new appliances and equipment and the design of hydrogen-ready compatible natural gas infrastructure.

6.5 *SUMMARY*

FEI is well-positioned to accelerate the growth of its Renewable Gas supply portfolio to meet and exceed the 15 percent Renewable Gas target set through the CleanBC Plan, and is well-positioned well to acquire more Renewable Gas to meet the additional targets that arise from the CleanBC Roadmap. In particular, FEI has gained substantial experience over the last 10 years developing a diverse RNG supply portfolio. Under the CEA and GGRR, FEI will diversify the composition of its portfolio to include hydrogen, lignin and synthesis gas. With these added Renewable Gas options, FEI is confident that it will achieve the growth in Renewable Gas to respond to governmental climate policy objectives. Further, as discussed in Section 9.5 FEI is proposing to file a Program Review five years from the date of the BCUC decision, which will provide an update on how the supply of Renewable Gas has evolved.

Given the need to significantly grow its Renewable Gas supply, FEI's existing voluntary Renewable Program on its own is no longer a sufficient mechanism to deliver low-carbon fuels to customers. The proposed amendments to the Renewable Gas Program, described in detail in Section 7, enable FEI to expand its suite of program offerings to its customers to enable the delivery of these increased volumes.

7. PROPOSED RENEWABLE GAS PROGRAM

7.1 *INTRODUCTION*

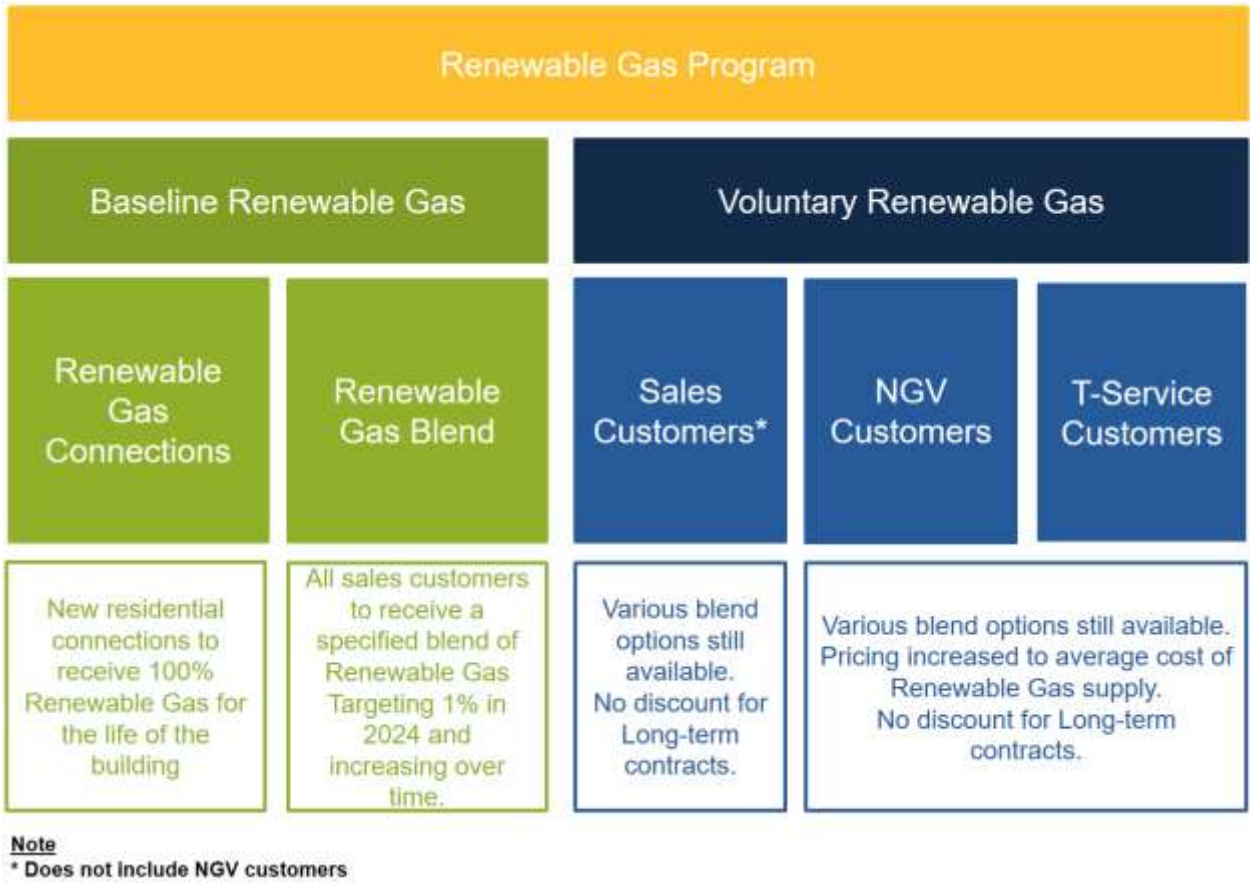
In this section, FEI describes its proposed changes to the Renewable Gas Program. The Renewable Gas Program has been successful in achieving its objectives based on the policies in place prior to 2016. However, to maintain the long-term viability of the natural gas delivery system and energy choice for British Columbians, the Renewable Gas Program now needs to change in response to government emission-reduction targets for the gas supply and corresponding increasing volumes of Renewable Gas, restrictive policies for new residential construction, and customer needs for Renewable Gas.

FEI considered alternatives to respond to the need for change, including: simply updating its voluntary renewable gas offering; a renewable gas blend for all sales customers; and directing Renewable Gas to New Residential Connections.[93] FEI determined that a comprehensive program, including a renewable gas blend for all sales customers, 100 percent Renewable Gas for all New Residential Connections, and continuation of a voluntary renewable gas offering, was the only alternative that would maintain the long-term viability of the natural gas delivery system and energy choice for British Columbians.

Figure 7-1 below illustrates the Renewable Gas Program as proposed by FEI.

[93] New Residential Connections are all residential dwellings served by a service line installed on or after a designated date, including new construction activity, conversions and retrofits. FEI serves a range of residential dwellings, including detached homes, semi-detached homes, row houses, duplexes and quadruplexes, townhouses and multifamily condominiums under RS 1, RS 2, RS 3, or RS 5 depending on the volume of the gas service.

Figure 7-1: Revised Renewable Gas Program



Note
* Does not include NGV customers

The revised Renewable Gas Program as illustrated above is designed to meet the needs identified through FEI's review of the program as described in sections 3 to 6 of the Application. The Renewable Gas Connections service will meet the requirements of local governments for new residential construction, enabling FEI to continue to add customers to the system. By incorporating a Renewable Gas Blend for all sales customers, FEI will be able to sell the increasing volumes of Renewable Gas required to meet provincial GHG reduction targets for the gas supply. The Voluntary Renewable Gas offering will continue to give customers the option to purchase up to 100 percent Renewable Gas, allowing FEI to retain those customers that need a low carbon energy solution. As a whole, the proposed Renewable Gas Program will mitigate upward rate pressure that would result from a scenario where FEI's costs increase through the acquisition of Renewable Gas at the same time that government policies result in a loss of FEI's customer base. As proposed, the Renewable Gas Program will help maintain the long-term viability of the gas delivery system and energy choice for British Columbians.

This section is organized as follows:

- Section 7.2 describes how, based on the review in Sections 2 through 6 of the Application, in order to maintain the long-term viability of the gas delivery system and energy choice for British Columbians, the Renewable Gas Program needs to be revised so that it can

meet provincial targets for GHG reductions from the gas supply, restrictive policies for new residential construction, and customer needs for Renewable Gas.

- Section 7.3 describes Renewable Gas programs outside of BC, potential alternatives for the design of the program, and how a mix of a Baseline service and Voluntary Renewable Gas offering, with 100 percent Renewable Gas for all New Residential Connections, was the only alternative that met the identified needs for the Renewable Gas Program.
- Section 7.4 describes in detail FEI's proposals to revise its Renewable Gas Program including its Baseline service and Voluntary Renewable Gas offering.

7.2 *IDENTIFIED NEED FOR A REVISED RENEWABLE GAS PROGRAM*

Based on its comprehensive review and assessment of the Renewable Gas Program in Sections 2 to 6 of the Application, FEI concludes that federal, provincial and municipal regulations and policies focused on reducing GHG emissions threaten the long-term viability of the gas delivery system and energy choice for British Columbians. This is due to mandates for overall GHG reductions from the gas supply in the CleanBC Plan and CleanBC Roadmap, regulations and policies that restrict natural gas service to new residential construction, and GHG reduction mandates or goals that may cause customers to leave the system if there is not a viable Renewable Gas solution to meet their needs.

FEI also concludes that its Renewable Gas Program has been successful in establishing Renewable Gas as a solution to these challenges, as indicated by the GGRR enabling the acquisition of significant volumes of Renewable Gas to meet provincial GHG reduction targets. A revised Renewable Gas Program should therefore be designed to meet the challenges posed by federal, provincial and municipal regulations and policies focused on reducing GHG emissions. Renewable Gas can provide a low carbon energy solution that meets GHG reductions targets for the gas supply, facilitates access to the gas system for New Residential Connections and fosters customer retention, which together can maintain the long-term viability of the gas delivery system and energy choice for British Columbians. As discussed in Section 4 of the Application, a diversified energy system is in the best interest of all energy consumers in BC and leverages the combined strengths of the gas and electric systems to deliver energy to British Columbians.

Therefore, to maintain the long-term viability of the natural gas distribution system and energy choice for British Columbians, FEI needs to revise the Renewable Gas Program to meet the following three objectives:

1. Meet provincial CleanBC targets for GHG emissions and balance Renewable Gas supply and demand;
2. Enable compliance with building regulations to maintain energy choice for New Residential construction; and
3. Meet customer requirements for Renewable Gas to maintain energy choice for existing customers.

Each of these objectives is described below.

7.2.1 Meet Provincial Targets for GHG Emissions and Balance Renewable Gas Supply and Demand

Provincial government policy seeks to transition the gas system away from delivering fossil natural gas to delivering Renewable Gas, and to cap emissions from gas used to heat homes and business at 47 percent below 2007 levels.[94] While other options such as energy efficiency will contribute towards this emissions cap, Renewable Gas is required to meet these policy goals. A revised Renewable Gas Program must contain mechanisms to ensure enough Renewable Gas can be delivered to a broad range of customers to support these provincial policy objectives.

Further, as FEI acquires significant volumes of Renewable Gas, enabled through the GGRR, to meet provincial policy objectives, FEI needs to be able balance supply and demand. To align with the CleanBC Roadmap, FEI may need to acquire 45 and 65 PJs of Renewable Gas annually. This volume of Renewable Gas may result in a build up of unsold Renewable Gas volumes unless FEI has a means of ensuring that it can all be sold to customers.

FEI's current Renewable Gas Program needs to be revised to fully utilize the significant increase in Renewable Gas supply needed to respond to current provincial policy that seeks to cap emissions from gas used to heat homes and businesses.

7.2.2 Enable Compliance with Building Regulations to Maintain Energy Choice for New Residential Construction

A revised Renewable Gas Program must provide an option for New Residential Connections to comply with regulations limiting emissions from new residential construction to maintain energy choice for British Columbians.

As described in Section 3.5, it is becoming increasingly difficult for FEI to deliver conventional natural gas service to new residential construction. This is primarily driven by bylaws and other policies implemented by local governments aimed at reducing GHG emissions, but FEI's ability to connect new residential buildings will be further restricted with forthcoming amendments to the BC Building Code which incorporate a GHGi limit. Provincial government policy also seeks to eliminate carbon pollution from new homes.[95] These barriers to service leave builders, developers and home owners without a viable alternative to electricity. Absent a Renewable Gas service that complies with municipal building regulations, new residential customers will be unable to meet their energy requirements using the gas system and will have limited energy choice.

[94] CleanBC Roadmap to 2030, pg 29.
[95] CleanBC Roadmap to 2030, pp. 8-9.

In order to maintain energy choice for new potential customers, a revised Renewable Gas Program must provide new residential construction customers with the option to comply with building regulations while still being able to use the gas system.

7.2.3 Meet Customer Requirements for Renewable Gas to Maintain Energy Choice for Existing Customers

A revised Renewable Gas Program must contain services that can meet the range of customers' needs with respect to renewable energy and GHG emission reductions. As described in Section 5, customers have a variety of requirements. At a high level, consumers want to be able to choose their energy source and reduce GHG emissions, but are also cost conscious. At the same time, different customer types are subject to different regulations, have different perspectives on the value of Renewable Gas, and are cost conscious to different degrees.

Three particular customer requirements identified in Section 5 are as follows:

- Public sector building operators have taken an interest in the Renewable Gas Program as one option to achieve their mandated carbon neutrality requirement. NGV customers have also indicated interest in the program as a means of reducing their emissions and participating in the BC-LCFS program's credit market, and the voluntary program works well for these customers generally. However, public sector building owner customers, who have a range of options to reduce their emissions, are more sensitive to the price premium for Renewable Gas over conventional gas than NGV customers, as NGV customers have the ability to generate revenues from the sale of credits in the BC-LCFS credit market.
- Building owners, including home owners or non-public sector commercial building owners, often want action to be taken to address GHG emissions and climate change generally, but are sensitive to the price premium for Renewable Gas. FEI's program history shows that they are not inclined to voluntarily participate in the Renewable Gas program. As the carbon tax increases from $2.31/GJ today to over $8/GJ in 2030, these customers will expect their basic energy supply to be lower in carbon both to address climate change and to manage their energy costs.
- Customers with gas-consuming industrial processes constitute another customer group, although each industrial facility is different and these customers are not as homogenous in their energy needs as homeowners. Industrial customers are subject to carbon tax on the combustion of natural gas as are other customers. The CleanBC Roadmap indicates the province's desire to reduce emissions from the industrial sector, but recognizes that the market for fully decarbonizing large industry in BC is at the emergent stage. Many industries in BC sell their products into international markets, and so must compete with producers in other jurisdictions with less desire to reduce emissions. To date, industrial customers have not expressed a great deal of interest in Renewable Gas. Energy often represents a significant portion of their process costs and, when coupled with a need to compete internationally, they are often highly sensitive to any increases in their energy cost. The province's policy to reduce emissions from industry may drive industrial

customers to purchase Renewable Gas as one of several options at their disposal to reduce their emissions.

Most customers are also sensitive to the price premium paid for Renewable Gas versus conventional gas. Thereby Renewable Gas solutions must be priced in a way that encourages adoption in order to provide a feasible gas solution that maintain energy choice for these segments of customers.

7.3 *RENEWABLE GAS PROGRAM DESIGN*

7.3.1 Renewable Natural Gas Programs in Other Jurisdictions: A Made-for-BC Approach is Required

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. Canadian RNG programs were reviewed by FEI directly, while FEI engaged a third party consultant to assist with a review of international RNG programs. The report is found in Appendix C.

Outside of BC, RNG programs are not common, and those that exist are generally in an early stage of development. Some appear to have based their program design on FEI's Program. This affirms FEI's understanding that it is at the forefront of natural gas distribution companies making RNG available to its customers. The RNG offerings that are available to customers are primarily located in Canada, the United States and Europe. In Canada, the only other RNG programs are found in Ontario and Québec.

Enbridge's voluntary RNG program in Ontario began in 2021 and remains small in both scale and scope. The program has been designed with a residential focus and is marketed to residential and low-volume commercial customers. Participating residential and small business customers are charged an extra $2 per month which appears as a separate line item on their bill. The contributions from participating customers are used to fund the incremental cost of RNG (relative to traditional natural gas). Enbridge charges the same Federal Carbon Charge (FCC) regardless of whether or not a customer participates in their RNG program and tracks the variance between the FCC amount remitted to the government and the amount charged to customers in a deferral account. Under this model, the FCC benefit (savings) flows to all customers subject to the FCC, including non-participating customers. Enbridge advocated for this approach because the administrative costs to direct the credit only to program participants would have outweighed the benefits. The OEB commented that this approach more accurately captures the program's intent to offer clean affordable energy to general service system gas customers.[96]

[96] Decision and Order EB-2020-0066, Enbridge Gas Inc., Voluntary Renewable Natural Gas Program Application, September 24, 2020, p. 16: http://www.rds.oeb.ca/HPECMWebDrawer/Record/687754/File/document

Énergir's RNG program in Québec began in 2017, is more developed, and largely resembles FEI's program prior to the 2015 BERC Application. Énergir's program is available to all customer segments; however, gas use among residential customers is less common in Québec than BC. Customers sign up to receive a portion of their gas service as RNG and are charged an amount that approximately equals the cost of RNG acquisition on the volumes of RNG they consume. Énergir's current RNG rate is $\$0.5194/m^3$, or approximately $13.50/GJ. Carbon tax does not apply to RNG volumes consumed in Québec, therefore participants in Énergir's program also experience a cost savings of $\$0.05424/m^3$ on their RNG purchases, resulting in a net price premium for RNG of $\$0.46516/m^3$, or approximately $12.09/GJ.

In the United States, gas utilities in most jurisdictions do not currently have a RNG program for their customers. Often, where utilities are involved with RNG, it is to provide interconnection and transportation services, and not to sell RNG directly to their customers. Utilities in some states such as Vermont, Michigan, Maine and California sell Renewable Natural Gas directly to customers. All of these programs are currently modest in scale and scope, and were created well after FEI's program. In many cases, the programs are new, having only just launched, or will be launching imminently.

For example, in early 2019 SoCalGas filed an application with the California Public Utilities Commission for an Opt-In RNG Tariff. This application was approved for an initial pilot period of two years. SoCalGas is currently in the process of preparing its program for launch. SoCalGas' program will be available to residential, commercial, and industrial customers, while transportation sector customers are not included. Residential customers can opt for a portion of their natural gas delivered as RNG by choosing to spend an additional $10, $25, or $50 per month on RNG. Commercial customers have the option be have 100 percent of their gas be RNG, or select from a series of set dollar amounts, or a percentage of their total gas use. The charges will also include a program fee. All costs of SoCalGas' voluntary RNG program are to be recovered from program participants. Residential customers will have to commit to one year. After one year, they will have the option to change their dollar amount or could participate on a month-to-month basis. Commercial customers will have to commit to a 2-year minimum subscription.

Vermont Gas (owned by Énergir) has one of the longer standing RNG programs in the United States. The program began offering RNG to all of its retail customers as an opt-in program in March 2018. In August 2021 the State of Vermont Public Utilities Commission granted approval to Vermont Gas to include a percentage of RNG as part of its overall supply for all retail customers. Under the approval Vermont Gas will continue to offer a voluntary RNG program to its customers and will gradually increase the proportion of RNG as part of its overall supply over time.

In Europe, RNG offerings come in a variety of forms, including direct injection of RNG into the gas system, delivering RNG to industrial and/or transportation customers directly, and some opt-in service offerings. In the UK and France, organizations such as British Gas and Engie allow customers to subscribe to Green Gas (Gaz Vert for Engie) service for which they charge a premium. In some cases this service is made up of some percentage of RNG, coupled with carbon offsets. Additional details on RNG offerings in Europe are presented in Appendix C.

The consultant did not find any significant RNG programs in Asia, although Japan appears to be preparing for a hydrogen future. Similarly, Australia does not appear to have any RNG programs currently available to the public, though pilot programs such as the Malabar Biomethane Injection project[97] exist to demonstrate the feasibility of injecting biomethane into the gas distribution network. Gas distributors such as Australian Gas networks and ATCO have indicated that they are pursuing hydrogen or biogas injection projects, but this does not appear to be available for sale to the public at present.

Based on the research conducted by FEI and the consultant, FEI was not able to identify any RNG programs in Canada, the United States or Europe that would fully address the needs FEI is seeking to address in this Application. Purely voluntary programs would not likely achieve the nature of uptake required to reduce emissions from the gas system in line with the provincial policy. Direct injection of RNG into the gas system, with all customers contributing towards the costs as is done in some parts of Europe, is simple and reduces GHG emissions broadly and effectively. However, this approach does not meet the degree of decarbonization of the gas supply required for certain customer segments, such as for residential new construction where a higher percentage of RNG is required to meet government regulations.

The combination of a voluntary RNG Program along with a gradual decarbonization of gas supply by including progressively greater amounts of RNG in the overall supply sold to retail customers, as was recently approved in Vermont, has considerable merit. However, without modification, this approach would not allow for the degree of decarbonization required for residential new construction.

FEI concludes that RNG programs in other jurisdictions are generally either at an early stage of development, similar to FEI's program prior to the 2015 BERC Application, or they are of comparatively limited in scale or scope compared to FEI's program needs. Furthermore, for RNG programs implemented by other organizations, their service offerings have been adapted to the policy and legislative framework of the jurisdiction in which they operate. While the objective of reducing GHG emissions is broadly similar across jurisdictions, the specific policy and regulation requirements do not align with those in British Columbia. In this regard, BC is unique. From this jurisdictional review, FEI concluded that revising its Renewable Gas Program to make it fit the needs of FEI's current and future operating context requires the development of a made-for-BC solution.

7.3.2 Identification of Potential Program Design Alternatives

In considering how to update the Renewable Gas Program in light of the needs identified in Section 7.2, FEI considered the following potential program design alternatives:

A. Voluntary Renewable Gas: A Voluntary Renewable Gas offering would attempt to sell all of the Renewable Gas purchased by FEI and maximize revenues. Potential changes to the existing program could include higher or lower pricing tailored to specific customer

[97] https://arena.gov.au/projects/malabar-biomethane-injection-project/.

types who are motivated to purchase Renewable Gas and for whom Renewable Gas has a high value. The benefits of a voluntary service are that those customers that see value in and are willing and able to pay for Renewable Gas would have it available to purchase. These customers could reduce their carbon tax and emissions, meet any internal or external targets that they may have, and, for NGV customers, earn credits through the BC-LCFS.

B. Renewable Gas Blend: Under this alternative, FEI would blend Renewable Gas volumes with conventional gas to be sold to all sales customers as part of their gas service. Every sales customer would receive a blend of Renewable Gas and conventional gas, and the blend would be the same as that received by every other sales customer. The full acquisition cost of Renewable Gas would be included in the commodity cost and all sales customers would pay the same commodity cost on a per GJ basis. The benefits of this approach is that it is relatively simple to understand and implement, and FEI would be able sell all of the Renewable Gas it purchases without concern that it would be left with unsold inventories. The costs of Renewable Gas would be fully recovered, and would be distributed to all customers on an equivalent $/GJ basis. All customers would also receive the same benefit in the form of reduced GHG emissions on the proportion of their gas service that is delivered as RNG. This benefit could take the form of reduced carbon tax payable, or other benefits depending on the customer and their specific circumstances.

C. Renewable Gas Connections: This alternative would provide all New Residential Connections with Renewable Gas to meet GHG restrictions on new residential construction. New Residential Connections would be all residential dwellings[98] served by a service line installed on or after the date of implementation of the New Residential Connections service, including new construction activity, conversions and retrofits. This service would be designed to provide a gas option that would satisfy local government and other restrictions on new residential construction. FEI considered three options for this service:

(1) 100 percent Renewable Gas to All New Residential Connections: This option would provide 100 percent renewable gas to all New Residential Connections in the province.

(2) Less than 100 Percent Renewable Gas: This option would designate a percentage of Renewable Gas at less than 100 percent Renewable Gas to New Residential Connections.

[98] FEI serves a range of residential dwellings, including detached homes, semi-detached homes, row houses, duplexes and quadruplexes, townhouses and multifamily condominiums, under RS 1, RS 2 or RS 3, depending on the volume of the gas service.

(3) Only Municipalities with Restrictive Policies: This option would provide 100 percent (or a lesser percent) Renewable Gas to New Residential Connections only in municipalities with restrictive policies in place for new residential construction.

D. Comprehensive Program: This alternative is to provide a comprehensive program that consists of all three of the above alternatives, including a Voluntary Renewable Gas offering for those customers desiring up to 100 percent Renewable Gas, a Renewable Gas Blend for all sales customers, and a New Residential Connections service designed to meet GHG restrictions on new residential construction.

FEI considered the above alternatives in light of the identified needs described in section 7.2. As described below, FEI concludes that, for New Residential Connections, Alternative C(1) is preferred over C(2) and C(3) and that a Comprehensive Program (Alternative D) is the only alternative that meets all the identified needs. These conclusions are discussed in the following sections.

7.3.3 Renewable Gas Connections Requires 100 Percent Renewable Gas for All New Residential Connections

As noted above, FEI considered three options for Alternative C. FEI concludes that only option 1 – 100 percent Renewable Gas for all New Residential Connections – met the identified need.

FEI rejected option (2) to provide less than 100 percent Renewable Gas to New Residential Connections for the following reasons:

- **Less than 100 Percent will Not Meet All Requirements:** Satisfying the GHGi standard in several Metro Vancouver municipalities like the City of Vancouver will require that new residential homes emit no more than 3 kg CO_2e/m^2/year. For some building archetypes, Renewable Gas blends of approximately 90 percent are required to meet a 3 kg CO_2e/m^2/year target. Other municipalities have adopted similar standards or are signalling the adoption of similar or more aggressive standards. Notably, the City of Surrey is contemplating a GHGi limit of 1 kg CO_2e/m^2/year by 2025[99]. These requirements can be updated anytime to become more restrictive, or additional municipalities could adopt new and more restrictive GHGi limits, creating uncertainty, for which builders are naturally seeking a solution. This means that Renewable Gas at less than 100 percent fails to provide a universal solution for all new residential construction, and there will be continual uncertainty as to its viability.
- **Complexity of Regulations Would Make Compliance Uncertain:** At less than 100 percent Renewable Gas, there will be continued uncertainty as to compliance due to the complexity of local government regulations. The following illustrates this complexity:

[99] To the best of FEI's understanding 100% Renewable Gas would meet a 1 kg CO2e/m^2-Yr metric.

- The GHGi standard is typically applied equally to groups of different building types such as large single family homes, townhomes, medium sized homes, duplexes, and small laneway homes. And yet, since the GHGi is an intensity standard, the size of the home is a critical variable. More specifically, smaller homes require more renewable energy to meet the GHGi standard, because the heating requirements are different for smaller homes. Consequently, there is significant variability of Renewable Gas percentage by the floorspace of a building alone.
- However, floorspace is not the only factor impacting the variability of Renewable Gas required. The GHGi standard is often required alongside Step Code or whole home energy performance requirements. Within the Step Code there are three key performance based metrics, all of which are interdependent. The metrics are performance based (rather than prescriptive), meaning builders must use energy software modelling and on-site testing to demonstrate that both their design and the constructed building meet the requirements of the standard. They may use any materials or construction methods thereby increasing the possible pathways to achieving the desired "step," but at the same time eliminating the possibility of a clear and predictable path to achieving the desired outcome. In other words, choices of building construction such as air tightness, wall and roof insulation, and number of windows directly impact energy use and energy use is a key variable in meeting the GHGi standard. This individuality is true of each building type mentioned earlier such as townhomes, duplexes, laneway homes, etc.
- Another layer of complexity is the regional differences and climate zones in BC and the impact they have on home performance. A home in Whistler may have a different energy profile than the exact same home built in Surrey, or Prince George. This geographic differences alter the Renewable Gas required for homes to meet the GHGi standard.
- One of the key factors that helps to determine a building's energy use is air tightness. A building's air tightness or air leakage from unintended gaps or cracks impacts space heating energy use. However, air tightness cannot be measured until the building's construction is complete. Yet, the building permitting process requires assurance that a building will meet the standard prior to construction.

- **Service at Less than 100 percent Renewable Gas Would Introduce Risk to the Builder or Developer:** As illustrated above, there are multiple factors determining whether or not a new home can comply with local building regulations on GHG emissions. Under these circumstances, any service based on less than 100 percent Renewable Gas would introduce a risk to the builder that the building would not meet the required GHGi standard. This uncertainty and risk would likely be sufficient for builders to not include gas service in their projects. The only way to ensure that a building served by the gas system will meet its emissions reduction obligations pre-construction, during construction, and post construction is for the gas service to be comprised of 100 percent Renewable Gas.

FEI rejected option 3 to provide the service to only municipalities that implemented restricted policies for new residential construction for the following reasons:

- **Administrative Burden and Complexity:** It would be administratively burdensome and complex to have the proportion of Renewable Gas provided to new residential customers vary depending on the particular municipality in which they are located. As noted in Section 3, regulations and policies vary by municipality and specific building projects. Trying to create an offering specific to each municipality and each building project is not possible because of the wide variation in the wording of regulations and approaches to GHG reduction adopted by each municipality. The regional differences and climate zones among cities in British Columbia may further complicate matters, as the geographic differences can alter the Renewable Gas required for homes to meet applicable standard. Further, as noted above, these regulations can and do change with little notice, requiring FEI to regularly update tariffs and constantly change messaging to its employees that work with customers and with the customers themselves. This will lead to outdated information and customer expectations not being met. A single, common percentage of Renewable Gas delivered to all residential new connections is the most practical solution to implement.

Only option 1 - 100 percent Renewable Gas to all New Residential Connections - will meet all restrictive new residential construction policies, will overcome the challenges faced by builders and developers in this sector, and is practical to be implemented.

7.3.4 Only a Comprehensive Program Meets Identified Needs

Table 7-1 summarizes how each of the alternatives performs with respect to the identified needs. A "✓" signifies that the option meets the need. As illustrated in the table, alternatives A, B and C each meet one of the identified needs and alternative D meets all three.

Table 7-1: All Three Alternatives Required to Meet Program Needs

Alternatives	Provincial Government Policy	Compliance with Building Regulation	Customer Needs for Renewable Gas
A: Voluntary Renewable Gas			✓
B: Renewable Gas Blend	✓		
C: Renewable Gas Connections (Option 1)		✓	
D: Comprehensive Program	✓	✓	✓

As indicated in the table:

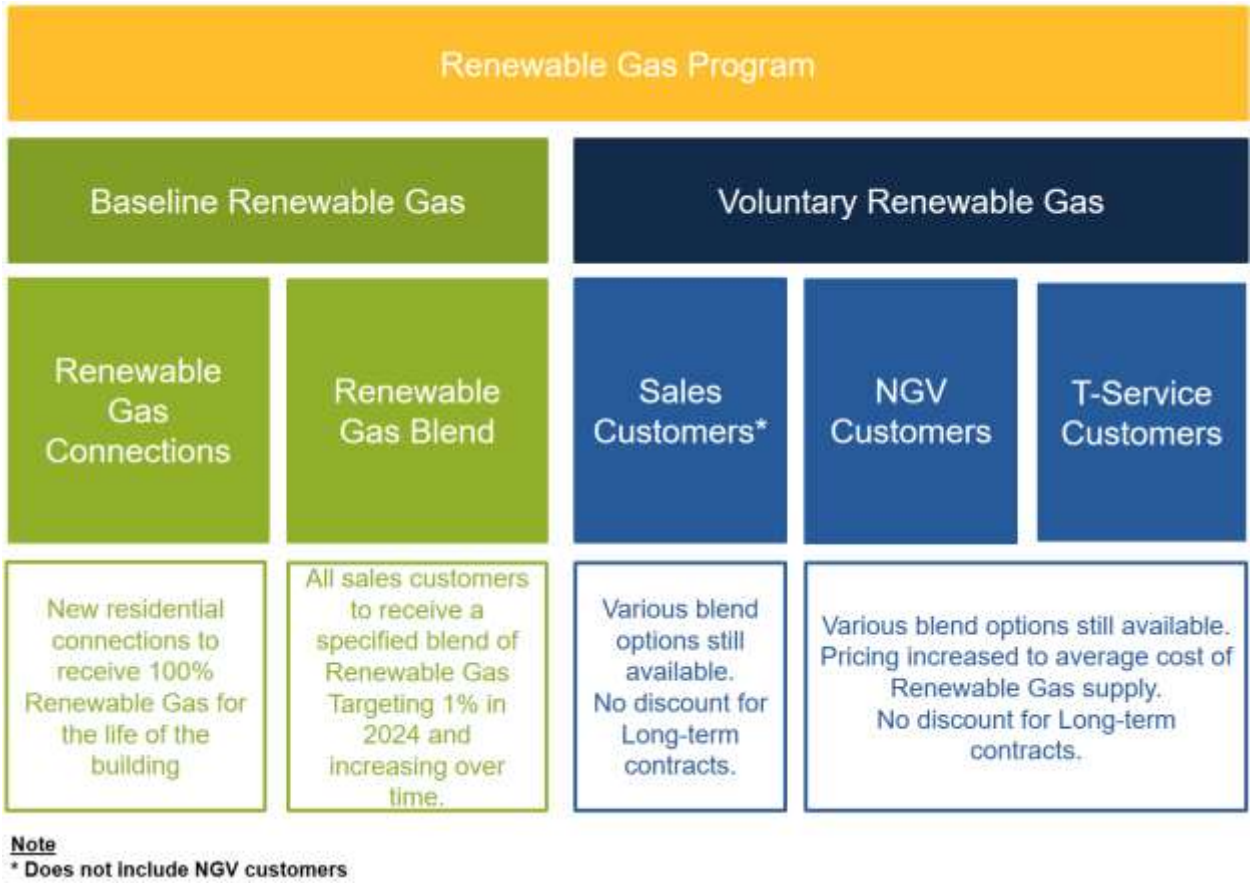
- A Voluntary Renewable Gas Program can meet the needs of customers wishing to purchase Renewable Gas. However, a purely voluntary approach would be unlikely to sell the volume of Renewable Gas that FEI needs to acquire to meet provincial targets, as most customers will not be willing to voluntarily subscribe and pay the premium for that volume of Renewable Gas. A purely voluntary program will also not address the challenges faced in new residential construction due to the policies adopted by municipalities, as customers can opt out of a voluntary service. FEI would be increasingly challenged to add new customers in the residential new construction sector.
- A Renewable Gas Blend can meet provincial targets for GHG reductions in gas supply and enable FEI to balance supply and demand of Renewable Gas. However, a Renewable Gas Blend would not meet the needs of customers wishing to purchases volumes of Renewable above the blend percentage, and FEI would be increasingly challenged to retain these customers. A Renewable Gas Blend would also be insufficient to meet the restrictive policies in the new residential construction sector, which require up to 100 percent Renewable Gas.
- Renewable Gas Connections can meet the specific challenges in the new residential construction sector, but would not meet provincial policy targets or the needs of customers wishing to purchase Renewable Gas on a voluntary basis.

FEI concludes that each of alternative A, B and C is a needed component of the Renewable Gas Program and that only a comprehensive program with all three of these components will maintain the long-term viability of the natural gas distribution system and energy choice for British Columbians. A Renewable Gas Blend is required for FEI to meet provincial targets for GHG reductions in the gas supply, and to sell the significant volumes of Renewable Gas it is acquiring to meet those target. A Renewable Gas Connections service is needed to meet restrictive policies for new residential construction and preserve energy choice in this sector. A Voluntary Renewable Gas offering is required to meet customer needs for Renewable Gas greater than what can be provided to all customers under a Renewable Gas Blend, and will preserve energy choice for these customers. A comprehensive program is therefore needed to address the identified needs.

7.4 *PROPOSED RENEWABLE GAS PROGRAM*

In this section, FEI provides more detail on its proposals. The structure of FEI's proposed Renewable Gas Program is depicted in the chart below.

Figure 7-2: Revised Renewable Gas Program



Note
*** Does not include NGV customers**

In addition to the existing Voluntary Renewable Gas offering (which FEI is proposing to modify as discussed below), FEI is proposing to add a Baseline Renewable Gas service with two components: Renewable Gas Blend and Renewable Gas Connections.

FEI is proposing to begin providing a Renewable Gas Blend whereby all customers who purchase their natural gas from FEI (i.e. sales customers)[100] will receive a percentage of their gas supply as Renewable Gas. Subject to available supply, FEI expects to begin with a one percent blend beginning January 1, 2024. When implemented, FEI will recover the costs of the Renewable Gas from all sales customers through a new Storage and Transport Low Carbon (S&T LC) rider.[101] This rider will be a storage and transport charge reflecting the fact that the cost of Renewable Gas will now be part of the overall costs of the commodity received by sales customers. Please refer to Section 8.4 for further discussion of the S&T LC rider.

FEI is also proposing that all New Residential Connections will receive 100 percent Renewable Gas, which will meet municipal regulations limiting GHG emissions from new buildings, the provincial Building Code, and the policy objectives for new homes in the CleanBC Roadmap.[102]

[100] FEI's sales customers include those in RS 1, 2, 3, 4, 5, 6, and 7.
[101] As discussed in Section 8.
[102] CleanBC Roadmap, p. 9.

New Residential Connections will be charged an overall rate designed to mimic "regular" gas service rates that all other sales customers pay for under the equivalent rate schedule, including consideration of the S&T LC rider they will already be paying. As the driver of the need for 100 percent Renewable Gas for New Residential Connections is government policy, the cost of the incremental Renewable Gas needed above "regular" gas costs should be recovered from all sales customers. This will also preserve energy choice by providing a service that is economically feasible for these customers.

FEI is proposing to continue with its Voluntary Renewable Gas offering with three modifications.

1. Voluntary Renewable Gas offering will be expanded to include Rate Schedule 7 customers. With the addition of RS 7, all customers will be able to purchase up to a 100 percent Renewable Gas blend.
2. NGV customers and T-Service customers will pay a Low Carbon Gas Charge equivalent to the average weighted cost of supply of Renewable Gas.
3. The $1/GJ discount for the rate paid for Renewable Gas under a long-term contract customers will be discontinued.

Each component of the proposed Renewable Gas Program is described in detail below.

7.4.1 Renewable Gas Blend for Sales Customers

Through its Renewable Gas Blend, FEI is proposing that all sales customers[103] receive a percentage blend of Renewable Gas as part of their regular gas service. Based on projected supply, FEI anticipates that, beginning in 2024, the initial blend will be one percent Renewable Gas and 99 percent conventional natural gas. The percentage of Renewable Gas will increase as new supplies of Renewable Gas come online. FEI's sales customers would not need to sign up to receive the Renewable Gas Blend, nor would they have an option to decline the Renewable Gas Blend. The integration of Renewable Gas into the gas supplied to sales customers would be seamless from the customer perspective, with the percentage Renewable Gas blend provided shown on their bill.

FEI will recover the costs of the Renewable Gas Blend through an S&T LC rider designed to recover the costs of the Renewable Gas Program not otherwise recovered from other components of the program. Customers will also receive an offsetting carbon tax credit for any volume of Renewable Gas they receive.

As noted above, the S&T LC rider will be a storage and transport charge reflecting the fact that the cost of Renewable Gas will now be part of the overall costs of the commodity that all sales customers receive. Please refer to Section 8.4 for further discussion of the S&T LC rider, and how

[103] Sales customers are those in Rate Schedules 1, 2, 3, 4, 5, 6 and 7.

it will enable recovery of the costs of the Renewable Gas Program. The mechanics of the proposed accounting and tracking of Renewable Gas are discussed in Section 8.4.2.1.

7.4.1.1 Benefits of Renewable Gas Blend

The Renewable Gas Blend is aligned with provincial policy objectives and will facilitate the balancing of the supply and demand for Renewable Gas. The Renewable Gas Blend will create a path for FEI's existing natural gas system to advance the objectives set out in the provincial government's CleanBC Plan and CleanBC Roadmap. It will also create a mechanism to scale up the provision of Renewable Gas as new Renewable Gas supply is acquired pursuant to the GGRR. As noted in Section 6.3.2, FEI is already acquiring significant Renewable Gas supply, and FEI will need to acquire even more Renewable Gas to meet its obligations under the CleanBC Roadmap which it expects will become part of legislation in late 2022. As FEI brings on additional Renewable Gas supply, the Renewable Gas Blend service will allow FEI to sell any volumes not sold to voluntary or Renewable Gas Connections customers under the Renewable Gas Program.

Introducing a Renewable Gas Blend for all sales customers also helps municipalities to achieve broad GHG emission reductions rapidly and at scale without spending on incentives, or requiring their constituents (and FEI's customers) to incur any capital expenses. Municipalities are attempting to reduce the emissions of existing buildings, but it is difficult, and building owners are especially price sensitive. If municipal regulations are too strict, building owners may avoid complying with the regulation to avoid the increased cost. By introducing a Renewable Gas Blend into the gas supply, FEI is able to achieve a broad-based reduction in GHG emissions in the existing building stock, without requiring any special actions on the part of municipalities or building owners, thus making it as easy as possible for all parties.

For example, in total, residents and businesses in the City of Vancouver (CoV) consume approximately 10 million GJs of gas annually. If FEI provides 1 percent of the gas to the CoV as Renewable Gas that equates to approximately 100 thousand GJs of Renewable Gas, displacing 100 thousand GJs of conventional natural gas. Customers experience a commensurate reduction in their GHG emissions of approximately one percent. In aggregate, the 100 thousand GJs Renewable Gas supplied to Vancouver is approximately the same as 2,200 detached homes switching to zero emission heating, but without the need to change out equipment. From the homeowner's perspective, a reduction of their GHG emissions by blending Renewable Gas into the gas stream requires no investment of time, energy, or money, and the effect on their energy cost is small.

Assuming all FEI sales customers consume approximately 140 million GJs a year, one percent Renewable Gas would equal 1.4 million GJs, or the same as converting over 30 thousand furnaces to electricity (or other low emission energy sources). Critically, these emission reductions can occur rapidly, and at scale, with no required investment of time, effort or money on the part of customers. The end use customer does not need to change any equipment nor sign up for a program. FEI simply reduces the carbon content of the gas stream without the need for additional provincial or municipal regulation at the building level, or for changes in infrastructure on the part of customers, or FEI.

7.4.2 Renewable Gas Connections

FEI is proposing that all New Residential Connections will receive 100 percent Renewable Gas, where New Residential Connections are all residential dwellings[104] served by a service line installed after the date of implementation of the service, including new construction activity, conversions and retrofits. One hundred percent Renewable Gas will comply with municipal regulation (and proposed changes to the BC Building Code) which impose limitations on GHG emissions for new residential construction. The Renewable Gas Connections service also meets the CleanBC Roadmap objectives for new connections. Building regulations and policy dictate many aspects of the design of new buildings. FEI's Renewable Gas Connections responds to changing building emissions policies and creates a viable solution for builders and homeowners to continue to choose gas as their energy source.

All Renewable Gas Connections will be designated as low carbon and will be served by a tariff that is tied to the building, rather than the customer. In this way, the building remains on a gas service receiving 100 percent Renewable Gas for its life (as opposed to the service tied to the individual customer who may leave the system at any time.)

In order to provide for equity between residential dwellings who are mandated to reduce emissions and those who are not, customers served under the Renewable Gas Connections tariff will pay the same effective rate for their gas service as existing customers in similar rate schedules. For example, 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. In this way, customers requesting a new service for a residential dwelling are charged the same as any other customer in a residential dwelling already connected to the gas system. They are not compelled to pay a higher price for gas which must be low carbon in order to comply with new municipal regulations.

As FEI implements the Renewable Gas Blend, New Residential Connections will receive part of their 100 percent Renewable Gas from the Renewable Gas Blend, and a second part from the New Residential Connections service. The cost of Renewable Gas provided through the Renewable Gas Blend will be recovered though the new S&T LC rider. The cost of Renewable Gas provided through the New Residential Connections service will be recovered though a new Low Carbon Gas Charge with the rate charged specific to New Residential Connections. For example, if all sales customers are receiving one percent of their gas as Renewable Gas, customers served under the Renewable Gas Connections tariff will receive 99 percent of their Renewable Gas via the new Low Carbon Gas Charge and one percent via the new S&T LC rider. In this way a customer served under the Renewable Gas Connections tariff does not receive more

[104] FEI serves a range of residential dwellings, including detached homes, semi-detached homes, row houses, duplexes and quadruplexes, townhouses and multifamily condominiums, under RS 1, RS 2 RS 3, or RS 5, depending on the volume of the gas service.

than 100 percent Renewable Gas. The mechanics and reasoning for this approach are elaborated on in Section 8.

7.4.2.1 Benefits of Renewable Gas Connections

FEI's Renewable Gas Connections service maintains access to the natural gas system for the new residential construction sector by providing a gas service for New Residential Connections in alignment with GHG reduction requirements in this sector. By charging the same rate as in the equivalent rate schedules for customers served by existing service lines, Renewable Gas Connections does not impose an undue financial burden on customers living in new residential dwellings attaching to the gas system.

In a new residential construction scenario, the end use customer (residential home owner or occupant) typically does not make the decision on what type of energy to use. They are purchasing or living in a building where the decision is made by someone else, generally the builder/developer or HVAC contractor. The builder/developer or HVAC contractor must comply with local GHGi building regulations and, at present, does not have an option other than to use electricity in certain municipalities. On the other hand, many end-use customers want the benefits of gas service, be it the reliability of gas, the affordable ongoing operating costs, or the lifestyle amenities.

FEI's Renewable Gas Connections service provides an option for the builder/developer/HVAC contractor to adhere to applicable GHG regulations, using high efficiency gas equipment to which they are accustomed, avoiding imposing additional burden or costs on the end-use customer. Local governments will be able to meet their GHGi objectives for new residential construction and the customers will be able to use gas as they would have been able to prior to any GHGi regulation being in place.

From the utility and customer perspective, maintaining access to the gas system for New Residential Connections is central to the long-term viability of the utility, while also utilizing the assets of the utility more efficiently and keeping rates affordable for all customers. Adding customers helps to better utilize existing utility assets while bringing on additional revenue through the new residential construction market.

As discussed in section 3 of the Application, current municipal policies have the potential to result in lower gross customer additions, and over time, an overall drop in the number of customers attached to the system. This risk is compounded by BC's higher residential tear down rate. Absent a service offering that satisfies applicable carbon reduction standards, FEI could continue to lose customers due to teardowns, but will have no ability to add any residential rebuilds, resulting in a loss of throughput and a permanent decline in the customer base.

In summary, FEI's proposed Renewable Gas Connections service is well aligned with public policy in British Columbia, and will meet all existing municipal regulations, restrictions and policy drivers in addition to meeting the pending provincial building code requirements. At 100 percent Renewable Gas, the service would meet GHGi metrics currently proposed for the new residential

construction sector, as discussed in detail in Appendix A. Shown in Table 7-2 below and further described in Appendix A, Renewable Gas has a substantially lower greenhouse gas intensity than BC Hydro's electricity. Furthermore, by requiring that 100 percent Renewable Gas service be attached to the building, rather than the individual customer, FEI ensures the permanency necessary to meet applicable standards.

Table 7-2: Energy Source Emission Factors

Energy Source	Source of Values	Emission Factor Values		
		$kgCO_{2e}/GJ$	$kgCO_{2e}/kWh$	tCO_{2e}/GWh
Conventional Natural Gas	2020 BC Best Practices Methodology for Quantifying Greenhouse Gas Emissions[105] (Table 1, p. 12)	49.87	0.180	179.53
Biomethane (RNG)	2020 BC Best Practices Methodology for Quantifying Greenhouse Gas Emissions (Table 1, p. 12)	0.2932	0.001056	1.06
Electricity	2020 GGIRCA website (Integrated grid for BC Hydro)[106]	11.14	0.040	40.10

7.4.3 Modifications to Voluntary Renewable Gas Offering

FEI's Voluntary Renewable Gas offering will continue to be available to provide Renewable Gas to customers that wish to purchase amounts above the Renewable Gas Blend. As discussed in section 5, customers have various reasons for wanting to purchase more Renewable Gas than may be sold through the Renewable Gas Blend. These reasons include meeting their own or government-mandated GHG emission reduction goals. The province's *Carbon Neutral Government Regulation* and the BC-LCFS are examples of government regulations that drive customer interest in purchasing large volumes of Renewable Gas. By providing a Renewable Gas option for these customers, the Voluntary Renewable Gas offering helps to maintain the long-term viability of the gas system and maintain energy choice for these customers.

FEI's proposed Voluntary Renewable Gas offering will be structured substantially same as the current Renewable Gas Program as described in section 2 of the Application. Subject to availability of supply, customers can opt in and select the percentage of Renewable Gas they desire. For example, customers under Rate Schedules 1, 2, or 3 can chose percentages of 5, 10, 25, 50 or 100 percent, while Rate Schedule 5 customers can chose a percentage between 5 percent and 100 percent in 5 percent increments. As ownership of the environmental attributes of any Renewable Gas sold will transfer to customers, customers will benefit from a reduction in the carbon tax payable on any Renewable Gas they purchase.

As discussed further in Section 8 of the Application, FEI is proposing to change the name of the BERC to the Low Carbon Gas Charge to reflect the expanded portfolio of Renewable Gas enabled

[105] https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2020-pso-methodology.pdf
[106] https://www2.gov.bc.ca/gov/content/environment/climate-change/industry/reporting/quantify/electricity

by the GGRR. With the exception of NGV and T-Service Customers as discussed below, FEI proposes to set the Low Carbon Gas Charge equivalent to the current BERC (i.e. CCRC + carbon tax + $7 premium). FEI considers that the rate setting methodology approved by the BCUC in 2015 continues to be just and reasonable for sales customers, excluding NGV customers. The Low Carbon Gas Charge is further described in Section 8.4.1.

As FEI implements the Renewable Gas Blend, sales customers subscribed to a Voluntary Renewable Gas offering will see their selected percentage of Renewable Gas comprised of a Baseline of Renewable Gas via the new S&T LC rider and the remainder via the Low Carbon Gas Charge. For example, a sales customer electing to voluntarily receive 10 percent Renewable Gas will receive one percent through the S&T LC rider and nine percent via the Low Carbon Gas Charge. T-Service customers do not receive their gas supply from FEI and therefore are not subject to the S&T LC rider. The Low Carbon Gas Charge and S&T LC rider are further explained in Section 8.4.

Beyond changing the name of the rates for Renewable Gas as noted above, FEI is proposes the following three modifications to the current Voluntary Renewable Gas offering:

1. **Modification 1:** Voluntary Renewable Gas offering will be expanded to include Rate Schedule 7 customers. With the addition of RS 7, all customers will be able to purchase up to a 100 percent Renewable Gas blend.
2. **Modification 2:** NGV customers and T-Service customers will pay a Low Carbon Gas Charge equivalent to the average weighted cost of supply of Renewable Gas.
3. **Modification 3:** The $1/GJ discount for the rate paid for Renewable Gas under a long-term contract for T-Service customers will be cancelled.

These proposals are further explained in the subsections that follow.

7.4.3.1 Modification 1: Expansion of Program for RS 7 Customers

FEI does not currently offer Renewable Gas service for customers in Rate Schedule 7, and expansion of Voluntary Renewable Gas offering to Rate Schedule 7 customers is now needed. Rate Schedule 7 provides an interruptible service for large volume customers that have the ability to switch to an alternate energy source. A customer/building type often found in this rate schedule is hospitals. With the growth of Renewable Gas supply and the re-opening of FEI's Renewable Gas Program, FEI has received a number of requests from customers in this rate schedule for Renewable Gas. Therefore, for consistency and fairness, FEI proposes to add Renewable Gas service for Rate Schedule 7 as part of the Voluntary Renewable Gas offering.

As set out in Section 1.2, FEI is requesting permanent approval of new RS 7B effective February 1, 2022, to offer access to the Renewable Gas Program for these customers as other customers do under Rate Schedules 1B, 2B, 3B, 5B, and 11B. FEI's proposed RS 7B is included as Appendix D-1 and aligns with the Renewable Gas Program as currently approved.

With the approvals sought in this Application, FEI would discontinue all the "B" rate schedules, including 1B, 2B, 3B, 5B, 11B and 7B,[107] with new rate schedules reflecting the Renewable Gas Program as proposed.

7.4.3.2 Modification 2: Price of Renewable Gas for Transportation Service and NGV Customers

FEI proposes that the rate for NGV and T-Service customers be set to recover 100 percent of the average cost of Renewable Gas supply, on a cost per GJ basis. The rationale for this change is discussed below.

There are two reasons for increasing the rate for NGV customers. First, any GHG emission reductions resulting from the sale of Renewable Gas to NGV customers will not contribute to achieving the GHG reduction policy described in the CleanBC Roadmap. The CleanBC Roadmap calls for the gas system to reduce emissions from natural gas used to heat homes and buildings and power industries to 47 percent lower than 2007 levels by 2030. Since Renewable Gas volumes sold to NGV customers cannot contribute to achieve the public policy target, additional Renewable Gas would have to be purchased by FEI ratepayers to meet the GHG emission reduction objectives described in the CleanBC Roadmap. If Renewable Gas is sold to NGV customers at a discount to the cost of acquisition, the effect would be to increase the costs borne by all other ratepayers as more Renewable Gas would need to be purchased to meet the policy objective. By setting the Renewable Gas rate for NGV customers at the average supply cost, gas system ratepayers should be indifferent to the sale of Renewable Gas to NGV customers.

Second, Renewable Gas has a higher value to NGV customers than to other customer types. NGV customers receiving compressed natural gas (CNG) service and liquefied natural gas (LNG) service in British Columbia are eligible for Part 3 fuel supplier status under the BC-LCFS. NGV customers who purchase their own gas supply from a gas marketer are also eligible. Part 3 fuel suppliers that reduce the carbon intensity of their fuel relative to the baseline carbon intensity identified in the *Renewable and Low Carbon Fuel Requirements Regulation* can generate credits which can be sold in the credit market. In effect, the current BC-LCFS provides these customers with a financial incentive to reduce their GHG emissions by purchasing Renewable Gas, as discussed in Section 5.7.2.

The rationale for charging T-Service customers full cost recovery for Renewable Gas is that T-Service customers do not participate in the Renewable Gas services provided to sales customers included in the Renewable Gas Blend. FEI is proposing an elimination of the BVA rider, which collects costs in excess of recoveries from all non-bypass customers, which includes both T-Service and sales customers.

T-Service customers and marketers have expressed concern of the added cost associated with the BVA rider and the lack of any environmental or program benefit (i.e. there is no actual RNG being delivered to them by FEI). The current BVA rider is approximately five cents on the delivery

[107] Assuming RS 7B is approved as proposed in this Application.

charge and, if the current mechanism for the BVA delivery rider remains, the rider will increase as more volumes of Renewable Gas are added to the gas supply. T-Service customers would therefore pay increasing rates via the BVA rider yet not receive any program or environmental benefits.

In place of the BVA rider, FEI is creating a S&T LC rider, which will have associated Renewable Gas volumes, costs for actual volumes, and under recoveries as part of the charge. As these benefits of the delivery of Renewable Gas Blends and the costs are related to sales customers, they are recovered only from sales customers via the S&T LC rider.

Since T-Service customers do not receive any Renewable Gas volumes via the S&T rider, they also do not pay for under recoveries from the Renewable Gas Connections service or Voluntary Renewable Gas offering for sales customers. Instead, T-Service customers will pay the pay the full cost of Renewable Gas (further elaborated on in Section 8.4.1.1) should they require any Renewable Gas. As such, the Rate Schedule 11B price which is available to T-Service customers will change to reflect the full acquisition cost of Renewable Gas.

In summary, FEI will maintain a voluntary Renewable Gas offering for T-Service and NGV customers, while avoiding putting additional cost pressure on sales customers. T-Service and NGV customers are provided with a means of accessing Renewable Gas which supports the provincial government's policy objectives of reducing GHG emissions in sectors that are difficult to decarbonize with electricity, such as process loads, and also provides an avenue for NGV customers to participate in the BC-LCFS.

7.4.3.3 Modification 3: Discontinuation of Price Discount for Long Term Contracts

FEI is proposing to continue offering long-term contracts for customers who meet the long-term contract eligibility requirements of a commitment to purchase no less than 60 thousand GJs in aggregate over a term of no less than five years and no more than ten years. FEI currently has long-term contracts with UBC, Translink and the CoV.

Long-term contracts still provide benefits to both customers and FEI. For eligible customers, the benefit is in the form of supply security for periods of five to 10 years. For FEI, the benefit is in the ability to foresee with confidence a sizeable portion of demand, and to administer the available Renewable Gas supply accordingly.

However, FEI is proposing to remove the $1/GJ discount for any future long-term contracts. The conditions that made the $1/GJ discount a reasonable approach in 2015 are no longer applicable. With the proposed Renewable Gas Blend, FEI does not run the risk of having unsold volumes of Renewable Gas. Given that the revised Renewable Gas Program will provide mechanisms for all Renewable Gas to be sold, FEI does not consider that a discount is necessary or required to encourage long-term contracts.

FEI will continue to file any long-term contracts with the BCUC for approval, so that the BCUC will have the opportunity to review the long-term contracts and ensure they meet the eligibility requirements.

7.5 *SUMMARY*

In summary, FEI's proposed Renewable Gas Program address the context within which the utility now operates by meeting government policies aimed at reducing GHG emissions and providing customers with options designed to suit their needs and the regulations to which they are subject. The Renewable Gas Program will allow FEI to deliver a Baseline of Renewable Gas to all sales customers that can be topped up to 100 percent through the Voluntary Renewable Gas offering if needed, while all New Residential Connections will be permanently served with 100 percent Renewable Gas. The proposed Renewable Gas Program provides the mechanisms by which FEI can match supply to demand, and ensure all Renewable Gas is sold. Therefore, with the revised Renewable Gas Program, GHG emissions in BC will be reduced as quickly as new supply can be brought on line. This will achieve GHG emission reductions across all sectors and customers.

The revised Renewable Gas Program encourages the use of existing gas system assets by both existing and future customers. This helps to mitigate upward rate pressure that could be caused by the increased cost of acquisition of Renewable Gas and a loss of FEI's customer base and demand that would occur absent a Renewable Gas Program that meets policy and regulations. This will help maintain the long-term viability of the gas delivery system and energy choice for British Columbians.

FEI proposes that in five years after a final decision by the BCUC in this proceeding, FEI will file a review of the Renewable Gas Program with any proposed adjustment that may be needed. This would not preclude FEI from bringing forward an application earlier if needed to respond to changes in government policy, the market or in response to challenges with program structure or design. FEI's reporting on the Renewable Gas Program, including the proposed 5-year review, is discussed further in section 9 of the Application.

8. ACCOUNTING TREATMENT, PROGRAM MECHANICS, RATE SETTING AND CUSTOMER BILL IMPACT

8.1 *INTRODUCTION*

This section provides an overview of the accounting treatment of costs and recoveries of the Renewable Gas Program, including the use of the new Low Carbon Gas Account (LCG Account) to account for all Renewable Gas Program costs, Renewable Gas volumes and recoveries. This section also describes the recoveries via the Low Carbon Gas Charge (LCG Charge) and Storage and Transport Low Carbon (S&T LC) rider, the rate setting process and a review of the customer bill impact.

The subsections below are organized as follows:

- Section 8.2 provides an overview of LCG Account, LCG Charge and S&T LC rider and how these work together, including the regulatory accounting treatment.
- Section 8.3 describes how the LCG Account will capture all the Renewable Gas Program costs and volumes.
- Section 8.4 provides details of how the cost recovery mechanism for Renewable Gas works via the LCG Charge and S&T LC rider.
- Section 8.5 provides details of a sample annual customer bill calculation.
- Section 8.6 analyzes the customer bill impact.
- Section 8.7 discusses risk mitigation measures for demand and supply balancing.
- Section 8.8 describes the disposition of the existing Renewable Gas Program related accounts.

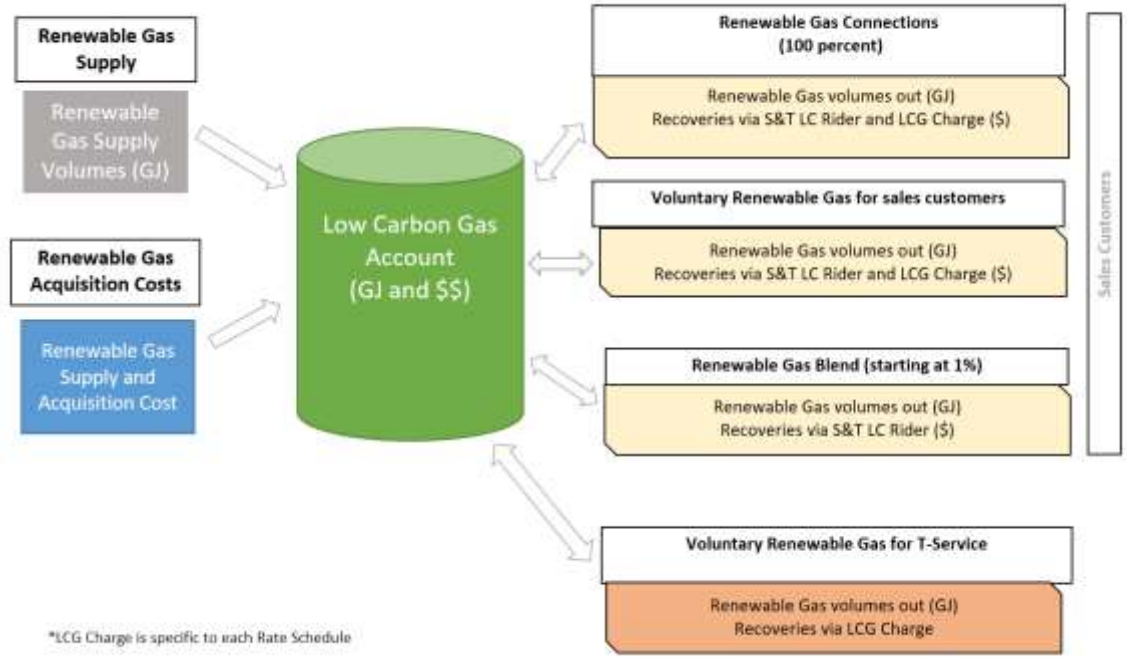
8.2 *OVERVIEW OF LOW CARBON GAS ACCOUNT, LOW CARBON GAS CHARGE AND STORAGE AND TRANSPORT RIDER*

FEI proposes to use the LCG Account, which is the replacement account for the BVA, as the regulatory mechanism to track all Renewable Gas Program supply costs and recoveries, and the associated volumes. Recoveries of Renewable Gas supply costs will be through two charges: the S&T LC rider and the LCG Charge.

FEI will change the name of the BERC to the LCG Charge and the name of the BVA to the LCG Account, as FEI will be expanding its Renewable Gas portfolio beyond biomethane by acquiring other low carbon energy, such as hydrogen, lignin and synthesis gas, as enabled by the GGRR. Similarly, the S&T LC rider will replace the current BVA delivery rate rider.

The figure below illustrates how the LCG Account will function, including the role of the S&T LC rider and the LCG Charges.

Figure 8-1: LCG Account including S&T LC Rider and LCG Charge



Below, FEI provides an illustrative example of the accounting entries that would flow through the LCG Account. The LCG Account functions in the same way as FEI's existing Midstream Cost Reconciliation Account (MCRA).

Example assumptions:

FEI both purchases and sells 7,500,000 GJs of Renewable Gas in the year, such that there is no supply/demand imbalance. To simplify this example, FEI has also assumed that it has forecasted the costs, supply, and demand exactly as they occurred. The purchase and acquisition price is $20 and the CCRC in that year is $4 per GJ, and carbon tax is $2 per GJ. As such, the LCG Charges are as follows[108]:

- Renewable Gas Connections LCG Charge is: $6 per GJ ($4 CCRC + $2 carbon tax)
- Voluntary Renewable Gas for Sales customers LCG Charge is $13 per GJ ($4 CCRC + $2 carbon tax + $7 premium)
- Voluntary Renewable Gas for T-Service customers LCG Charge is $20 per GJ

In this example, one percent Renewable Gas is provided to all sales customers and recovered via the S&T rider at $0.63 per GJ (calculation shown in Figure 8-2 below) and the remainder of the recoveries are through the respective LCG Charges described above.

[108] In this example, there are no sales to NGV customers.

Figure 8-2: Example of LCG Charge, S&T Rider Recoveries and LCG Account

Example Assumptions:	
FEI purchases RG Supply	**7,500,000 GJ**
Cost per GJ (Supply & Acquisition Cost)	**$20**
Total Cost	**150,000,000**
CCRC	$4
Premium	$7
Carbon Tax (CT)	$2
Assume no NGV RG customers	
Assumes no RG supply buffer (i.e. no carryover from the prior year or remaining in the LCG Account)	

Forecast Total Gas Demand		
Total Gas Demand for FEI Sales Customers	100,000,000	**A**
Forecast RG Demand		
RG Demand from RG Connections	500,000	**B**
RG Demand from Voluntary Sales Customers	5,000,000	**C**
RG Demand from T-Service Customers	1,000,000	
	6,500,000	
Remaining RG Supply	1,000,000	**D**
RG Baseline to all Sales Customers	1.0%	**D/A**
Conventional Natural Gas for FEI Sales Customers	93,500,000	**A-B-C-D**

Forecast RG Under Recoveries		**LCG Charge ($)**		**Remaining Blend**	**Recoveries ($)**	**Full Cost Recoveries @ $20**	**Under Recoveries ($)**	
RG Demand from RG Connections	500,000	6	CCRC +CT	99%	2,970,000	10,000,000	7,030,000	
RG Demand from Voluntary Sales Customers	5,000,000	13	CCRC+Premium + CT	99%	64,350,000	100,000,000	35,650,000	
					67,320,000		**42,680,000**	**E**

Under recoveries from RG Connections & Voluntary Sales Customers	42,680,000	**E**
Remaining RG Supply	1,000,000	
Cost per GJ ($)	20	
	20,000,000	**F**
Total Under recoveries	**62,680,000**	**E+F=G**
S&T LC Rider for All Sales Customers	**$ 0.63**	**G/A**

Recoveries via LCGC Charge and S&T rider		**Proportion Applicable to S&T Rider**	**S&T LC Rider ($)**	**S&T LC Recoveries ($)**	**Proportion Applicable to LCG Charge**	**LCG**	**Charge ($)**	**LCC Charge Recoveries ($)**	**Total Recoveries ($)**	**Total RG Volumes (GJ)**
RG Demand from RG Connections	500,000	1%	0.63	313,400	99%	6		2,970,000	3,283,400	500,000
RG Demand from Voluntary Sales Customers	5,000,000	1%	0.63	3,134,000	99%	13		64,350,000	67,484,000	5,000,000
Remaining RG Supply for Sales customers	1,000,000	100%	0.63	626,800	0%	0		-	626,800	1,000,000
Natural Gas for FEI Sales Customers	93,500,000	100%	0.63	58,605,800	0%	0		-	58,605,800	-
RG Demand from T-Service Customers	1,000,000	n/a	n/a	-	100%	20		20,000,000	20,000,000	1,000,000
	101,000,000			**62,680,000**				**87,320,000**	**$ 150,000,000**	**7,500,000**

The summarized entries to be recorded in the LGC Account would be as follows:

1) To record the purchases of Renewable Gas:

DR	LCG Account		$150,000,000	
CR		Renewable Gas Cost Payable		$150,000,000

2) To record the sales of Renewable Gas:

DR	Accounts Receivable		$150,000,000	
CR		Revenues (by rate schedule)		$150,000,000

3) To record the Renewable Gas recoveries through the S&T LC rider:

DR	Cost of Renewable Gas		$62,680,000	
CR		LCG Account		$62,680,000

4) To record the Renewable Gas recoveries through LCG Charge:

DR	Cost of Renewable Gas		$87,320,000	
CR		LCG Account		$87,320,000

In the sections below, FEI discusses in more detail the costs and volumes that will be captured in the LCG Account, the volumes that flow out of the LCG Account to customers, and the associated cost recovery from customers through the S&T LC rider and LCG Charge that are credited into the LCG Account.

8.3 *LOW CARBON GAS ACCOUNT WILL CAPTURE ALL RENEWABLE GAS SUPPLY COSTS AND VOLUMES*

FEI currently tracks both volumes (supplied and sold) and dollars (costs and recoveries) related to the Renewable Gas Program in the BVA. To ensure the appropriate matching of Renewable Gas supply volumes with volumes consumed, Renewable Gas costs and recoveries must be separately tracked from the conventional natural gas commodity. The BVA has been an effective mechanism to do this while providing transparency into Renewable Gas volumes, costs and recoveries. As noted above, FEI proposes to rename the BVA as the LCG Account to reflect the expansion of the Renewable Gas Program to include low carbon energy beyond biomethane.

The costs to be captured in the LCG Account will remain the same as those that were approved by the BCUC for the BVA, and include the following:

Renewable Gas Supply:

- **Payments to suppliers for the acquisition of Renewable Gas**: When FEI enters into a contract with a third party to acquire Renewable Gas, the cost to acquire the Renewable Gas will be captured in the LCG Account. This will include FEI's costs to acquire biomethane, hydrogen, synthesis gas and lignin, as defined under the GGRR, in addition to the current supply of biomethane.
- **Cost of service of FEI-owned interconnections:** If FEI constructs and operates an interconnection enabling the injection of Renewable Gas into FEI's transmission or distribution system, then the cost of that interconnection will be included in FEI's rate base and the associated cost of service accounted for in the LCG Account.
- **Cost of service of FEI-owned Renewable Gas production facilities:** If FEI constructs and operates Renewable Gas facilities, the cost of the facilities will be included in FEI's rate base and the associated cost of service accounted for in the LCG Account.
- **Costs related to the procurement of carbon offsets**: In the event that FEI experiences a shortfall in Renewable Gas supply, carbon offsets may be purchased to ensure sufficient volume exists to cover its obligations. Carbon offsets can be used only in the context of the Voluntary Renewable Gas offering.
- **Costs for the procurement of supply:** FEI's costs incurred to manage the procurement of Renewable Gas supply and the administration of the supply contracts by FEI staff will be included in the LCG Account.

Like the BVA, the LCG Account will also be used to track the volumes of Renewable Gas. FEI will track all volumes of Renewable Gas acquired through its supply contracts with third parties and volumes of FEI's own projects in the LCG Account. This will include volumes of biomethane from existing and future biomethane supply contracts, but also any volumes of hydrogen, lignin or synthesis gas that FEI may acquire as enabled by the GGRR.

In summary, all Renewable Gas supply costs and associated volumes will be recorded in the LCG Account.

8.4 *LOW CARBON GAS ACCOUNT WILL CAPTURE COST RECOVERIES THROUGH THE LCG CHARGE AND THE S&T LOW CARBON RIDER*

FEI proposes to recover the costs recorded in the LCG Account through the LCG Charge and S&T LC rider. As noted above, FEI will replace the BERC with the LCG Charge to more accurately reflect the future composition of the Renewable Gas supply portfolio as enabled by the GGRR. Similarly, the S&T LC rider will replace the current BVA delivery rate rider.

Table 8-1 below provides an illustrative example of how the S&T LC rider and the LCG Charge would apply for each element of the Renewable Gas Program and for each rate schedule. This

example assumes that FEI is providing a Renewable Gas Blend to all sales customers at one percent.

In this example, customers served under Renewable Gas Connections receive 100 percent Renewable Gas:

- Of which one percent is from the Renewable Gas Blend for all sales customers with cost recovery via the S&T LC rider; and
- The remaining 99 percent is through Renewable Gas Connections service with cost recovery through the LCG Charge.

Also in this example, Voluntary Renewable Gas provided to sales/NGV/T-Service customers electing to sign up to purchase a higher Renewable Gas percentage, such as ten percent in this example, will receive:

- One percent Renewable Gas via the Renewable Gas Blend for sales customers; and
- The remaining nine percent through whichever Voluntary Renewable Gas offerings they take.

Table 8-1: LCG Charge and S&T LC Rider Summary

	Sales Customers				T-Service
	Baseline Renewable Gas		Voluntary Renewable Gas		
	Renewable Gas Blend (for Sales Customers)	Renewable Gas Connections (residential dwellings)	Non-NGV Sales	NGV Sales	T-Service
Renewable Gas Service	**No Renewable Gas Sign up Required**	**Default 100% Renewable Gas**	**Elect 10% Renewable Gas**	**Elect 10% Renewable Gas**	**Elect 10% Renewable Gas**
Cost recovery via S&T LC rider for decarbonizing gas supply	1%	1%	1%	1%	0%
Cost recovery via LCG Charge for Incremental Renewable Gas % up to required or elected amount	0%	99%	9%	9%	10%
Total Renewable Gas % Customer Receives	**1%**	**100%**	**10%**	**10%**	**10%**
S&T LC rider (Section 8.4.2)	TBD Annually	TBD Annually	TBD Annually	TBD Annually	TBD Annually
LCG Charge (Section 8.4.1)	Not Applicable	Equivalent to CCRC + carbon tax	CCRC + carbon tax +$7	Renewable Gas weighted average supply cost per GJ less S&T LC rider	Renewable Gas weighted average supply cost per GJ
Rate Schedules	1, 2, 3, 4, 5, 6, 7	New Rate Schedules: 1PLC, 2PLC, 3PLC, 5PLC	Rate Schedules 1B replaced by 1LC, 2B replaced by 2LC, 3B replaced by 3LC, 5B replaced by 5LC, and new Rate Schedule 7LC	New Rate Schedules 3VLC and 5VLC, amendments to Rate Schedule 46	Rate Schedule 11B replaced by 11LC Applicable to RS 22, 23, 25 and 27

Notes for rate schedule naming conventions:

LC: Low Carbon
PLC: Permanent Low Carbon
VLC: Vehicle Low Carbon

In the table above, FEI lists the amended and the new rate schedules for the proposed Renewable Gas Program. Note that FEI is proposing a new RS 7LC for customers in RS 7 to have access to the Voluntary Renewable Gas offering; this customer group previously did not have a designated rate schedule under which they could receive Renewable Gas. All new and amended rate schedules can be found in Appendix D-2.

In summary, the LCG Account will capture all Renewable Gas recoveries and associated volumes through the LCG Charge and the S&T LC rider. The LCG Charge and the S&T LC rider are explained in detail in the following sections.

8.4.1 Low Carbon Gas Charge

The LCG Charge will be the name of the charge for Renewable Gas supplied to FEI's Renewable Gas Connections service and all Voluntary Renewable Gas offerings. Unlike the BERC, which was the same charge for all customers receiving Renewable Gas, the LCG Charge varies for each offering and rate schedule (further described in the "Rate Setting Process" row in the table below).

Table 8-2 below provides details on how the LCG Charge will be applied and set for the applicable Renewable Gas services.

Table 8-2: Cost Recovery via the LCG Charge

Recovery	Renewable Gas Connections (for residential dwellings)	Voluntary Renewable Gas for Sales Customers	Voluntary Renewable Gas for NGV Sales Customers	Voluntary Renewable Gas for T-Service Customers
Applicable Renewable Gas Volume	• S&T LC rider for the percentage of Renewable Gas Blend for sales customers. • LCG Charge for the remaining Renewable Gas is provided via the Renewable Gas Connections	• S&T LC rider for the percentage of Renewable Gas Blend. • LCG Charge for the remaining Renewable Gas provided via the Voluntary Renewable Gas offering.		• No S&T rider • LCG charge for the percentage of Voluntary Renewable Gas selected.
Applicable Rate	CCRC plus carbon tax per GJ.	CCRC plus carbon tax +$7 per GJ.	Forecast Cost of Acquisition per GJ less S&T LC rider	Forecast cost of Acquisition
Rate Setting Process	The LCG Charge will be adjusted quarterly to account for changes in the approved CCRC[109] and the enacted carbon tax[110] per GJ.		Forecast Cost of Acquisition updated annually (described further below)	Forecast Cost of Acquisition updated annually (described further below)

8.4.1.1 Low Carbon Gas Charge – Setting the Forecast Cost of Acquisition for T-Service and NGV Customers

For the purpose of calculating the LCG Charge for T-Service customers and NGV customers, FEI will calculate the forecast weighted average cost of acquisition of Renewable Gas (Forecast Cost of Acquisition), by forecasting the cost of Renewable Gas supply (as described in Section 8.3)

[109] FEI files quarterly cost of gas applications with the BCUC to determine the CCRC.
[110] If the carbon tax changes in any year, the new rate is enacted on April 1. The carbon tax rate for any particular year is typically known well in advance of the April 1 enactment date. Each year FEI proposes to set the quarter 2 LCG Charge for new residential connections equal to the approved CCRC per GJ plus the carbon tax rate per GJ expected to be in place on April 1 of that year.

and dividing the forecast total supply cost by the forecast supply volume of Renewable Gas for the forecast year.

Since NGV sales customers will pay the S&T LC rider which includes some acquisition and under-recovery costs, the S&T LC rider will be subtracted from the Forecast Cost of Acquisition to arrive at the LCG Charge for NGV sales customers.

8.4.2 Storage and Transport Low Carbon Rider

The S&T LC rider will be set annually to recover the Renewable Gas supply costs as set out in Section 8.3 less recoveries from the LCG Charges. This amount will then equal the under-recoveries of Renewable Gas supplied to Renewable Gas Connections and the Voluntary Renewable Gas for non-NGV sales customers, whether due to differences between the supply costs and the rates charged, volume-related over- or under-recoveries, or forecasting true-ups.[111]

The S&T LC rider will be charged to all sales customers, including customers already receiving Renewable Gas via the Renewable Gas Connections and Voluntary Renewable Gas offerings. Customers will also receive an offsetting carbon tax credit for any volume of Renewable Gas they receive via the S&T LC rider.[112]

Establishing the rider for Renewable Gas volumes in storage and transport costs enables FEI to deliver Renewable Gas volumes to its sales customers and capture the cost of Renewable Gas in the cost of the commodity received by sales customers. Delivering Renewable Gas volumes in this way also allows sales customers to receive the offsetting carbon tax reduction.

The S&T LC rider will not be charged to T-Service customers. T-Service customers supply their own commodity and therefore will not receive Renewable Gas through the Renewable Gas Blend for sales customers. T-Service customers do not pay FEI a CCRC charge or an S&T charge, therefore they will not be charge an S&T LC rider.

The process for how FEI will set the S&T LC rider each year is explained in Section 8.4.2.1 below.

8.4.2.1 Setting the Storage & Transport Low Carbon Rider

Like the Storage & Transport charges, the S&T LC rider will be updated annually. Each year, FEI will calculate the S&T LC rider for the following year on a forecast basis. This process will not only set the S&T LC rider but also determine the volume of Renewable Gas deemed to be delivered via the Renewable Gas Blend for sales customers. FEI will file to set the S&T LC rider

[111] The acquisition costs for Renewable Gas is higher than the price paid through the Renewable Gas Connections and Voluntary Program for Sales Customers, consequently there are under recoveries on these volumes.

[112] As discussed in Section 3.4.1.4, the provincial carbon tax is $45 per tonne ($2.31/GJ) as of April 1, 2021 and is currently proposed to increase at the same level as the federal carbon tax plan – escalating at $15 per tonne per year after 2022 and reaching $170 per tonne by 2030. This would have the effect of increasing the carbon price on a gigajoule of natural gas to nearly $8.40 by 2030. 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.

approximately one month in advance of the fourth quarter gas cost reporting, to provide time for BCUC staff review, with a decision expected to be issued at the same time as the fourth quarter gas cost.

FEI will calculate the S&T LC rider for the following year based on the projected January 1 opening balance of the LCG Account and forecasts that will consider the following:

- Supply volumes that will account for downtime and unexpected underproduction from existing suppliers and a period of production ramp up for new suppliers;
- Supply costs as described in Section 8.3; and
- Recoveries from Renewable Gas Connections and Voluntary Renewable Gas customers.

The difference between the forecasts of the opening balance, Renewable Gas supply costs (as described in Section 8.3), and the Renewable Gas recoveries will determine the total net cost (cost less recoveries) to be recovered via the S&T LC rider. The total net cost is then divided by the forecast volumes sold to all sales customers to arrive at the S&T LC rider.

The following table provides an example of how FEI will determine the S&T LC rider. In this example, FEI is setting the S&T LC rider for 2025; therefore, the Forecast year is 2025 and the Projection year is 2024. As discussed above, the calculations will be undertaken late in 2024 as FEI prepares its S&T LC rider filing. FEI will use the latest available information including as many months of actuals as possible to project the 2024 ending balances and a forecast of 2025 to determine the inventory of Renewable Gas available, the costs of that inventory and the offsetting recoveries. Lines 7 through 21 of Table 8-3 illustrate the volume and cost accounting mechanism. FEI will calculate the S&T LC rider by dividing the costs (Line 24) by a forecast of total sales volume (Line 25).

Table 8-3: Storage & Transport Low Carbon Rider Calculation

Line No.	Particulars	Projected Amount	Forecast Amount	Reference
1	RG Supply Price ($/GJ)	$ 24.00	$ 23.00	Average price of all RG acquisitions
2	RG Purchased (TJ)	2,000	3,500	Projected/Forecast supply
3	Total RG Supply Cost ($000)	$ 48,000	$ 80,500	Line 1 x Line 2
4	Supply and Contract Mgmt ($000)	$ 2,100	$ 2,100	
5	Total RG Cost ($000)	$ 50,100	$ 82,600	Line 3 + Line 4
6				
7	**RG Inventory in (TJ)**			
8	Open	-	300	Prior Years Closing Balance
9	Additions	2,000	3,500	Line 2
10	Demand New Residential & Voluntary	(1,500)	(2,000)	Projected/Forecast Demand
11	Supply available to Flow as LCG	500	1,800	Line 8 + Line 9 + Line 10
12	Renewable Gas through S&T Rider	(200)	(1,500)	Projected Amount: Note 1; Forecast Amount: - Line 11 + Line 13
13	Close	300	300	Projected Amount: Line 11 + Line 12; Forecast Amount: Desired Inventory Buffer
14				
15	**RG Inventory in dollars ($000)**			
16	Open Inventory at Avg Supply Cost	$ -	$ 22,600	Prior Years Closing Balance
17	Supply Cost	50,100	82,600	Line 3
18	Sales Revenue - New Residential and Voluntary	(22,500)	(34,000)	Line 10 x Avg Price to New Res and Voluntary
19	Net Supply Cost	$ 27,600	$ 71,200	Line 16 + Line 17 + Line 18
20	Renewable Gas cost used to calculate S&T LC Rider	(5,000)	(64,300)	Projected Amount: Note 2; Forecast Amount: - Line 19 + Line 21
21	Close	$ 22,600	$ 6,900	Projected Amount: Line 19 + Line 20; Forecast Amount: Line 1 x Line 13
22				
23	**Storage and Transport Rider**			
24	Renewable Gas cost used to calculate S&T LC Rider		$ 64,300	- Line 20
25	Sales Customer Volume (TJ)		150,000	
26	**Storage & Transport LC Rider ($/GJ)**		**$ 0.43**	Line 24 / Line 25
27				
28	Percent of Renewable Gas Blend for sales customers		**1.0%**	- Line 12 / Line 25
29				
30	**Note 1:** The Projected Amount is the approved percent of RG embedded in customers gas demand			
31	from the prior year's Q4 Gas Cost Report multiplied by an updated projection of gas demand			
32	for the Projected year.			
33				
34	**Note 2:** The Projected Amount is the S&T LC rider approved in the prior year's Q4 Gas Cost Report multiplied			
35	by an updated projection of gas demand for RG (Line 10)			

8.5 *SAMPLE ANNUAL BILL CALCULATION*

As proposed in Section 7.4.2, New Residential Connections will receive 100 percent Renewable Gas and Voluntary Renewable Gas customers will receive a set percent based on what the

customer has elected. Also, as discussed in Section 7.4.1 and as described above, all sales customers, including New Residential Connections and Voluntary Renewable Gas customers, will receive a portion of their gas as Renewable Gas Blend.

As an example, FEI has utilized a situation where one percent is available for the Renewable Gas Blend for sales customers. In this example:

- A Renewable Gas Connections for residential dwellings using 80 GJs per year, would receive 0.8 GJs (or 1 percent) through the S&T LC rider and the remaining 79.2 GJs at the CCRC + carbon tax.
- A Renewable Gas Blend for sales (residential) customer using 80 GJs per year receives 1% of their 80 GJs, or 0.8 GJs as Renewable Gas through the S&T LC rider.
- A Voluntary Renewable Gas residential sales customer with annual demand of 80 GJs electing to receive 10 percent (or 8 GJs) of their gas demand as Renewable Gas, will receive 0.8 GJs of Renewable Gas through the S&T LC rider, the remaining 7.2 GJs Renewable Gas through the voluntary program at the voluntary price of CCRA + carbon tax + $7.00, and 72 GJ of natural gas at the CCRC + carbon tax.

After accounting for carbon tax, Renewable Gas Connection residential dwelling customers served 100 percent Renewable Gas will pay the same annual bill (assuming the same consumption) as existing customers receiving conventional gas and a portion of their annual demand as Renewable Gas through the S&T LC rider (Renewable Gas Blend for sales customers). By using an S&T LC rider to deliver Renewable Gas to Renewable Gas for sales customers, FEI is able to ensure bill parity between new residential connections and existing residential customers. Voluntary customers will pay more as discussed in Section 7.4.3.

The following table sets out how a residential customer's bill will be calculated, following on from the S&T LC rider rate setting example in Table 8-3 above.

Table 8-4: Example of the Calculation for a Residential Customer's Annual Bill

Line No.	Customer Type	Renewable Gas Connections	Renewable Gas Blend	Voluntary Renewable Gas	
1	Annual Demand	80.0	80.0	80.0	
2					
3	Percent RG Required	100%		10%	
4	Percent RG through S&T LC Rider	1%	1%	1%	
5					
6	GJ RG	79.2	-	7.2	Max of (Line 1 x (Line 3 - Line 4) and Zero)
7	GJ RG through S&T LC Rider	0.8	0.8	0.8	Line 1 x Line 4
8	GJ Conventional Gas	-	79.2	72.0	Line 1 - Line 6 - Line 7
9	**Total**	**80.0**	**80.0**	**80.0**	Line 6 + Line 7 + Line 8
10					
11	**Charges and Riders**				
12	Basic Charge	0.4085	0.4085	0.4085	Approved
13	Delivery Charge	4.915	4.915	4.915	Approved
14	Storage and Transport Charge	1.350	1.350	1.350	Approved
15	Storage and Transport LC Rider	0.429	0.429	0.429	
16	Conventional Cost of Gas	3.844	3.844	3.844	Approved
17	LCG Charge	8.593		15.593	Note 1
18	Carbon Tax	4.749	4.749	4.749	Estimated at 2025
19					
20	**Annual Bill Revenue**				
21	Basic Charge	149.21	149.21	149.21	Line 12 x 365.25
22	Delivery Charge	393.20	393.20	393.20	Line 13 x Line 9
23	Storage and Transport Charge	108.00	108.00	108.00	Line 14 x Line 9
24	Storage and Transport LC Rider	34.32	34.32	34.32	Line 15 x Line 9
25	Conventional Cost of Gas	-	304.45	276.77	Line 16 x Line 8
26	LCG Charge	680.57	-	112.27	Line 17 x Line 6
27	Carbon Tax	-	376.12	341.93	Line 18 x Line 8
28	**Total**	**1,365.29**	**1,365.29**	**1,415.69**	Sum of Lines 21 through 27
29					
30	Note 1: Renewable Gas Connections = Carbon Tax (Line 18) + Conventional Cost of Gas (Line 16)				
31	Voluntary Renewable Gas = Carbon Tax (Line 18) + Conventional Cost of Gas (Line 16) + 7)				

The upper section of the table (Lines 6 through 9) determine how much of a customer's gas will be delivered as Renewable Gas, through the S&T LC rider, through the Voluntary Renewable Gas offering for Sales Customers and through the Renewable Gas Connections for residential dwellings customers. Since the S&T LC rider will be included in the calculation of all sales customers' bills, any Renewable Gas demand is first delivered through the S&T LC rider. Then, the volume of Renewable Gas that it takes to fill a customer's Renewable Gas requirements (100 percent for Renewable Gas Connections and the elected percentage for Voluntary Renewable

Gas offering for Sales Customers) is fulfilled via approved rates for those programs. In the example above, the Renewable Gas Connections customer receives one percent of their Renewable Gas volume through the S&T LC rider and 99 percent through LCG Charge.

Lines 11 through 18 set out the charges for customers. As can be seen, all charges are the same across the residential customers except the LCG Charge. For new Renewable Gas Connections, the LCG Charge is the sum of the approved CCRC plus the carbon tax per GJ as discussed in Section 8.4.1. For customers electing Voluntary Renewable Gas for Sales Customers the LCG Charge is the sum of the approved CCRC plus the carbon tax per GJ plus $7 as discussed in Section 8.4.1. For all other residential customers there is no LCG Charge because the only Renewable Gas they receive is through the S&T LC rider.

Finally, lines 20 through 28 are the extension of all charges and volumes to calculate the annual bill. As can be seen, new residential and existing residential customers' annual bills are the same at the same consumption level.

Table 8-4 above shows the calculations that will be included on customers' bills. Similar to the way bills are produced today, some of the line items above will be rolled into a single line item to keep the bills simple and easy for customers to understand. All customers receiving a percentage of Renewable Gas through the Voluntary Renewable Gas, Renewable Gas Connections and through the Renewable Gas Blend will be able to see their total percentage of Renewable Gas on their bill each month. This percentage will also be applied to the customers' Carbon Tax credit on their bills.

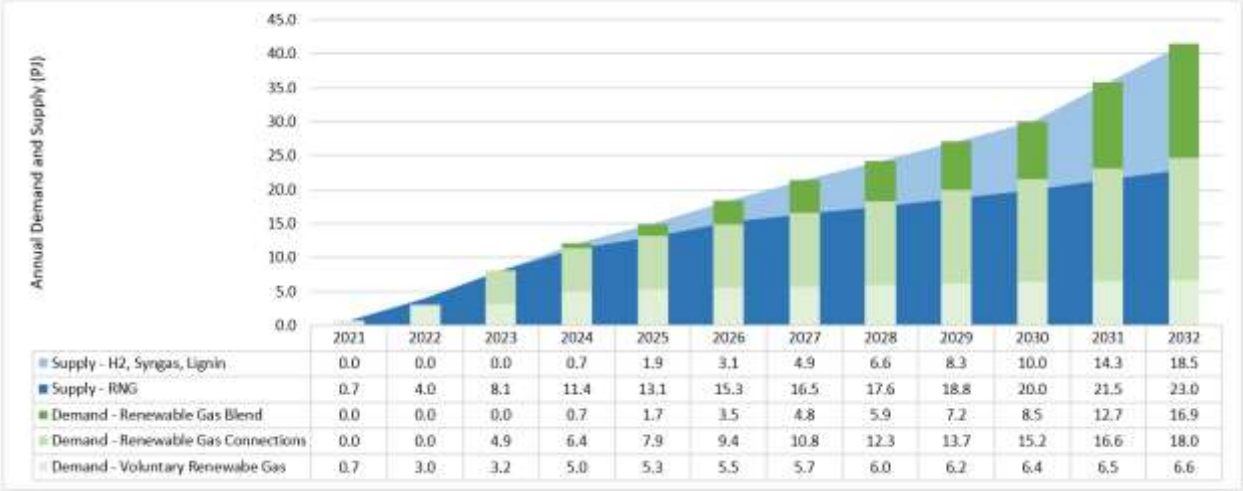
8.6 *CUSTOMER BILL IMPACTS*

In this section FEI provides an estimate of the customer bill impact of the Renewable Gas service based on the Renewable Gas supply forecasts provided in Section 6.3.2 and a forecast of anticipated uptake of Renewable Gas in the Voluntary Renewable Gas offering for Sales Customers, the Renewable Gas Connections and the percentage of gas provided customers via the Renewable Gas Blend for sales customers. Figure 8-3 below shows the Renewable Gas supply forecast out to the year 2032, as described in Section 6.3.2. As discussed in Section 6.3, FEI is forecasting to increase its acquisition of Renewable Gas over time and to reach approximately 42 PJs of Renewable Gas by 2032. As noted in the Roadmap, and as signalled by the Provincial government (in Section 3.4.1.5), the carbon tax is expected to reach $170 per tonne by 2030. Consequently, for this analysis FEI has increased the carbon tax from its current level to $170 per tonne by 2030.

In order to calculate the bill impact, FEI also estimated a ten year Renewable Gas demand forecast from Renewable Gas Connections for residential dwellings, Voluntary Renewable Gas for sales and T-Service customers and the Renewable Gas Blend for sales customers. FEI made the following assumptions to arrive at the demand forecast shown in Figure 8-3:

- Renewable Gas Connections are in the range of 14 thousand to 16 thousand per year and the composition is similar to the recent past (approximately 98 percent RS 1, and the remainder RS 2 and RS 3);
- The Voluntary Renewable Gas offering for Sales Customers will continue to see growth in RS 1 and, 2 from existing natural gas customers consistent with past customer subscriptions for Renewable Gas;
- The forecasts for larger volume commercial customers was based on past growth trends and forecasts from Key Account Managers per individual discussions with these customers; and
- The NGV demand forecast is based on an estimate provided by the Key Account Managers factoring how their demand could change with the proposed LCG Charge.

Figure 8-3: Forecast Volumes of Renewable Gas Supply, Customer Demand and Allocation to Sales Customers (PJ)



	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Supply - H2, Syngas, Lignin	0.0	0.0	0.0	0.7	1.9	3.1	4.9	6.6	8.3	10.0	14.3	18.5
Supply - RNG	0.7	4.0	8.1	11.4	13.1	15.3	16.5	17.6	18.8	20.0	21.5	23.0
Demand - Renewable Gas Blend	0.0	0.0	0.0	0.7	1.7	3.5	4.8	5.9	7.2	8.5	12.7	16.9
Demand - Renewable Gas Connections	0.0	0.0	4.9	6.4	7.9	9.4	10.8	12.3	13.7	15.2	16.6	18.0
Demand - Voluntary Renewabe Gas	0.7	3.0	3.2	5.0	5.3	5.5	5.7	6.0	6.2	6.4	6.5	6.6

This demand and supply forecast was used to calculate customer bill impacts shown in Figures 8-4 to 8-6. To isolate the impact to customers' bills from increasing Renewable Gas supply and changes in carbon tax, FEI has held all other rates at the current approved levels[113] and held customer count, use per customer and total demand equal to those in FEI's Annual Review for 2021 Rates.

The following three figures display the annual bills of customers in each of RS 1, 2 and 3, by service type (Renewable Gas Connections, Voluntary Renewable Gas for Sales Customers and remaining sales customers). Each figure includes years 2024, 2028 and 2032 on the x axis with the annual dollar amount on the y axis. At the top of each set of columns, in a text box, is the

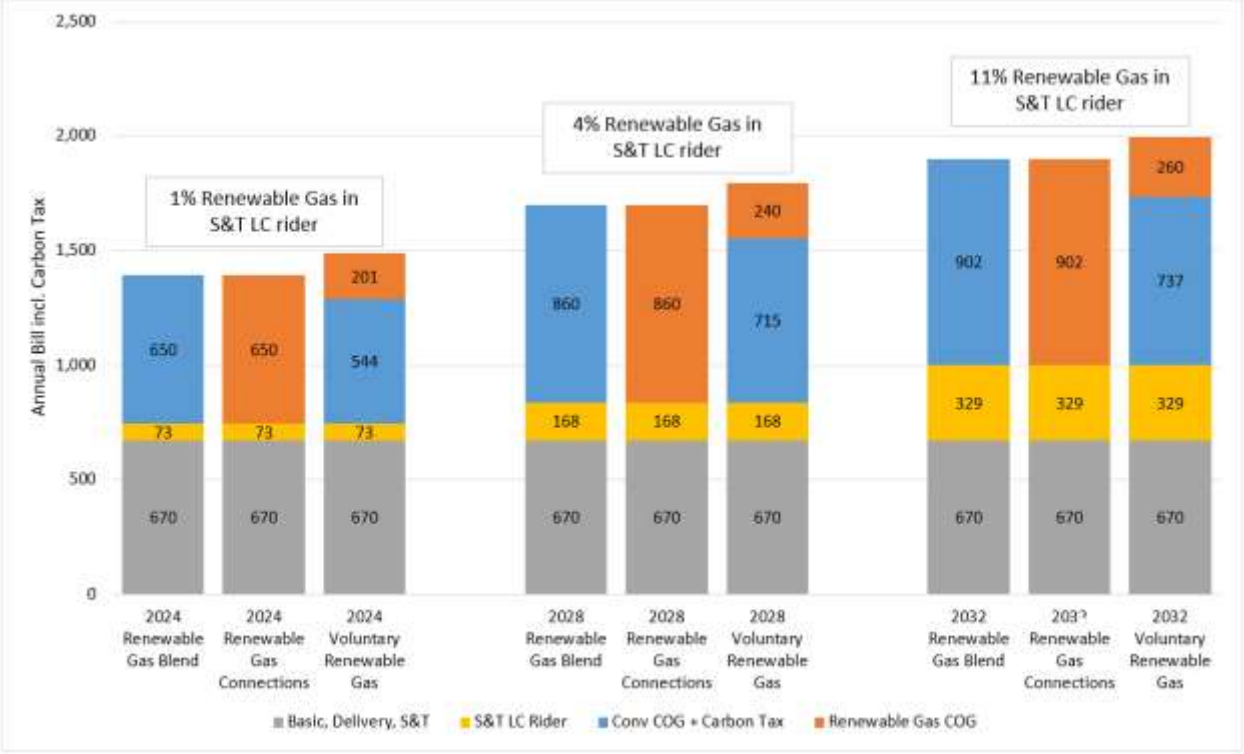
[113] Approved as at November 5, 2021.

percent of Renewable Gas delivered[114] and costs recovered through the S&T LC rider. Each column represents one of the Renewable Gas Program offerings:

- Renewable Gas Blend for sales customers (that are not Renewable Gas Connections customers or Voluntary Renewable Gas customers);
- Renewable Gas Connections; and
- Voluntary Renewable Gas for sales and T-Service customers.

The columns are stacked with the cost of each of the components of the bill set out in the legend on the graph. The grey stack includes the costs for the basic charge, delivery and storage and transport (S&T) charges for conventional natural gas. The yellow stack is the cost of the Renewable Gas Blend recovered through the S&T LC rider. The blue portion is the cost of conventional natural gas plus the carbon tax recovered from sales customers and voluntary customers. The orange stack shows the LCG Charge for Renewable Gas.

Figure 8-4: Annual Bill for Rate Schedule 1

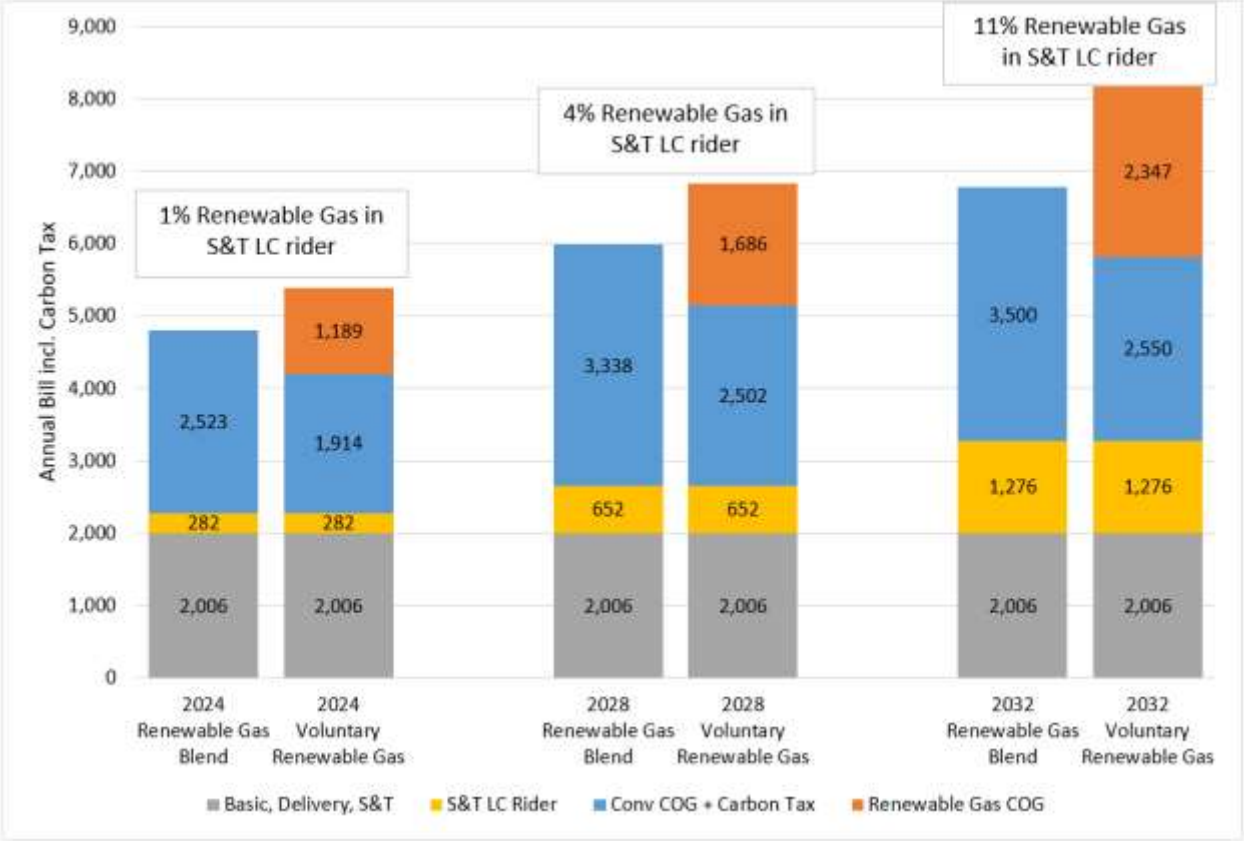


For RS 1, FEI used a UPC of 83.1 GJs per year based on the 2021 approved forecast. As can be seen in the figure above, all customers receive some portion of their gas through the S&T LC rider and all pay the same cost for that portion of their Renewable Gas. The voluntary customer's bill is higher than new residential and existing residential because of the elected percentage of Renewable Gas which carries a $7 per GJ premium as discussed in Section 8.4.1. All else equal,

[114] FEI currently estimates Renewable Gas supplied through the S&T LC rider to be at 1 percent in 2024, 4 percent in 2028 and 11 percent in 2032 based on the remaining forecasted supply.

a non-voluntary RS 1 residential customer's bill will increase from approximately $1,390 in 2024 to $1,900[115] in 2032 from acquisition of supply, increases in carbon tax, and proposals in this Application.

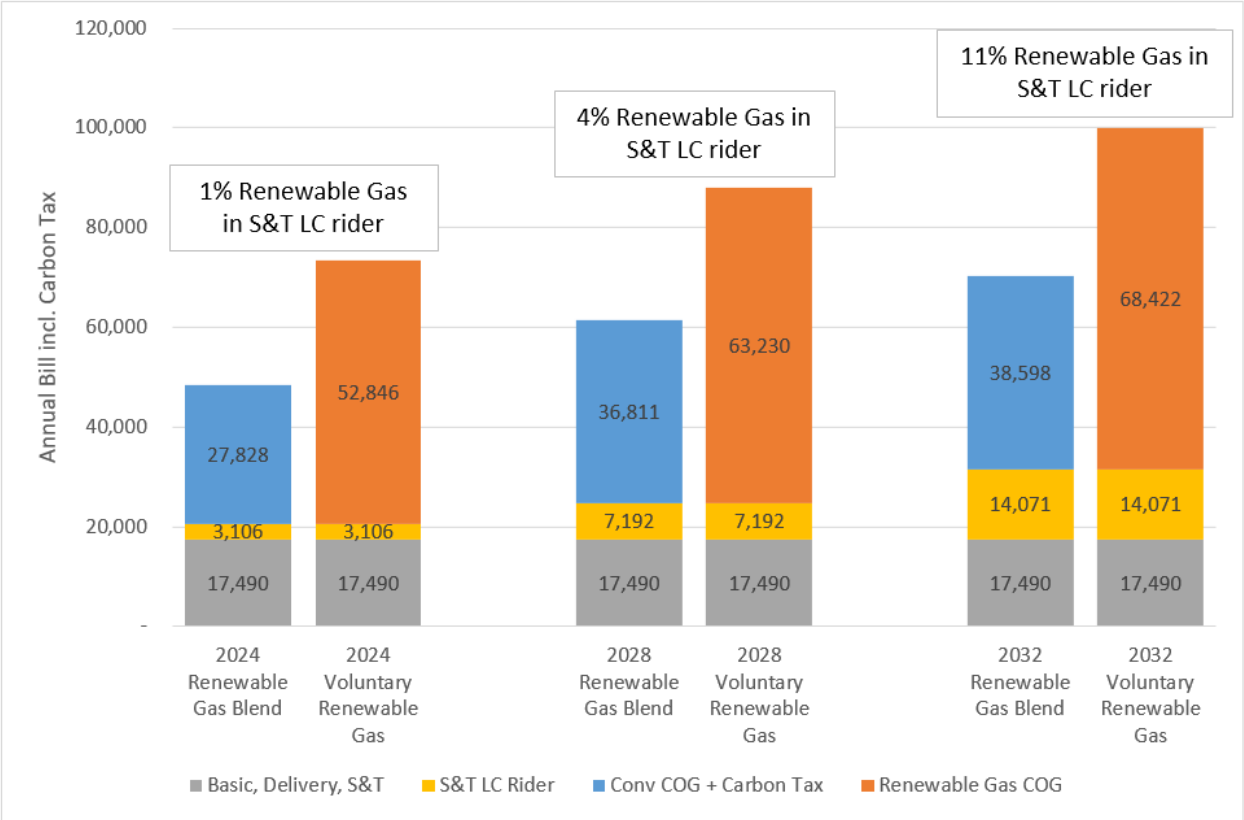
Figure 8-5: Annual Bill for Rate Schedule 2



For RS 2, FEI used a UPC of 332.4 GJs per year based on the 2021 approved forecast. As can be seen in the figure above, all customers receive some portion of their gas through the S&T LC rider and all pay the same cost for that portion of their Renewable Gas. FEI used the average of 24 percent for elected Renewable Gas for the voluntary customer's bill. The voluntary customer's bill is higher than new residential and existing residential because of the elected percentage of Renewable Gas which carries a $7 per GJ premium as discussed in Section 8.4.1. All else equal, a non-voluntary RS 2 small commercial customer's bill will increase from approximately $4,800 in 2024 to $6,800[116] in 2032 from acquisition of supply, increases in carbon tax, and proposals in this Application.

[115] The increase equates to 37 percent over 8 years or a 4.0 percent compound annual growth rate.
[116] The increase equates to 42 percent over 8 years or a 4.5 percent compound annual growth rate.

Figure 8-6: Annual Bill for Rate Schedule 3



For RS 3, FEI used a UPC of 3,555.5 GJs per year based on the 2021 approved forecast. As can be seen in the figure above, all customers receive some portion of their gas through the S&T LC rider and all pay the same cost for that portion of their Renewable Gas. FEI's experience has shown that voluntary customers in RS 3 elect to take 100 percent of their gas as Renewable Gas; consequently, the voluntary customer's bill is markedly higher than new residential and existing residential because of the high elected percentage of Renewable Gas which carries a $7 per GJ premium. All else equal, a non-voluntary RS 3 large commercial customer's bill will increase from approximately $48,375 in 2024 to $70,110[117] in 2032 from acquisition of supply, increases in carbon tax, and proposals in this Application.

8.7 *MITIGATING RISKS OF DEMAND AND SUPPLY BALANCING*

As discussed in Section 6.3, FEI will increase its Renewable Gas supply to respond to provincial policy directives. These supply volumes are expected to be greater than the demand FEI anticipates from Renewable Gas Connections and Voluntary Renewable Gas customers.

FEI will manage the variability in both supply and demand to mitigate risks. As FEI's sources of Renewable Gas become more diversified, the supply side risk is reduced. Supply mitigation

[117] The increase equates to 45 percent over 8 years or a 4.7 percent compound annual growth rate

strategies are described in Section 6.4. To manage the variations in demand to ensure both the continuity of the service and the integrity of the offerings, FEI may use several options. These include the following, which are applicable to the Voluntary offerings:

- Explore the potential to increase available supply;
- The use of purchased carbon offsets;
- Pause new enrolments into the Voluntary Program; and
- Service curtailment.

In the event that FEI needs to use carbon offsets a third party broker is used to source and purchase carbon offsets on FEI's behalf. Using carbon offsets as a substitute for Renewable Gas requires the purchase of two separate components:

- The first is the actual offset component which includes the environmental attributes associated with the emissions reductions from where the offset was generated. The purchase is typically made based on the emissions reductions equivalent to one GJ of 20 biomethane.
- The second requires the purchase of one GJ of conventional natural gas to which the environmental attributes at attached. An equal amount of conventional gas is transferred from the MCRA at the prevailing commodity rate.

Combining these two components creates a GJ of natural gas with equivalent environmental attributes to one GJ of biomethane. In comparison, when FEI purchases RNG, FEI purchases the molecules of biomethane and associated environmental attributes together.

Carbon offset gas is less costly on a $/GJ basis than Renewable Gas. Based on historical purchases of carbon offsets made by FEI the price range per GJ for the carbon offset component is approximately $0.50 to $1.50. To this must be added the cost of gas transferred from the MCRA at the prevailing commodity rate. The cost of carbon tax must also be factored in, and contributes to increase the cost of carbon offset gas. Carbon offset gas is not eligible for a carbon tax credit; however, FEI provides program subscribers with the credit whether they receive Renewable Gas or carbon offset gas. This credit provided to program participants is a cost that cannot be neutralized by an offsetting reduction of taxes payable to government. The cost of carbon offset gas will be recovered from customers through the LCG Account described in Section 8.3.

As an example, in 2019 the combined cost of 1 GJ equivalent of carbon offset gas was $9.55, which includes an average market cost of $1.00 per GJ for the offset purchase, FEI's cost of conventional gas transfer, and the cost of the lost carbon tax.

While FEI will endeavour to maintain a positive inventory balance of Renewable Gas, FEI may occasionally experience a negative volume balance in the LCG Account. In such cases, FEI will

address the imbalance over the following 12 to 24 months by increasing its supply of Renewable Gas and/or limiting any increases in volumes to its voluntary customers and Renewable Gas Blend for sales customers

8.8 *DISPOSITION OF EXISTING RENEWABLE GAS PROGRAM RELATED ACCOUNTS*

This section describes the existing BVA Balance Transfer Account and the Unsold Biomethane Premium Deferral Account.

8.8.1 BVA Balance Transfer Account

The BVA Balance Transfer Account is currently used to capture the cost in the BVA that have not been recovered from Renewable Gas program participants and is used to set the BVA rider each year. The account was approved as part of FEI's 2015 BERC Application. Prior to the 2015 BERC Rate Application, the BERC was set to recover all costs in the BVA from participants of the Renewable Gas Program. In the 2015 Decision, the BCUC accepted FEI's proposal to set the BERC as a premium[118] to conventional natural gas plus carbon tax. Since the BERC was less than the acquisition cost of Renewable Gas,[119] there were unrecovered costs left in the BVA each year. The unrecovered costs have been transferred to the BVA Balance Transfer account each year and recovered from all of FEI's non-bypass customers by way of the BVA rider, which is a delivery rate rider.

With the proposed changes to the Renewable Gas Program in this Application, particularly the mechanism to deliver Renewable Gas to all customers through the S&T LC rider, the BVA Balance Transfer account will no longer be required. FEI will retain its use throughout 2023 to close out the balances in the BVA Balance Transfer account[120] at the end of 2022. FEI will discontinue the use of this account after this time, and propose disposition of any residual balances in a future annual review or revenue requirements application.

8.8.2 Unsold Biomethane Premium Deferral Account

In Section 4 of the 2013 Biomethane Decision, the BCUC provided general guidance on cost recovery and the establishment of a deferral account to capture cost associated with the sale or transfer of biomethane at a price below its fully allocated cost. The BCUC approved the establishment of an account to capture unrecovered costs associated with the transfer of biomethane into the UBPDA at the prevailing CCRC:

> To facilitate this recovery, the Panel approves the establishment of an "Unsold Biomethane Premium" deferral account (UBPDA) to which, in this example,

[118] $7 premium for short term contracts less one dollar for long term contracts subject to a minimum $10 per GJ floor.
[119] Costs in the BVA included acquisition cost of Renewable Gas plus other costs discussed in Section 8.3.
[120] The BVA Rate rider, used to recover the projected 2022 ending balance of the BVA Balance Transfer account, will be calculated in FEI's Annual Review for 2023 rates.

$100,000 would be transferred. FEI is directed to recover any balance in the Unsold Biomethane Premium deferral account from all FEI non-bypass customers, through a rate rider, on a timely basis.

With the proposed changes to the program, particularly the Renewable Gas Blend to all sales customers through the S&T LC rider, the UBPDA will no longer be required. The UBPDA has never been used so does not have a balance in the account. Consequently, FEI will no longer require this deferral account effective December 31, 2022.

8.9 *SUMMARY*

FEI considers the proposed regulatory treatment and rate setting mechanisms appropriate and reasonable. FEI has reviewed all rate schedules and identified where changes are required and where new rate schedules are needed to implement the proposals in the Application. FEI's amended and new rate schedules proposed for approval are provided in Appendix D-2. The next section provides details of the implementation, administration and reporting of the Renewable Gas Program.

9. PROGRAM EXPENDITURES, IMPLEMENTATION, AND REPORTING

9.1 INTRODUCTION

In this section FEI describes the implementation of the proposed tariffs, the administration and management of the Renewable Gas Program, including education and awareness requirements, and FEI's reporting to the BCUC. This section is organized as follows:

- Section 9.2 describes FEI's plan to implement the proposed tariffs and associated expenditures.
- Section 9.3 describes FEI's administration and management of the Renewable Gas Program
- Section 9.4 describes FEI's plans to educate customers and the public about Renewable Gas.
- Section 9.5 outlines FEI's proposed approach to reporting to the BCUC regarding the Renewable Gas Program.
- Section 9.6 describes FEI's proposal to have a review of the Renewable Gas Program five years after the BCUC's final decision in this proceeding.

9.2 TARIFF IMPLEMENTATION PLAN

Assuming a favourable final decision in this proceeding, FEI will implement the proposed Renewable Gas Program changes in two phases.

In the first phase, FEI plans to implement Renewable Gas Connections service for residential dwellings and updates to the Voluntary Renewable Gas offerings. FEI will require up to five months to implement these service, and will need to coordinate their implementation with its quarterly gas cost filings. Therefore, to be effective on the beginning of the first quarter[121] that is at least 5 months after the BCUC's final Order in this proceeding. In Appendix D-2 (Tariff pages), FEI provides proposed tariff changes to its General Terms and Conditions (GT&Cs), its existing rate schedules for Voluntary Renewable Gas offerings, and new rate schedules for the New Residential Connections service.[122]

In the second phase, FEI will implement the Renewable Gas Blend to the gas supply for sales customers by January 1, 2024. Tariff changes for the implementation of this service will be filed for approval three months prior to actual implementation.

[121] i.e., January 1, April 1, July 1, or October 1, in order to align with FEI's quarterly gas cost filings.
[122] In the tariff pages, Voluntary Renewable Gas Service is referred to as Low Carbon Gas Service, Vehicle Low Carbon Gas Service, and Transportation Low Carbon Gas service, and New Residential Connections are referred to as Permanent Connections Low Carbon Gas Service.

Implementation for Renewable Gas Connections for residential customers will require changes to FEI's internal and customer-facing systems, which FEI estimates will take three months to complete. FEI expects the required changes to include changes to the following systems: Customer Attachment Front End (CAFÉ) and reconfiguring billing rates in SAP, SAP's Interaction Client (IC) Web application, Salesforce, and Account Online. During the three-month implementation period, FEI will conduct user acceptance testing (UAT) to ensure systems are functioning as expected before go-live. FEI will also create training materials for Customer Service's billing and contact centre staff, which will be put together during the system updates and testing period. Material preparation includes developing key messaging for staff for handling customer enquiries and training material for system changes and process changes. Training of staff will take a further four to six weeks.

Implementation of the Renewable Gas Blend for sales customers will require updates to billing for all of FEI's sales customers and updates to FEI's systems. User testing and training of customer service staff will also be completed. FEI will begin this work in June 2023 to be ready for implementation on January 1, 2024.

FEI estimates total costs of $208 thousand in the first phase and $185 thousand in the second phase for the implementation work described above. This includes system updates (capital IT costs) of $119 thousand in the first phase and $96 thousand in the second phase, which FEI will fund from its approved IT capital expenditures under its 2020-2024 Multi-Year Performance Based Ratemaking Plan. FEI will record the remainder of the costs, for customer service training, in the LCG Account.

9.3 *PROGRAM ADMINISTRATION AND MANAGEMENT*

The administration and management of the Renewable Gas Program requires resources to carry out a number of activities, of which the primary ones are noted below. Given the relatively small scale of the program to date, a portion of one employee's time has been sufficient to carry out these activities. As FEI expands the Renewable Gas supply and implements the proposals in this Application, FEI will need increased resources to administer and manage the program.

In particular, FEI will require a more robust method of forecasting and tracking supply and demand balances. Today, with the small number of suppliers and voluntary customers in the program, FEI manages supply and demand balances manually in a spreadsheet. As the supply volumes and quantity of customers grow, FEI will need to develop and implement an integrated software solution, leveraging the capabilities of existing systems to the extent possible. Based on FEI's initial estimate, FEI believes this scope of work can be accommodated in existing IT capital budgets for the years 2022 and 2023.

As the Renewable Gas Program expands and becomes more complex to manage, FEI will need to manage the forecasting and reporting for the expanded program, including such activities as:

- Forecasting Renewable Gas demand for the year;

- Matching demand to supply;
- Forecasting Baseline Renewable Gas;
- Preparing management reporting;
- Accounting for environmental benefits and carbon tax credits; and
- Preparing regulatory reporting.

Although FEI estimates that in the near term (two to three years), it will require some additional labour resources as the Renewable Gas Program ramps up, over time there will be synergies with FEI's current Gas Supply department that can be leveraged. For any incremental labour resources required during the remaining two years (2023 and 2024) of the Multi-year Rate Plan (MRP), FEI will provide forecasts of these amounts outside the MRP formula for review by the BCUC in the annual review proceedings.

9.4 *CUSTOMER EDUCATION AND AWARENESS*

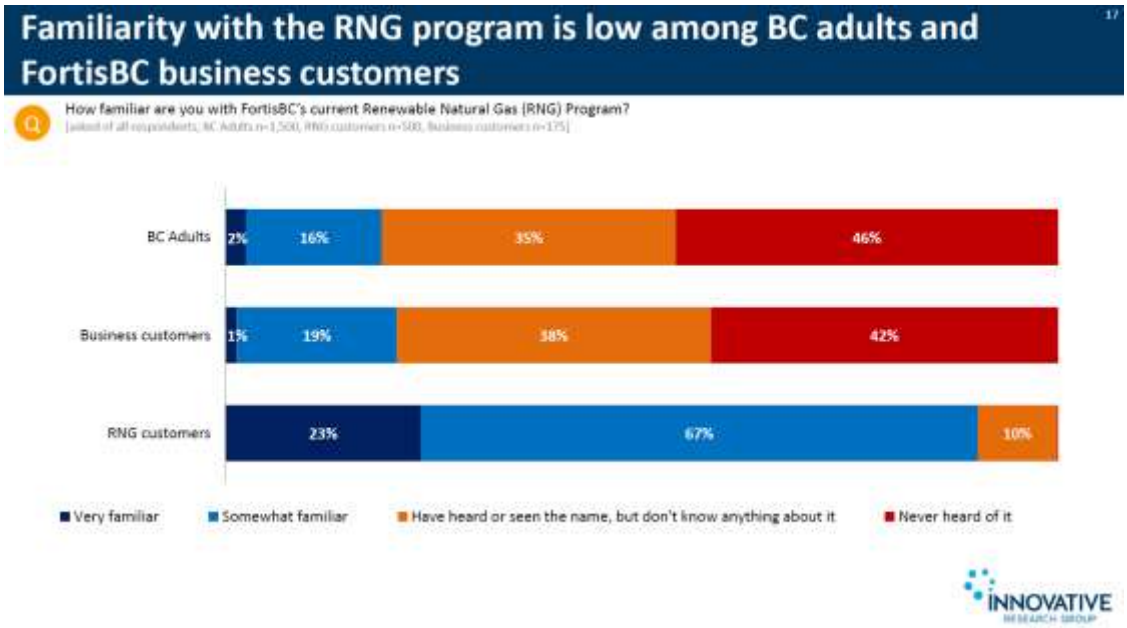
FEI recently resumed its customer education and awareness spending in 2021 and expects to increase these expenditures over the coming years as the Renewable Gas Program expands and FEI implements the proposals in this Application. FEI proposes to forecast its customer education and awareness spending in its annual review or revenue requirement applications, and record actual expenditures as FEI O&M outside the current MRP formula.

In past years, FEI focused its customer education and awareness spending on educating the public about Renewable Gas and encouraging customers to sign up for the program. As per Order G-For ex-16 on the 2015 BERC Application, the Panel supported expenditures on customer awareness and education to inform customers of the Renewable Gas Program. At that time, the expenditures were anticipated to be in the range of $300 thousand per year. Given the limited nature of the program at that time, this amount was reasonable. FEI halted the customer education and awareness spending in 2019 at the time it ceased accepting enrollments in the Renewable Gas Program, when demand exceeded the available supply. With the increase in supply and the re-opening of the program in October 2021, FEI resumed its customer education and awareness efforts and forecasts costs of $340 thousand for 2021.

Through interactions in the development of this Application, stakeholders and customers commonly expressed that they lacked awareness about Renewable Gas. For example, builders and developers informed FEI that they did not know how Renewable Gas is made, how it is carbon neutral, and how it benefits the environment. This sector also has a lack of awareness about the progress that FEI has made in obtaining Renewable Gas supply and maintains some doubt about FEI's' ability to achieve its Renewable Gas supply targets. FEI's commercial Key Account Managers also continue to receive questions from their customers about what Renewable Gas is and how it is made.

Figure 9-1 below illustrates the results of our survey of residential and small business customers on the topic of familiarity with the Renewable Gas Program.

Figure 9-1: Familiarity with the RNG Program is Low[123]



As result of this lack of awareness, knowledge and, in many cases, a lack of confidence in Renewable Gas, the utility is recommending a phased educational awareness approach. This will help drive public understanding of Renewable Gas so British Columbians can see how FEI is contributing to a cleaner BC and how they can participate in reducing their GHG emissions.

FEI's phased educational awareness approach will include paid media and leveraging media channels required to reach target audiences, including: television, digital, radio and advertisements in billboards and transit shelters. Additionally, FEI will undertake community education outreach to ensure British Columbians have the information they need to make informed decisions about their future energy choices. Increased funding will be required in the early years of the awareness campaign to ensure the intended messaging reaches target audiences. As such, the campaign will begin with a broad launch to introduce Renewable Gas and raise initial awareness, followed by smaller campaigns over longer periods of time in later years. For any incremental educational awareness funding required during the remaining two years (2023 and 2024) of the MRP, FEI will provide forecasts of these amounts outside the MRP formula for review by the BCUC in the annual review proceedings.

[123] Survey of Residential and Small Business Customers, refer to page 17, Appendix B-1.

9.5 *FEI WILL CONTINUE TO REPORT TO THE BCUC*

FEI currently provides information about the Renewable Gas Program to the BCUC through the following reports and filings:

1. As projects are developed, biomethane purchase agreements are filed with the BCUC for acceptance;
2. Each year, FEI provides the BCUC with a BVA Annual Status Report, which provides information on the quantities and costs of biomethane purchased, and quantities and prices for biomethane sold;
3. In its annual review materials, FEI reports on the revenues, capital and O&M related to its biomethane projects to be recovered in rates, provides a continuity of forecast, actual and variance (actual - forecast) biomethane (BERC) revenues and volumes sold by rate schedule and type of contract, and seeks approval of the BVA delivery rate rider; and
4. FEI copies the BCUC on its Annual Report under Section 18 of the *Clean Energy Act* to the Ministry of Energy, Mines and Low Carbon Innovation (EMLI) for biomethane projects that are undertaken through the GGRR.

In addition, BERC rates are adjusted annually as part of the Q4 gas cost report with the rate rider set in the Annual Review process (as indicated above). FEI will continue with this reporting, with some changes, as described below.

Going forward, as projects are developed, FEI will continue to file biomethane purchase agreements, or other low carbon energy applications, with the BCUC for acceptance or approval. With the most recent update to the GGRR and the increases in supply, more efficient approaches to reviewing supply contracts can be explored such as including the Renewable Gas supply contracts in the Annual Contracting Plan, which is filed for review and acceptance by the BCUC once each year.

The setting of rates for the LCG Charge and the S&T LC rider will be different than the mechanism and process currently in place. As noted in Section 8.4, the LCG Charge for sales customers (except for NGV customers) will be reviewed and updated quarterly as part of the regular gas cost quarterly reporting. As the CCRC or the carbon tax changes, these changes will affect the proposed LCG Charge for sales customers and as such must be updated to align with the CCRC and carbon tax charges.

The S&T LC rider will be updated annually. FEI will file an application with the BCUC to set the S&T LC rider approximately one month in advance of FEI's fourth quarter gas cost report to provide adequate time for BCUC review and proceeding, if necessary. This will set the S&T LC rider, but also the volume of Renewable Gas Blend that will be delivered to sales customers as part of their gas supply. Through this process FEI will also apply to set the LCG Charge for NGV customers and T-Service customers.

The BVA Annual Status Report is used to report on unsold volumes of Renewable Gas, explanations of major variances from forecast for renewable gas costs incurred and renewable gas costs recovered, and sets out production and acquisition costs and transfers to the BVA Balance Transfer Account. While the transfers to the BVA Balance Transfer Account process will no longer occur and be replaced through the setting of the S&T LC rider as discussed above, this report continues to be of value as the mechanism by which FEI will report acquisition costs and variances between forecast and actual receipts and sales.

Reporting to the province is continuing at this point but may change in the future. FEI will continue to copy the BCUC on its reports to the provincial government.

9.6 *RENEWABLE GAS PROGRAM REVIEW AFTER FIVE YEARS*

In order to assess the success of the proposed changes to the Renewable Gas Program sought in this Application, FEI proposes to file a Program review five years from the date of the BCUC final decision in this proceeding, given that it will be January 1, 2024 before all of FEI's proposals are fully implemented, and there will need to be adequate time to review and collect information on the Program success. The review will provide an assessment of the revised Renewable Gas Program and whether any further changes or adjustments are needed. This review will include the following components:

- A review of customer feedback on the various components of the Program;
- Annual actual supply versus annual projected supply;
- Annual actual Renewable Gas demand versus annual projected demand;
- Forecast future Renewable Gas supply;
- An assessment of how the Renewable Gas Program has performed against the objectives of the Program; and
- Potential recommended changes to the Renewable Gas Program.

9.7 *SUMMARY*

To successfully implement the proposed changes to the Renewable Gas Program, additional supporting activities such as the implementation of the proposed tariffs and the administration and management of the Renewable Gas Program are necessary. Along with the annual reporting measures described in this section, FEI is proposing to file a Renewable Gas Program Review five years from the BCUC decision. This allows both the Renewable Gas Connections and Renewable Gas Blend to be in place for three full years before developing the Review application.

10. CONSULTATION AND ENGAGEMENT

In this section, FEI provides details of its public consultation and engagement for the Application, including the process, the stakeholders with whom FEI engaged with through this process, the key issues and common themes that emerged, and FEI's responses to the issues raised. FEI engaged with 176 individual stakeholders, including interveners and interested parties, industry, associations, an environmental non-governmental organization, community associations, local and provincial governments. The subset of industry engaged include: builder/developers, energy consultants, trades, building and trades associations, manufacturers and a Renewable Gas supplier. Overall, of those engaged, 85 stakeholders expressed support for FEI's Application in form of a letter. FEI also received a letter of support from the Musqueam Indian Band for a total of 86 letters of support included in Appendix F.

The section is organized as follows:

- Section 10.1 describes FEI's two-phase public consultation process for the Application.
- Section 10.2 sets out the list of 85 stakeholders who provided letters in support of the Application and the common themes that emerged in support of the Application.
- Section 10.3 describes the feedback received from stakeholders and how FEI addressed the questions and comments raised.
- Section 10.4 describes the letter of support of the Application from the Musqueam Indian Band

10.1 *PUBLIC CONSULTATION PROCESS*

Public consultation is an integral component of FEI's application development process and provides an opportunity for stakeholders to ask questions, provide input and inform FEI's proposals.

FEI consulted with a total of 176 stakeholders primarily through one-on-one discussions, and scheduled group meetings from members of organizations. In addition, FEI took the opportunity to gather feedback on the proposals in this Application from the Long Term Gas Resource Plan (LTGRP) Advisory Group during their session. The Renewable Gas Comprehensive review slide deck for the group presentation to the LTGRP Advisory Group is included as Appendix E.

FEI conducted consultation on the Application in two phases. FEI's first phase was aimed at gathering early stage feedback from stakeholders who had experience or interest in Renewable Gas. This helped FEI in arriving at solutions and also helped FEI respond to the BC at the end of June 2021 regarding the scope of the Application. FEI's second phase was oriented towards gathering more specific feedback from a broad range of stakeholders on the specific concepts that FEI developed for the Application. Each phase is described in more detail below.

10.1.1 Phase One (Early Stage Feedback)

FEI conducted the first phase of its public consultation process in the first half of 2021. In this phase, FEI reached out to stakeholders that had expressed an interest in the Renewable Gas Program and/or were further along in their efforts to find options to reduce emissions, as well as interveners[124] and two of the interested parties[125] who registered in the proceeding to review the BERC Assessment Report. The list of 41 stakeholders consulted during this phase is provided in Table 10-1 below.

Table 10-1: Stakeholders Consulted in Phase One

Stakeholder Group	Stakeholder
Interveners /Interested Parties	Absolute Energy BC Sustainable Energy Association (BCSEA) Commercial Energy Consumers Associations of BC (CEC) Movement of United Professionals (MoveUp) Residential Consumer Intervener Association (RCIA) Shell Sentinel Energy Management
Industry /Associations/ Environmental Non-Government Organization	AME Group BC Trucking Association Bernhardt Contracting Building Owners and Managers Association (BOMA) Canadian Institute of Plumbing & Heating (CIPH) Dialog E3 EcoGroup Engineers and Geoscientists BC (EGBC) Focal Engineering Homebuilders Association of Vancouver (HAVAN) Landlord BC Limona Naikoon Onni Pembina Institute RDC Fine Homes Ryan Heating and Air Conditioning SES Consulting Thermal Environmental Comfort Association (TECA)
Local Government/ Community Association	Capital Regional District (CRD)[1] City of Burnaby City of Coquitlam City of Surrey City of Vancouver

[124] Unfortunately, BC Public Interest Advocacy Centre was unavailable at this time, but was available during the second phase of consultation, as discussed below in Section 10.1.2.

[125] FEI reached out to one of the three interested parties in this proceeding by way of the large volume customer interviews, as discussed below in Section 5.5.

Stakeholder Group	Stakeholder
	City of Victoria[1] Climate Caucus Community Energy Association (CEA) District of Saanich[1] District of Squamish Metro Vancouver Township of Langley
Provincial Government	Building and Safety Standards Branch, Ministry of Attorney General and Responsible for Housing (BSSB) Climate Solutions Council Ministry of Energy, Mines and Low Carbon Innovation

Notes:

[1] *FEI informed these municipalities of the company's Renewable Gas Comprehensive Review filing.*

FEI held one-on-one conversations or meetings with each stakeholder to allow for thoughtful and engaged discussions tailored to meet the needs and interests of each stakeholder. Due to health restrictions associated with the COVID-19 pandemic, FEI conducted many of these interactions with stakeholders virtually or over the telephone.

Through these interactions FEI provided:

- An overview of the two stage process for the BERC Rate Assessment Report process[126] and FEI's intent to file an Application later in the year proposing revisions to the existing Renewable Gas Program;
- Background and history of the Renewable Gas Program; and
- Information on the key areas being considered for inclusion within the Application to the BCUC regarding the Renewable Gas Program, including supply forecast, policy environment, customer expectations, service offerings and cost recovery.

FEI sought feedback on the overall approach, content and any gaps in the contemplated scope. Comments, feedback and questions posed by stakeholders are set out in Section 10.3 along with FEI's responses. This feedback helped FEI prepare its letter to the Commission in June 2021.

10.1.2 Phase Two (Feedback on Application Concepts)

FEI conducted phase two of the consultation process in the latter half of 2021. This phase of public consultation provided information beyond that of the first phase, as FEI shared details of the proposals FEI was planning to include in the Application. Except for the one large group presentation to the LTGRP Advisory Group, these sessions were held as one-on-one

[126] Early in the development of this Application, FEI had initially referred to the 100 percent renewable gas service for new residential connections as "Build Green". For clarity, in this Application, the proposed service is referred to as "Renewable Gas Connections".

conversations or meetings with a group of individuals representing the government, organization or association. Many engagement interactions continued to be held virtually or over the telephone; however, as the provincial health authority started their phased relaxation of COVID-19 pandemic restrictions, some more recent engagement interactions began to take place in-person.

During this phase, FEI identified stakeholders with an interest in participating in the Renewable Gas Program, including:

- Those that participated in, or expressed a desire to participate in, Renewable Gas Program;
- Those interested in meeting provincial and municipal climate policy goals;
- Those that expressed an interest in finding solutions to meet building-level emissions regulations such as: builders/developers, energy consultants, and manufacturers; and
- Interveners and interested parties registered in the Stage 1 review of the BERC Rate Assessment Report, which concluded in August 2021.

As noted above, in the second phase of public consultation, FEI provided details of the proposals outlined in this Application, including one-on-one discussions with a total of 155 stakeholders. These stakeholders are listed in Table 10-2 below.

Table 10-2: Stakeholders Consulted in Phase Two

Stakeholder Group	Stakeholder
Interveners /Interested Parties	Absolute Energy BC Public Interest Advocacy Centre (BCPIAC) BC Sustainable Energy Association (BCSEA) Commercial Energy Consumers Associations of BC (CEC) Movement of United Professionals (MoveUp) Residential Consumer Intervener Association (RCIA) Shell Sentinel Energy Management Gary (P'asalath) Johnson
Industry /Associations/ Environmental Non-Government Organization	3rd Generation Homes Ador Properties Group Align West Homes Ltd Archie Johnstone Plumbing & Heating Ltd. Avista Utilities[1] BC Business Council[1] British Columbia Restaurant and Foodservices Association BC Greenhouse Growers' Assn. Beedie Belledune Homes Ltd Boehm Construction Bosa Development

Stakeholder Group	Stakeholder
	Bryans Mechanical
	Building Owners and Managers Association (BOMA)
	Canadian Home Builders Association - British Columbia
	Canadian Home Builders Association - Central Interior
	Canadian Home Builders Association - Central Okanagan
	Canadian Home Builders Association - Fraser Valley
	Canadian Home Builders Association - Northern BC
	Canadian Home Builders Association - South Okanagan
	Canadian Home Builders Association - Vancouver Island
	Canadian Institute of Plumbing & Heating (CIPH)
	Clean Energy Association of BC[1]
	Clear Creek Projects
	Cressey Development Group
	E3 EcoGroup
	Enbala[1]
	EnerTech Solutions Ltd
	Forte Projects Ltd
	FoxRidge Homes
	Fulcrum Development Inc
	Gable Craft Homes
	Gordon N Gordon Interiors Ltd
	Greenlane Renewables
	Guillevin Electrical
	Henderson-Edwards Developments LTD
	HKR Builders Residential and Custom Homes
	Homebuilders Association of Vancouver (HAVAN)
	Homes by Creuzot Construction Ltd
	Homex
	Hearth, Patio & Barbecue Association of Canada (HPBAC)
	Icon Homes Ltd
	Infinity Properties
	J Zsiros Contracting Ltd
	JRS Engineering Building Envelope Consultants
	Large and Co
	Lee's Sheet Metal (2007) Ltd
	Manufactured Housing Association of BC
	Maskeen
	Mastercraft Construction
	Melcor
	Michael Geller & Associates Ltd
	Miles Industries Ltd./Valor
	Millennium Group
	Miracon Development
	Mortise
	Navien Inc

Stakeholder Group	Stakeholder
	Northern Alberta Institute of Technology[1]
	Northwest Gas Association[1]
	NW Natural[1]
	Onni
	Orchards Walk Developments
	Panatch Group
	Pembina Institute
	Pennyfarthing
	Pheasant Hill Homes Ltd
	PJR Holdings Ltd
	Platinum Developments
	Pollution Probe[1]
	Porte Communities
	Puget Sound Energy[1]
	Quadra Homes
	Raicon
	Regent International
	Rinnai America Corporation
	Ryan Heating and Air Conditioning
	Sakura Developments LTD
	Savannah Heating Products Ltd.
	Sendero Canyon
	SFU Renewable Cities[1]
	Shawnigan Lake Developments Ltd
	Sian Group
	Solterra
	Streetside Developments (BC) Ltd
	Talus Green Building Consulting
	Thind Properties Ltd
	TLH Developments Inc
	Trestle Ridge Upper Mission
	Tri-AMM Developments Corporation
	University of Victoria[1]
	Urban Analytics
	Urban Development Institute
	Urban Development Institute – Capital Region
	Vanprop Investments Ltd.
	Victoria Residential Builders Association
	Vipeq's Thermal Corkshield
	Wade Roberts Plumbing Ltd
	Westbow Construction
	Westland Living
	Wilden Construction Corp
	Yanmar Energy Systems Canada Inc.
Industry Partnerships	Andion

Stakeholder Group	Stakeholder
Local Governments	City of Abbotsford[2] City of Burnaby City of Castlegar City of Delta City of Kamloops[2] City of Kelowna[2] City of Port Coquitlam[2] City of Prince George City of Surrey City of Vancouver City of White Rock City of Williams Lake[2] District of Saanich[1] Metro Vancouver Regional District of Central Kootenay (RDCK)[2] Regional District of Central Okanagan (RDCO)[2] Regional District of Kootenay Boundary (RDKB)[2] Regional District of Okanagan-Similkameen (RDOS)[2] Township of Langley
Provincial Government	Building and Safety Standards Branch, Ministry of Attorney General and Responsible for Housing (BSSB) Climate Action Secretariat Ministry of Energy, Mines and Low Carbon Innovation

Notes:

[1] *These stakeholders were part of the LTGRP advisory group session held on December 1, 2021.*

[2] *FEI met with these municipalities on a variety of topics and included FEI's Renewable Gas proposals as part of those discussions. FEI would characterize these interactions as municipalities being informed of the Renewable Gas program and filing, rather than an in depth consultation.*

FEI discussed the following key topics with stakeholders:

- An overview of the regulatory process before the BCUC;
- Background and history of the Renewable Gas Program;
- Changes in the policy environment and customer expectations
- FEI's plans to grow the Renewable Gas supply
- Information on key proposals included in the Application,
- The anticipated timing for filing the Application.

FEI solicited feedback on the proposals contemplated in the Application. Comments, feedback and questions provided by stakeholders are set out in Section 10.3, along with FEI's responses.

10.2 BROAD STAKEHOLDER SUPPORT FOR THE APPLICATION

10.2.1 Letters of Support for the Application from Stakeholders

As listed in Table 10-3 below, FEI has received at total of 85 letters of support, including:

- 81 stakeholders from industry, associations and ENGO
- One from an industry partnership;
- One from an interested party; and
- Two from local governments.

These stakeholders are geographically widespread, including stakeholders from the Lower Mainland, Vancouver Island, the Interior and the Northern regions of BC.

Table 10-3: Letters of Support for this Application

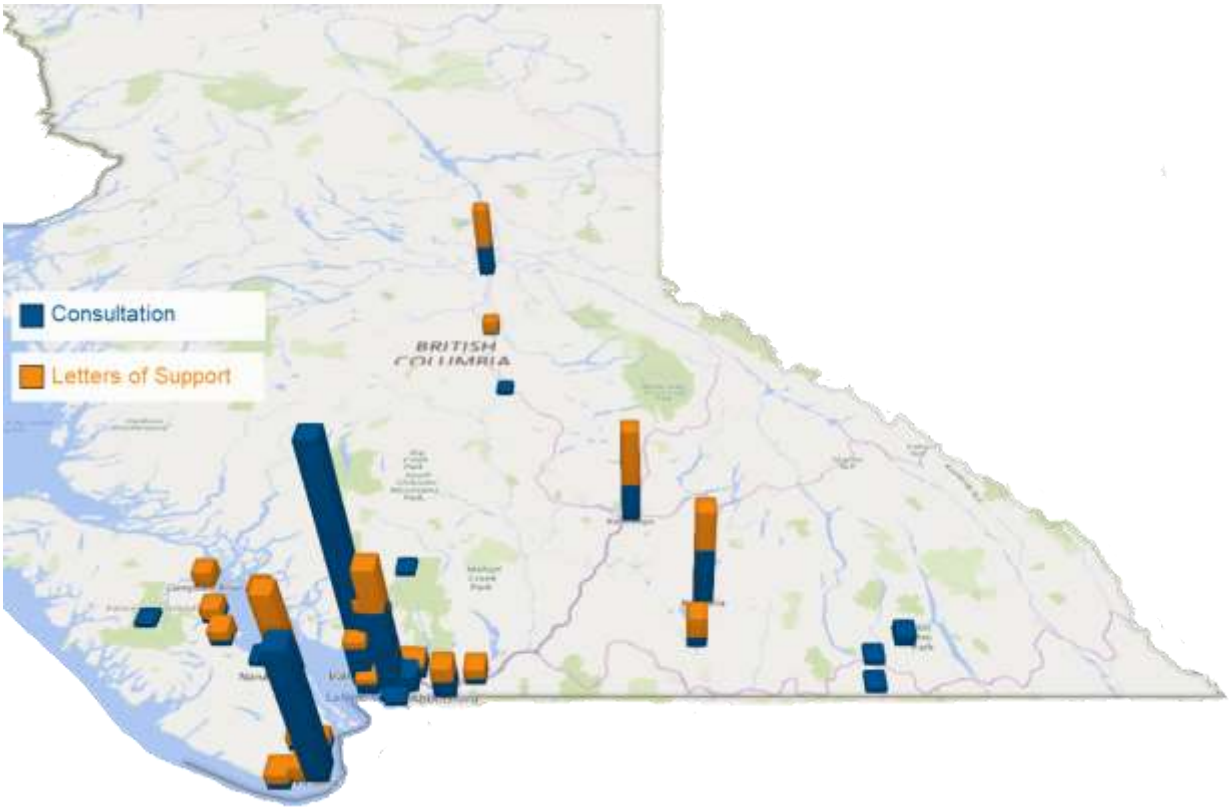
Group	Stakeholder
Industry Partnerships	Andion
Industry /Association/ Environmental Non-Governmental Organization	3rd Generation Homes Ador Properties Group Align West Homes Ltd Archie Johnstone Plumbing & Heating Ltd. BC Restaurant & Foodservices Association Beedie Belledune Homes Ltd Boehm Construction BOSA Development Bryans Mechanical Canadian Home Builders Association - Central Interior Canadian Home Builders Association - Central Okanagan Canadian Home Builders Association - Fraser Valley Canadian Home Builders Association - Northern BC Canadian Home Builders Association - South Okanagan Canadian Home Builders Association - Vancouver Island Clear Creek Projects Cressey Development Group EnerTech Solutions Ltd Fortes Projects Ltd FoxRidge Homes Fulcrum Development Inc Gable Craft Homes Gordon N Gordon Interiors Ltd Greenlane Renewables Guillevin Electrical Homebuilders Association of Vancouver (HAVAN) Henderson-Edwards Developments LTD

Group	Stakeholder
	HKR Builders Residential and Custom Homes
	Homes by Creuzot Construction Ltd
	Homex
	Hearth, Patio, & Barbecue Association of Canada (HPBAC)
	Icon Homes Ltd
	Infinity Properties
	J Zsiros Contracting Ltd
	JRS Engineering Building Envelope Consultants
	Large and Co
	Lee's Sheet Metal (2007) Ltd
	Manufactured Housing Association of BC
	Maskeen
	Mastercraft Construction
	Melcor
	Michael Geller & Associates Ltd
	Miles Industries Ltd./Valor
	Millennium Group
	Miracon Development
	Mortise
	Navien Inc.
	Orchards Walk Developments
	Panatch Group
	Pennyfarthing
	Pheasant Hill Homes Ltd
	PJR Holdings Ltd
	Platinum Developments
	Porte Communities
	Quadra Homes
	Raicon
	Regent International
	Rinnai America Corporation
	Ryan Heating and Air Conditioning
	Sakura Developments Ltd
	Savannah Heating Products Ltd.
	Sendero Canyon
	Shawnigan Lake Developments Ltd
	Sian Group
	Solterra
	Streetside Developments (BC) Ltd
	Talus Green Building Consulting
	Thind Properties Ltd
	TLH Developments Inc
	Trestle Ridge Upper Mission
	Tri-AMM Developments Corporation
	Urban Development Institute – Capital Region

Group	Stakeholder
	Vanprop Investments Ltd. Victoria Residential Builders Association Vipeq's Thermal Corkshield Wade Roberts Plumbing Ltd Westbow Construction Westland Living Wilden Construction Corp Yanmar Energy Systems Canada Inc
Interested Parties	Gary (P'asalath) Johnson
Local Governments	City of Burnaby City of Prince George

To illustrate the geographical spread of the support received throughout FEI's service territory, see Figure 10-1. The Figure shows the location of FEI's consultation efforts and for those who provided letters of support, the location from which they generally operate or do business.

Figure 10-1: Support is Spread across FEI's Service Territory



10.2.2 Common Themes Supporting the Application

In discussions with stakeholders, and based on the comments made in the letters provided in support of the Application, FEI identified the following key themes supporting the Application:

- Stakeholders are seeking energy choice, including Renewable Gas.
- Stakeholders support providing 100 percent Renewable Gas for new residential service connections.
- Stakeholders support leveraging the existing energy system, reflecting the associated efficiency and resiliency benefits.
- Stakeholders are conscious of affordability of energy alternatives and value the choice of Renewable Gas.
- Stakeholders are seeking access to energy choices that meet their needs and those of their customers.
- Stakeholders value environmental stewardship and sustainability.
- Stakeholders are seeking offerings that enable and encourage innovation.

Quotes from stakeholders supporting these themes are provided below.

10.2.2.1 Seeking Energy Choice that Includes Renewable Gas

Builders and developers are seeking energy choice, which includes Renewable Gas, and options when designing mechanical systems to accommodate varying climate zones across BC:

- *"We believe that builders and consumers deserve competition in the energy sector and are thrilled that FortisBC has come up with a carbon neutral option through your 100% Renewable Gas program."* – CHBA Central Interior
- *"The South Okanagan climate zone can get annual temperature fluctuations of 80 degrees. That is why it is imperative for our Builders and Energy Advisors to have options when designing mechanical systems."* – CHBA South Okanagan
- *"We need to have energy options to maintain viable communities and this includes Renewable natural gas"* – Ador Properties Group
- *"As a top goal at Westland is to enhance the communities we build in, we support choice in all innovative ways to build and recognize that renewable gas would offer an excellent energy solution that is safe, reliable and affordable for home owners."* – Westland Living
- *"We see RNG as a key ingredient to a clean energy mix and a carbon neutral future in residential living."* – Wilden Construction Corp
- *"In order to continue building innovative homes in British Columbia that meet environmental and fiscal objectives, we see FortisBC's Renewable Gas as an excellent option that not only help combat climate change but also provide a source of safe, affordable and reliable, carbon-neutral energy"* – Regent International Developments
- *"One opportunity, in the advanced stages of development, is a good waste to energy facility in partnership with Semiahmoo First Nation. The Facility will address a short fall in*

organics waste processing in the region and is expected to provide significant financial returns to the Nation and its members. In addition, the project will enable the construction of a natural gas supply line to the Semiahmoo reserve lands without requiring additional capital investment on the part of the nation. The project will also enable the construction of roads and utility infrastructure on undeveloped portions of the reserve, facilitating future industrial/commercial development opportunities for the Nation. Semiahmoo's long term aspiration is that the availability of energy and economic opportunity will allow more of the Nation's members to return to their traditional lands" – Andion North America Limited

10.2.2.2 Support for Providing 100 Percent Renewable Gas for New Residential Connections

There is support for a new 100 percent renewable gas tariff for all new residential connections at the proposed pricing, as it supports industry, affordability and climate objectives:

- *"We support Fortis's proposal of the tariff on renewable natural gas given the carbon neutral benefits it provides along with application for use in supporting industry and sustainable growth."* – Beedie
- *"The use of renewable gas, which has the lowest emissions factor, takes this one step further by allowing our gas products to become carbon neutral. As a result, our efficient gas-powered heating and cooling solutions work with all building types. We believe that FortisBC's renewable gas application would help the adoption of innovative technologies such as gas fired heat pumps and combined heat and power units (CHP)."* - Lee's Sheet Metal (2007) Ltd.
- *"I recently learned about FortisBC's proposed carbon neutral option through your 100% Renewable Gas program which would seem to be a highly desirable alternative to the use of electric energy in those communities and buildings which are required to be fossil fuel-free"* - Michael Geller & Associates Ltd.
- *"The Fortis Build Green program*[127] *offers factories and home owners additional options in developing affordable overall home manufacturing strategies for a more sustainable building, and home operations."* – Manufactured Housing Association of B.C.
- *"Offering renewable gas to new homes through a proposed RG Rate class by FortisBC will allow new buildings to permanently stay on this resilient and environmentally friendly energy source while meeting carbon emission reduction targets."* - Regent International Developments
- *"The proposal will maintain choice and affordability in the market place for all builders and developers like ourselves and for our home buyers, while helping the government to meet*

[127] Early in the development of this Application, FEI had initially referred to the 100 percent renewable gas service for new residential connections as "Build Green". For clarity, in this Application, the proposed service is referred to as "Renewable Gas Connections".

its climate objectives, regardless of where the GHGI metrics are set" - Orchards Walk Developments

- *"I am excited about the prospect of 100% Renewable gas that would addresses climate concerns while maintaining affordability and choice for builders and homeowners."* - Henderson-Edwards Dev. Ltd
- *"This will help the government meet its climate objectives, regardless of where the GHGI metrics are set"* - HKR Builders Ltd.

10.2.2.3 Resiliency and Efficiency Benefits of Leveraging the Existing Energy System

Stakeholders recognize the benefits of using the existing gas infrastructure from a resiliency and efficiency perspective:

- *"Allowing new homes to utilize the resilient gas infrastructure with renewal gas offers customers choice in their energy needs. As a result, our customers will reduce greenhouse gas emissions while simultaneously enjoying our gas appliances"* - Rinnai America Corporation
- *"Our ever-increasing demand on our electrical grid with larger homes, working from home and fast charging vehicles etc., will certainly challenge our infrastructure and affordability for our new homes and old homes alike."* – Align West Homes Ltd.
- *"I personally feel that using all of any one utility is a mistake, as any glitch in the system could cause serious issues. Especially in the dead of winter."* - Icon Homes Ltd.
- *"Renewable Gas is compatibility with all "traditional" natural gas and/or electric energy systems and will help builders optimize and diversify energy sources, allowing the best combinations of fuel types and technologies that support affordability, reliability, and resiliency of all carbon-neutral energy that power BC's new homes and buildings."* – Pennyfarthing Group

10.2.2.4 Managing the Affordability of Energy Alternatives

Stakeholders are looking for energy choices, such as Renewable Gas, which ensure affordability and value the availability of lower-cost energy alternatives:

- *"The removal of choice for industry and consumers can directly impact affordability and may have a ripple effect, creating further issues down the road."* – CHBA Central Okanagan
- *"This provides housing affordability by providing builders additional design options and lower cost alternatives to other options"* – Raicon Developments Inc.
- *"Relying purely on electricity for our energy is not realistic nor prudent. We need choice to keep energy prices competitive"* – Quadra Homes

- *"The ability to incorporate Renewable Natural Gas into the equation of residential construction and energy management of the home, bring a welcome lower cost option to reduce emissions. These options are effective tools to achieving the provinces CleanBC objectives."* - Guillevin Electrical
- *"As a home builder, we deal directly with new home owners and they are all for energy conservation as it relates to the climate, but they also want an affordable choice."* – 3rd Generation Homes Ltd.
- *"Reducing design options could also impact manufactures and supply chains, likely increasing product pricing which is an important consideration when supply chains are often impacted. Reducing design options could also reduce the skilled labour force which could also drive up prices for product installation."* – Shawnigan Lake Developments Ltd.

10.2.2.5 Meeting the Needs of Customers

Stakeholders are seeking access to energy choices in order to meet the needs of their customers:

- *"Access to renewable natural gas provides home buyers uncompromised access to highly efficient mechanical systems such as condensing gas forced air furnaces and instantaneous gas water heaters without the ecological worry over traditional fossil fuel use. Similarly, it allows homeowners to continue using gas cooking equipment, outdoor recreation options such as barbeques and firepits, and accent features in their homes like gas fireplaces."* – Foxridge Homes
- *"As a builder this proposed tariff will allow me to continue to offer my new homebuyers a choice of energy options while continuing to work towards our zero carbon emission targets."* - Gable Craft Homes
- *"It is my hope that such a tariff would allow homebuyers as many energy choices as possible as we work towards our zero carbon emission targets."* - Large & Co.
- *"Each home we build has a gas range, gas BBQ box and a gas fireplace. All of these are expected features and major selling points in our homes. To be faced with the elimination of these options in new construction would be devastating."* - Henderson-Edwards Dev. Ltd
- *"We're developers and builders and can attest homebuyers view natural gas as a necessary utility both for heating and cooking and, most importantly, as back-up in the event of a power failure particularly in a winter storm event."* - Tri-AMM Developments Corporation
- *"The development industry is facing more and more complexity to reduce emissions, protect the environment, reach new milestones for energy efficiency all while trying to meet the demand and choice of our clients"* - Trestle Ridge Upper Mission

10.2.2.6 Environmental Stewardship and Sustainability

Stakeholders are concerned about the environment, the need to address carbon emissions, greenhouse gas intensity, and the need for environmentally friendly alternatives:

- *"As the environment is on the top of everyone thinking these days, we need to consider all cost effective and environmentally friendly alternatives"* - Homes by Creuzot Construction Ltd.
- *"… it aligns with our core values and general approach to the environment and sustainability by allowing the option for all home owners to access and participate in green alternatives without limits due to costly upgrades of their current fixtures"* – Maskeen
- *"HAVAN does acknowledge that the need to address carbon emissions, greenhouse gas intensity, and greater access to renewable fuel resources has never been more acute, and we are pleased to see as many tools as possible being brought to bear to mitigate, and ultimately reduce the negative effects of a changing climate."* - HAVAN
- *"It is important that we capture our company motto "Your Greener Path" as it is always at the forefront of the decision process on all future projects viability and specs that provides us with the reward that our organization is delivering a tangible qualify product that will serve the customer well in its qualify and performance."* - Maskeen

10.2.2.7 Encouraging Innovation

Stakeholders are seeking offerings that enable and encourage innovation, creativity and success:

- *"We believe having the ability to choose the best types of energy systems and appliances allows the construction industry to continue to build with creativity which in turn, helps drive innovation, consumer choice and affordability."* - Pennyfarthing Group
- *"The innovation under this proposal is encouraging and will ensure that builders will continue to be successful building under the BC Energy Step code with GHG requirements."* – CHBA Central Okanagan & CHBA Vancouver Island
- *"Together with this program, we look forward to playing an important role in helping British Columbia move to an affordable, low carbon, housing future."* - Manufactured Housing Association of BC

10.3 *FEEDBACK FROM STAKEHOLDERS*

In addition to the broad support for the Renewable Gas Program, FEI received a number of comments and questions from stakeholders that required FEI to undertake additional consultation. Below, FEI has identified the specific issue raised and how the issue is addressed through this Application. The questions and issues raised centre on the following key themes, which are discussed in more detail below:

- Low familiarity with biomethane (RNG) and scepticism of its' "renewable" characteristic.

- Meeting provincial and local climate policy targets, including GHGi targets for new construction
- Renewable Gas pricing and energy bill impact
- Emissions reductions for existing buildings.

10.3.1 Low Familiarity with Renewable Natural Gas, its Renewable Characteristic and Carbon Intensity

Comments Received

Some of the questions FEI received related to stakeholders' low familiarity with RNG (biomethane) as a renewable energy option and that it could be utilized with the existing gas pipeline infrastructure and gas appliances. Questions from stakeholders included:

- What is RNG?
- How is it made?
- How is it carbon neutral?
- How is it good for the environment if it is still burning a fuel, and there is still combustion?
- To receive RNG, does the appliance need to be changed?

Some stakeholders were unaware that FEI had a Renewable Gas program, while some were interested in the carbon intensity of FEI's existing RNG and how the carbon intensity of FEI's Renewable Gas will change as the utility's supply portfolio evolves (i.e., through the inclusion of hydrogen).

FEI's Response

The lack of awareness of the Renewable Gas Program is of concern for FEI. Feedback of this kind was primarily received from stakeholders in the building sector and local governments. FEI believes that, along with ongoing engagement, education and awareness regarding the Renewable Gas Program is essential. This is described in Section 9.4.

FEI provided details of how biomethane is made and that its renewable characteristic is that it is sourced from organic waste produced from everyday activities. As organic matter, such as food or cow manure, rots, it releases biogas that is then captured and purified before being injected into the gas system. Biogas comes from wastewater treatment plants, agricultural waste, landfill waste and wood waste.

Moreover, provincial reporting assesses the level of carbon intensity for energy sources such as conventional natural gas, RNG and electricity (among other energy sources). The 2020 B.C. Best

Practices Methodology for Quantifying Greenhouse Gas Emissions[128] sets out the current best practices for quantifying and reporting GHG emissions in buildings from B.C.'s provincial public sector organizations, local governments and communities. The emissions factor reported for RNG is 0.2932 $kgCO_2e/GJ$[129]. FEI will continue to work with the provincial government on emissions reporting, particularly as the portfolio of Renewable Gas expands beyond RNG and includes hydrogen.

10.3.2 Meeting Provincial and Local Climate Policy Targets, including GHGi Targets for New Construction

Comments Received

Stakeholders in the building industry expressed concern about being driven towards restrictive GHGi targets and the practical implications of having only one energy provider with a viable solution. For builder and developers, GHGi targets in buildings met only by electricity has a compounding effect of a more restricted set of design options, mechanical choices, and qualified trades. The inability to diversify their energy selection, and thereby optimize infrastructure and mechanical costs, causes the building industry concern given the associated impact to construction costs – which ultimately leads to affordability concerns for home buyers.

Local governments and the building sector also expressed concern regarding the need for permanence in GHG emission reductions. The current Renewable Gas program is a voluntary opt-in and opt-out offering. This means that where a builder or developer constructs a home or building and enrols in the Renewable Gas Program during construction, the local government has no guarantee that the occupant(s) will continue to receive Renewable Gas for the life of the building. Consequently, the absence of permanence has precluded builders from including gas appliances in their new home. Builders and developers advised that they are seeking FEI to address the need for permanence through a simple, easily enforceable and transparent solution.

FEI's Response

FEI's proposed changes to the Renewable Gas Program will address these concerns and will enable a path to meeting emissions targets in new construction. In particular, and as described in Section 7.4.2, FEI is proposing that for new residential connections where a customer requiring a new service connection (with new service line and meter) will receive 100 percent renewable gas in order to comply with any current or future potential the GHGi or emissions targets regulations set by local governments. FEI will be responsible for ensuring that Renewable Gas is assigned to the building rather than the customer. Stakeholders were supportive of this type of service offering, as describe in Section 7.4.2 above.

[128] https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2020-pso-methodology.pdf.
[129] Table 1, pg 12), https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2020-pso-methodology.pdf.

10.3.3 Pricing and Energy Bill Impacts

Comments Received

Stakeholders expressed concerns regarding pricing and the associated energy bill impact of increasing the Renewable Gas supply at the volumes required to respond to policy objectives.

Builders and some industry stakeholders were less concerned with pricing and bill impacts, as FEI explained how the pricing for New Residential Connections using 100 percent would be structured.

Industry stakeholders were concerned about the pricing of Renewable Gas including, in particular, energy bill increases where they would be paying for the Renewable Gas Program through increased cost and not receiving the environmental attributes. There were additional concerns regarding Renewable Gas volumes of 15 percent or greater and what impact this would have on industrial costs. Some builders and developers were also concerned about the how the 100 percent renewable gas permanent rate could increase over time and impact to residential customer rates.

FEI's Response

To lessen the bill impact and to provide for equity for new residential connection customers who are mandated to reduce emissions versus those who are not, those customers in the New Residential Connections service, receiving 100 percent renewable gas, will pay the same for their gas service as existing customers in similar rate schedules.

The ability through the proposed mechanism, by way of the midstream, to provide Renewable Gas to all customers allows all customers to contribute to reducing emissions and share in the costs.

FEI designed the Voluntary Program, and the cost recovery (through the S&T rider instead of a delivery rate rider) to address customer concerns over the delivery rate impact.

FEI is exploring a portfolio of Renewable Gas and low carbon fuel options that would meet the climate policy mandates and provide more cost effective options to the current RNG supply.

10.3.4 Emissions Reductions for Existing Buildings

Comments Received

Stakeholders were interested to know how FEI plans to address GHG emissions from existing buildings.

Comments from builders expressed concerns around the upfront costs for customers to switch energy sources and the reliability if one energy source was compromised due to an outage or system failure.

FEI also heard concerns that reducing emissions in existing buildings is more challenging than for new construction.

FEI's Response

Renewable Gas offers the benefit of reducing emissions in existing buildings without the need for customers to replace appliances or undergo major building envelope upgrades.

FEI will supply Renewable Gas to all existing sales customers as soon as FEI acquires sufficient supply volumes to do so. Those customers wishing to reduce their emissions further have the ability to do so by electing a higher percentage Renewable Gas blend through FEI's Voluntary Program.

FEI continues to work with local governments that are exploring ways to decarbonize existing buildings in order to find a means to track and meet emission targets for these buildings.

10.3.4.1 Engagement with Local Governments

The process of developing this Application has provided FEI with opportunities to continue educating local government representatives on Renewable Gas, and to share information regarding how the Renewable Gas Program can support local governments with their climate policy strategies. Over the last few months, FEI engaged with representatives from over 23 local governments regarding the Application, including through telephone calls, meetings and presentations with Mayors, City Councillors, Chief Administrative Officers, department Directors, sub-committees, and key local government staff. In total, FEI held discussions with 47 individuals across these local governments. FEI continues to engage with additional local governments.

Through the engagement process it became clear that local governments remain at different stages of developing their own plans addressing emission reductions and the decarbonization of the building sector. The local governments FEI engaged with nonetheless raised common questions and concerns related to Renewable Gas supply, the permanence of Renewable Gas associated with a given premise and the costs associated with Renewable Gas service.

Some local governments, including the City of Vancouver and MetroVancouver, expressed how their climate policy focusses on setting emissions targets for both new construction and existing buildings at a more granular building by building level when a new building is constructed or existing building is renovated. This approach is in contrast with FEI's system-wide approach, but is aimed at the same decarbonization objective. FEI considered this difference and in response, FEI indicated that under its proposed Renewable Gas Connections, FEI would be able to meet the GHGi targets and the permanency requirement for new construction at the building permit stage. Incorporating these attributes was a key design feature of the proposed service. FEI also explained that providing Renewable Gas to all customers through the Renewable Gas Blend, meets both the needs of customers and governmental climate targets for existing buildings. Moreover, emissions reductions in existing buildings can be achieved without specific requirements at the building level that would entail homeowners or business owners changing out their equipment or completing extensive building upgrades. For local governments, to

demonstrate progress towards decarbonization of buildings in their communities, FEI is able to provide communities with an overall report of the emissions reductions in their respective communities at an aggregate level.

Additional questions from local governments related to the amount of Renewable Gas supply FEI has or intends to procure to support the proposed Renewable Gas Program. In response, FEI provided a five year and ten year outlook on Renewable Gas supply and discussed the expansion of its Renewable Gas portfolio, as enabled by the GGRR.

As part of this consultation process, local government representatives have expressed appreciation for FEI's efforts to reduce GHG emissions, including through the below excerpts from letters of support and resolution.

The City of Burnaby stated in their letter of support:

> We believe FortisBC's application is aligned with this plan[130] [and supports economic opportunities in the low carbon industry. More specifically, RNG is a tool that would help achieve the city's GHG targets and home affordability in Burnaby. […]
>
> As we understand FortisBC's application for permanent renewable natural gas for new premises helps builders and residential customers who require new connections to meet building low energy standards through the use of RNG with a small carbon footprint at a rate that is permanent to the life of the home.

The City of Prince George stated in their letter of support:

> Renewable Gas is carbon-neutral and has the lowest emissions factor compared to other fuel types so it helps our community meet greenhouse gas reduction goals and reduces our carbon footprint. Utilizing the resilient gas infrastructure at FortisBC, renewable gas helps create a healthy environment that supports a robust and stable local economy and provides energy choices for homeowners that allow for affordable housing and quality of life for residents.

The City of Delta's Climate Action and Community Liveability Advisory Committee unanimously approved the following resolution:

> That the Climate Action and Community Liveability Advisory Committee supports the FortisBC Renewable Gas application to decarbonize existing and new customers as one of the tools needed to reduce greenhouse gas emissions in Delta and across the region.

The City of Delta's Council supported the Climate Action and Community Advisory Committees recommendation to support FEI's Renewable Gas Application:

[130] Reference to Burnaby's Community Energy and Emissions Plan.

> That Delta Council supports FortisBC's Renewable Gas application to decarbonize existing and new customers as one of the tools needed to reduce greenhouse gas emissions in Delta and across the region

10.4 *FEI RECEIVED SUPPORT FOR THE APPLICATION FROM THE MUSQUEAM INDIAN BAND*

As part of FEI's ongoing discussions with Musqueam Indian Band, FEI shared its plans to file an application that would contemplate revisions to its Renewable Gas program. The Musqueam Indian Band expressed further interest and sought more details of FEI's proposals. They have provided a letter in support of the Application, included in Appendix F-5, with an extract of two paragraphs from the letter provided below:

> We work closely with the City and the utilities to ensure that water, sewage, and energy infrastructure (electric and gas) are interwoven safely, effectively, and respectfully into our structures, communities and Lands and we see the vital benefits these systems provide. We support efforts to utilize these physical assets that aim to reduce or eliminate environmental impacts. We therefore FortisBC's Renewable Gas as one solution that only helps meet greenhouse gas intensity (GHGI) targets and climate goals but also drive economic, environmental and social stewardship.[…]
>
> We also see the economic benefit that various sources of energy bring. Renewable energy such as hydro-generated electric power and renewable gases from organic waste help contribute towards the overall recipe that provides comfort, convenience, reliability and resilience in generating power to appliances and heat our homes and our places of work, learning, care and play. We therefore support FortisBC's application to the British Columbia Utilities Commission for a renewable gas tariff. We understand that the new tariff will enable all new buildings to tap into this gas meets all GHGI targets and can help meet the province's climate goals, thus providing clean energy to our community homes and building via environmentally friendly energy solution.

10.5 *SUMMARY*

FEI values comments and feedback from its stakeholders. FEI has completed comprehensive stakeholder consultation with a variety of stakeholders, including proactively discussing details of the Application, addressing concerns, and responding to questions in a timely manner.

The extensive stakeholder consultation conducted by FEI prior to filing this Application has yielded feedback that is reflected in the proposals in this Application. An example is the design feature where FEI is proposing a tariff that meets the GHGI targets in new construction by providing 100 percent Renewable Gas to New Residential Connections the life of the buildings. Stakeholders also indicated their appreciation for FEI's comprehensive response to governmental climate

action goals by increasing its Renewable Gas supply and its proposal to provide a percent of Renewable Gas to all sales customers – increasing over time. Furthermore, stakeholders indicated that by providing 100 percent Renewable Gas to New Residential Connections and the continuation of the Voluntary Renewable Gas offering enables an energy choice that is safe, reliable and continues to utilize the existing gas pipeline infrastructure and gas appliances in homes and businesses.

FEI believes that its proposed revisions to the Renewable Gas Program will meet the needs of stakeholder and its customers, as evidenced by the 86 letters of support for the Application that FEI has received to date.

11. CONCLUSION

FEI's Renewable Gas Program has been successful in achieving the objectives for which it was developed, based on the policies in place over ten years ago. In particular, the program has established Renewable Gas as a low carbon energy that can meet the GHG reduction objectives in BC. Climate regulations and policies such as the GGRR, the CleanBC Plan, and most recently the CleanBC Roadmap, recognize that the expanded use of Renewable Gas will play an important role in reducing GHG emissions from the gas supply in BC and across sectors of the economy.

FEI will continue to partner with local governments and industry to rapidly grow its supply of biomethane, hydrogen and other low carbon fuels in alignment with BC's climate policies and in order to reduce the GHG emissions of the energy it delivers to its customers in the interest of all British Columbians. Without revisions to the Renewable Gas Program, however, the climate regulations and policies introduced by all levels of government threaten the long-term viability of the gas delivery system, the resiliency of the province's energy system, and the energy choices British Columbians will have in the future. As the Application demonstrates, FEI's Renewable Gas Program can be designed to address these evolving governmental climate policies, customer needs for Renewable Gas, and the significant increase in Renewable Gas that FEI is acquiring pursuant to the GGRR, while leveraging FEI's existing gas delivery system.

FEI's proposals are supported by a wide range of stakeholders and, ultimately, will help maintain the long-term viability of the natural gas distribution system and energy choice for British Columbians. FEI submits that its Application is just and reasonable and in the public interest and respectfully requests its approval.

Appendix A

LOCAL GOVERNMENTS ADVANCING ENERGY EFFICIENCY AND EMISSIONS REDUCTIONS IN BUILDINGS

LOCAL GOVERNMENTS ADVANCING ENERGY EFFICIENCY AND EMISSIONS REDUCTIONS IN BUILDINGS

1.1 *INTRODUCTION*

This Appendix outlines the complexity and diversity of building codes and local government policies and regulation intended to improve energy efficiency and achieve emissions reduction in buildings. While Building code requirements have historically been prescriptive, this has changed with the adoption of the BC Energy Step Code (Step Code). The Step Code incorporates performance targets that builder/developers (builders) can meet in various ways. To comply with the Step Code, builders must use energy software modelling and on-site testing to demonstrate that both their design and the constructed building meet the requirements of the Step Code. Builders are able to use any materials or construction methods to do so. While this approach increases the ways in which a builder can achieve a desired "step" or "level" in the Step Code, it also eliminates a clear and predictable path to achieving emissions reductions in buildings.

A number of local governments have adopted the Step Code in conjunction with a Greenhouse Gas Emissions intensity (GHGi)[1] target for new building construction projects. The addition of GHGi targets, in conjunction with Step Code performance targets, means that only an energy source with lower carbon emissions (e.g., Renewable Gas or electricity) can be used in new construction. The combined application of the Step Code and GHGi targets complicates the level of Renewable Gas required to meet the requirements set by a local government given the variability between buildings and their associated energy-performance. In practice, the percentage of Renewable Gas required to meet the GHGi targets set by different local governments is complicated by differing Step Code level targets set by different local governments.

These complications are further compounded by the variability of energy requirements by building type and the variety of ways a builder can meet the Step Code energy-performance targets. As a result, a townhouse, a single family home, and a laneway home all have significantly different Renewable Gas requirements. Moreover, the Step Code requires modelling, which occurs at the design stage of a building, and then on-site testing during construction to ensure the Step Code performance targets are met. Thus, confirming that a GHGi target can be met takes place at the design stage and again during construction to confirm the building meets the Step Code metrics and the GHGi target.

Ultimately, the variety of local government regulation has created challenges impeding FEI's efforts to provide gas service to new construction projects under the existing Renewable Gas Program. In the sections below, FEI describes in greater detail the Step Code, GHGi targets and the diversity and complexity of the Step Code and GHGi targets at the local government level.

[1] GHGi is the total annual GHG emissions from all the energy use for the operation of a building, per square metre per year. It is calculated by multiplying the total amount of a building's energy use in one year by the associated emission factor for that energy source, and dividing it by the building's gross floor area.

1.2 *BC ENERGY STEP CODE*

The Step Code is a tiered performance-based energy code that requires levels of energy efficiency in new construction in addition to the other requirements of the BC Building Code. Figure A-1 below provides an outline of the tiered approach of the Step Code for small residential (Part 9) buildings.

Figure A-1: Step Code Targets for Small Residential (Part 9) Buildings

(Image courtesy of the Energy Step Code Council)

The Step Code does not specify how to construct a building, but instead identifies energy-performance targets that the building must meet for each step. Each municipality has the option to choose the step they wish to adopt in their jurisdiction and for each building type. Each step has energy performance targets. These targets are met through the metrics described below:

- **Energy Use Intensity (EUI):** Measures the total energy required to operate a building and is used to reduce the operational energy required by new buildings, as quantified on an annual basis. It includes all energy uses that are required to operate a building, including: space heating, lighting, air conditioning, heating hot water, and many other end uses. The EUI for a small residential (Part 9) building[2] is assessed slightly differently than other (Part 3) buildings,[3] as it only considers Mechanical Energy Use Intensity (MEUI**)** and not lighting

[2] For reference, in the BC Building Code Part 9 buildings refer to housing and small buildings (that are up to three storeys in height and an area not exceeding 600 m2 in area).

[3] For reference, in the BC Building Code, Part 3 buildings refer to commercial and multi-family buildings that exceed three storeys or exceed 600 m^2 in area.

and household appliance/plug loads. The Step Code TEUI/MEUI requirements ensure that the building equipment and systems use energy efficiently.

- **Thermal Energy Demand Intensity (TEDI):** Measures the thermal energy (energy in the form of heat) used by a building for space conditioning and for conditioning of ventilation air, during normal operations. The energy use that defines TEDI is included in the energy that defines TEUI. TEDI is a subset of TEUI.

Further, the Step Code requires builders to have an energy model and on-site testing completed to demonstrate that both their building design and the constructed building meets these metrics. Builders must consider all aspects of the building design, including the building envelope, window to wall ratio, mechanical equipment efficiency, and airtightness in order to meet the Step Code performance targets. The builder must then submit the building design to the city planning department, including the energy model that meets the TEUI and TEDI metrics and GHGi target, before obtaining development approval.

1.3 *GREENHOUSE GAS INTENSITY (GHGI) TARGETS*

A GHGi target encompasses the total annual GHG emissions from all of the energy used in operating a building. An energy source's emission factor is used as an input for energy modelling to assess whether a building meets the GHGi targets set by a local government. Table A-1 shows that the emission factor for RNG is well below that of the integrated grid for electricity (as reported for the year 2020), and is therefore a viable option to meet GHGi targets adopted by local governments.

Table A-1: Energy Source Emission Factors

Energy Source	Source of Values	Emission Factor Values		
		$kgCO_{2e}$/GJ	$kgCO_{2e}$/kWh	tCO_{2e}/GWh
Conventional Natural Gas	2020 BC Best Practices Methodology for Quantifying Greenhouse Gas Emissions[4] (Table 1, p. 12)	49.87	0.180	179.53
Bioemethane (RNG)	2020 BC Best Practices Methodology for Quantifying Greenhouse Gas Emissions (Table 1, p. 12)	0.2932	0.001056	1.06
Electricity	2020 GGIRCA website (Integrated grid for BC Hydro)[5]	11.14	0.040	40.10
Electricity	2020 GGIRCA website (Fort Nelson grid for BC Hydro)	147.22	0.530	530.00

[4] https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2020-pso-methodology.pdf
[5] https://www2.gov.bc.ca/gov/content/environment/climate-change/industry/reporting/quantify/electricity

1.4 DIVERSITY OF STEP CODE REQUIREMENTS AND GHGI TARGETS AT THE LOCAL GOVERNMENT LEVEL

This section outlines the variety of GHGi targets set by local governments. The following local governments represent a sample of GHGi targets, each of which are described in detail below:

- City of Vancouver;
- District of North Vancouver;
- City of Burnaby;
- City of Richmond; and
- City of Surrey

1.4.1 City of Vancouver

In 2016, the City of Vancouver developed a Zero Emissions Building plan with the goal of reducing 100 percent of GHG emissions from new buildings by 2030 (from the 2007 baseline).[6] The plan established GHGi targets by building type and provided two "pathways" for lowering GHG emissions to zero. The first pathway, *High Performance Building Envelope and Ventilation Systems*, focuses on highly efficient building envelopes and ventilation systems. The second pathway, *Neighbourhood Renewable Energy Systems (NRES)*, aims to utilize nearly 100 percent renewable energy in buildings.

Table A-2 below shows the variety of building energy and emission requirements set by the City of Vancouver.

Table A-2: City of Vancouver Building Energy and Emissions Requirements

Policy / Bylaw	Building Energy Requirement	Types of Buildings Impacted	Effective Date
Green Building Policy for Rezoning[7] **(May 2018)**	TEUI = 100 kWh/m^2, TEDI = 15 kWh/m^2	Residential occupancy Low-Rise	May 1, 2018
	(Step 4 equivalent)	(less than 7 storeys)	
	GHGi: 5 kgCO_2e/m^2		
	TEUI = 120 kWh/m^2, TEDI = 30 kWh/m^2	Residential Occupancy High-Rise	
	(Step 3 equivalent)	(more than 7 storeys)	
	GHGi: 6 kgCO_2e/m^2		
	TEUI = 100 kWh/m^2, TEDI = 27 kWh/m^2	Office occupancies	
	(Step 3 equivalent)		

[6] https://vancouver.ca/files/cov/zero-emissions-building-plan.pdf
[7] https://guidelines.vancouver.ca/G015.pdf

Policy / Bylaw	Building Energy Requirement	Types of Buildings Impacted	Effective Date
	GHGi: 3 $kgCO_2e/m^2$		
	TEUI = 170 kWh/m^2, TEDI = 21 kWh/m^2	Personal Business, and Mercantile occupancies	
	(Step 3 equivalent)		
	GHGi: 3 $kgCO_2e/m^2$		
	TEUI = 170 kWh/m^2, TEDI = 25 kWh/m^2	Hotel and Motel occupancies	
	(Step 3 equivalent)		
	GHGi: 8 $kgCO_2e/m^2$		
Vancouver Building Bylaw[8] **(June 2021)**	TEUI = 110 kWh/m2, TEDI = 25 kWh/m2	Residential occupancy Low-Rise (Up to 6 storeys), except Hotel and Motel	June 1, 2021
	(Step 3 equivalent)		
	GHGi: 5.5 kgCO2e/m2		
	TEUI = 120 kWh/m^2, TEDI = 30 kWh/m^2	Residential Occupancy High-Rise (over 6 storeys), Except Hotel and Motel	
	(Step 3 equivalent)		
	GHGi: 6 $kgCO_2e/m^2$		
	TEUI = 140 kWh/m^2, TEDI = 20 kWh/m^2	Hotel and Motel occupancies	
	(Step 3 equivalent)		
	GHGi: 8 $kgCO_2e/m^2$		
	TEUI = 120 kWh/m^2, TEDI = 20 kWh/m^2	Personal Business, and Mercantile occupancies	
	(Step 3 equivalent)		
	GHGi: 3 $kgCO_2e/m^2$		
	TEUI = 100 kWh/m^2, TEDI = 20 kWh/m^2	Office occupancies	
	(Step 3 equivalent)		
	GHGi: 3 $kgCO_2e/m^2$		
Vancouver Building Bylaw[9] **(Jan 2022)**	TEUI Varies with conditioned area	Residential Buildings of 1 to 3 Storeys, and Houses (excluding Hotels/Motels)	January 1, 2022
	TEDI = 20 kWh/m^2		
	(Step 4 equivalent)		
	GHGi: 3 $kgCO_2e/m^2$		

1

[8] https://vancouver.ca/files/cov/vbbl-part-10-unofficial-wording-effective-june-1-2021.pdf
[9] https://vancouver.ca/files/cov/vbbl-part-10-unofficial-wording-effective-jan-1-2022.pdf

1.4.2 District of North Vancouver

In December 2020, the District of North Vancouver (DNV) Council approved a GHG emissions reduction approach to their Step Code implementation. The new bylaw offers two compliance paths for new small residential (Part 9) buildings which must either meet: Step 5 of the Step Code (the highest step) or Step 3 of the Step Code with the addition of a Low Carbon Energy System (LCES). The DNV defines a LCES to be one that "uses primarily low carbon energy sources to provide heating, cooling, and hot water for a building, and has a total modelled greenhouse gas intensity of no more than 3 $kgCO_2e/m^2/yr$".[10] The targets for other (Part 3) buildings are also set out below.

Table A-3: District of North Vancouver Building Energy and Emissions Requirements

Policy / Bylaw	Building Energy Requirement	Types of Buildings Impacted	Effective Date
Bylaw 8475 : Construction Bylaw Amendment[11]	Step 5, or Step 3 with a GHGi limit of 3 $kgCO_2e/m^2$	Part 9 Single family home, coach house, smaller townhouse.	July 1, 2021
	Step 4, or Step 3 with a GHGi limit of 3 $kgCO_2e/m^2$	Part 3 Residential Larger multi-family and apartment projects	
	Step 3, or Step 2 with a GHGi limit of 3 $kgCO_2e/m^2$	Part 3 Commercial, Office and Retail buildings	

1.4.3 City of Surrey

In April 2019, the City of Surrey adopted the Step Code, requiring small residential (Part 9) buildings to meet the Step 1. As of January 2021, this increased to Step 3. Similarly, other residential (Part 3) buildings must either meet: Step 3 of the Step Code, or Step 2 if they are connected to Surrey City Energy or have a LCES[12] that requires a maximum of 6 $kgCO_2e/m^2$/year.

The City has also set a timetable for future higher Step Code adoption. Under the proposals, small residential (Part 9) buildings would need to meet Step 4 by 2023 and Step 5 by 2025, while other (Part 3) residential buildings would need to meet either meet Step 3, if they have a LCES, or Step 4 if not.

As noted above, the current GHGi limit for a LCES for residential (Part 3) buildings is 6 $kgCO_2e/m^2$/year; however, more stringent requirements are being considered. In particular, the

[10] https://www.dnv.org/building-development/energy-step-code

[11] https://app.dnv.org/OpenDocument/Default.aspx?docNum=4603291

[12] A low carbon energy system is a highly efficient, professionally operated and maintained mechanical system that supplies a building's space, heating, cooling and domestic hot water heating demand primarily from renewable energy sources, at a carbon intensity that is low enough so that when applied to modelled building energy use, the development satisfies the City's defined GHG limits. (https://www.surrey.ca/sites/default/files/media/documents/LowCarbonEnergySystemsPart3Buildings.pdf)

city council is considering setting a 3 $kgCO_2e/m^2$/year GHGi limit for Part 3 and Part 9 buildings by 2022, and as low as a 1 $kgCO_2e/m^2$/year limit for Part 3 buildings by 2025.[13]

Table A-4: City of Surrey Building Energy and Emissions Requirements

Bylaw/Policy	Building Energy Requirement	Types of Buildings Impacted	Effective Date
Surrey Building Division Bulletins for Part 3 Buildings[14]	Step 2, or Step with a GHGi limit of 6 $kgCO_2e/m^2$	Part 3 Residential new construction	April 1, 2019
City of Surrey: Virtual Builder Session Breakout (Proposals Under Consideration)[15]	Step 3, or Step 4 with a GHGi limit of 3 $kgCO_2e/m^2$	Part 3 Residential new construction	2023-2024
	Step 3, with a GHGi limit of 3 $kgCO_2e/m^2$	Part 9 Residential new construction	2022
	Step 4 with a GHGi limit of 3 $kgCO_2e/m^2$	Part 9 Residential new construction	2023
	Step 4 with a GHGi limit of 1 $kgCO_2e/m^2$	Part 9 Residential new construction	2025
	Step 5 (100% Renewable)	Part 9 Residential new construction	2025

1.4.4 District of West Vancouver

In 2021, the District of West Vancouver updated their building permit requirements for small residential (Part 9) buildings. All Part 9 buildings, except for detached secondary suites, must either meet Step 3, with a GHGi target of 3 $kgCO_2e/m^2$, or Step 5 without a GHGi target. Small residential (Part 3) buildings must either meet Step 4 or Step 2, with an LCES.

[13] https://www.surrey.ca/sites/default/files/media/documents/BuildersessionDec8Surreyfinal.pdf, Slide 13.
[14] https://www.surrey.ca/sites/default/files/media/documents/Part3EnergyStepCode.pdf
[15] https://www.surrey.ca/sites/default/files/media/documents/BuildersessionDec8Surreyfinal.pdf, Slides 7 and 13.

Table A-5: District of West Vancouver Building Energy and Emissions Requirements

Bylaw/Policy	Building Energy Requirements	Types of Buildings Impacted	Effective Date
Bylaw 5056: Building Bylaw Amendment[16]	Step 5, or Step 3 with a GHGi limit of 3 $kgCO_{2e}/m^2$	Single Family, townhouse and other Part 9 residential buildings	February 28, 2021
	Step 5, or Step 2 with a GHGi limit of 3 $kgCO_{2e}/m^2$	Part 9 Detached secondary suites	
	Step 4, or Step 2 with a GHGi limit of 3 $kgCO_{2e}/m^2$	Part 3 residential (multifamily and apartment buildings)	

1.4.5 City of Burnaby

The City of Burnaby declared a climate emergency in 2019, setting it on a path targeting carbon neutrality by 2050. In July 2020 the City Council approved the Climate Action Framework[17] that includes two "big moves" to reduce emissions in both new and existing buildings. This includes the immediate consideration of accelerated Step Code requirements, as well as additional measures to limit emissions from new buildings for both Part 9 and Part 3 buildings. As of July 2019, Part 3 buildings with residential, business and personal service or mercantile occupancies are required to meet Step 3 of the Step Code, or build to Step 2 with a maximum of 6 $kgCO_2/m^2$/year GHGi.[18]

Table A-6: City of Burnaby Building Energy and Emissions Requirements

Bylaw/Policy	Building Energy Requirement	Types of Buildings Impacted	Effective Date
Energy Step Code (Part 3 Buildings) Bulletin[19]	Step 3, or Step 2 with a GHGi limit of 6 $kgCO_2e/m^2$	Rezoning applications for Part 3 residential and commercial buildings	July 1, 2019

1.4.6 City of Richmond

In December 2020, the City of Richmond's amendment bylaw came into effect that required new building permits for Part 9 residential buildings to meet Step 3 or Step 2 with a GHGi target. Further adoption to higher steps are set for 2022 and 2025. Currently, the accepted GHGi limit for an LCES is 6 $kgCO_2e/m^2$/year or less than 1.2 tCO_2e/year; however, the city council is considering lowering this limit to 3 $kgCO_2e/m^2$/year or less than 0.6 tCO_2e/year by January 2022.[20]

[16] https://westvancouver.ca/sites/default/files/bylaws/4400_BUILDING_BYLAW_4400_2004_%28CONSOLIDATED_UP_TO_AMENDMENT_BYLAW_5088_2020%29.pdf, Pages 3, 11, and 12.
[17] https://pub-burnaby.escribemeetings.com/filestream.ashx?DocumentId=47477
[18] https://www.burnaby.ca/Assets/city+services/policies+projects+and+initiatives/Low+Carbon+Energy+Policy.pdf
[19] City of Burnaby, Energy step code (Part 3 Buildings)
[20] https://www.richmond.ca/__shared/assets/ESC_in_Richmond__Large_57986.pdf

Table A-7: City of Richmond Building Energy and Emissions Requirements

Bylaw/Policy	Building Energy Requirement	Types of Buildings Impacted	Effective Date
Energy Step Code: Part 9 Buildings Overview Bulletin (Building-37)[21]	Step 3, or Step 2 with a GHGi limit of 6 $kgCO_2e/m^2$) or ≤ 1.2 tCO_2e / year	Part 9 Single family dwellings and duplexes, Town homes and apartments	December 2020
	Step 4, or Step 3 with a GHGi limit of 3 $kgCO_2e/m^2$) or ≤ 0.6 tCO_2e / year	Part 9 Single family dwellings and duplexes, Town homes and apartments	January 2022
	Step 5, or Step 4 with a GHGi limit of 3 $kgCO_2e/m^2$) or ≤ 0.6 tCO_2e / year	Part 9 Single family dwellings and duplexes, Town homes and apartments	January 2025
Energy Step Code : Part 3 Buildings Bulletin (Building-40)[22]	Step 3, or Step 2 with a LCES (70% renewable energy source)	Part 3 Residential Buildings more than 6 stories or non combustible construction	January 2021

1.5 *COMPLEXITY OF STEP CODE, GHGI AND RENEWABLE GAS*

FEI examined the complexity of achieving the Step Code targets with additional GHGi measures to determine the blend of Renewable Gas required. As part of this analysis, FEI took a sample of 201 participants in FortisBC's New Homes Program and assumed those homes were also required to meet a GHGi target in addition to the Step Code level they achieved.

Table A-8 shows the estimated Renewable Gas percentage need to meet the Step Code and GHGi targets for a sample of residential homes.

Table A-8: An Estimate of the Renewable Gas Percent to Meet Step Code and GHGi Target for a Sample of Residential Houses

Climate Zone	Energy Step	Archetype	Natural Gas* GHGi ($kgCO_2e/m^2$) Approximate range		RNG% required for GHGi limits 3 $kgCO_2e/m^2$ Approximate range		1 $kgCO_2e/m^2$ Approximate range	
4	3	Single Detached	7	9	50%	70%	86%	95%
4	3	Laneway House	14	19	79%	90%	100%	100%

[21] City of Richmond, Building-37
[22] City of Richmond, Building-40

Climate Zone	Energy Step	Archetype	Natural Gas* GHGi ($kgCO_2e/m^2$) Approximate range		RNG% required for GHGi limits 3 $kgCO_2e/m^2$ Approximate range		1 $kgCO_2e/m^2$ Approximate range	
4	4	Single Detached	~9		68%	71%	93%	94%
4	4	Laneway House	~12		~80%		~100%	
5	3	Duplex	~12		~75%		~92%	
5	3	Townhouse	10	14	71%	82%	97%	100%
5	3	Single Detached	7	12.4	51%	86%	87%	99%
5	4	Single Detached	7	10	51%	66%	87%	91%
6	3	Townhouse	~13		~77%		~95%	
6	3	Single Detached	10	17.4	67%	88%	92%	100%
6	4	Townhouse	9	11.6	~75%		~95%	
6	4	Single Detached	9	64%	64%	83%	91%	98%
6	5	Townhouse	~7		58%	61%	90%	91%
6	5	Single Detached	~8		62%	80%	90%	95%
7A	4	Single Detached	~13		~78%		~94%	

Notes:

*Assumed natural gas is used for space and water heating, and electricity for other uses

- Climate Zones: The BC Building Code defines the energy performance targets of the Step Code based on building's climate zone (CZ). The BC climate zones are defined by the average heating degree-days below 18 C (HDD). BC is divided into six climate zones based on the average number of HDDs in a given year. Locations with less than 3,000 HDDs are in CZ 4, while CZ 5 is for locations with HDDs between 3,000 and 3,999[23].
- Carbon intensity assumptions for RNG are based on the 2020 BC Best Practices Methodology for Quantifying Greenhouse Gas Emissions, (Table 1, pg 12: RNG: 0.2932 $kgCO_{2e}$/GJ; Electricity from BC Hydro 3.0 kgCO2e/ GJ, pg16

Due to the performance-based approach of the Step Code, achieving the efficiency metrics varies due to a number of factors, including: the building archetype; Step Code level; building design; mechanical equipment; and climate zone. As a result, the amount of natural gas used in the home will vary. This is demonstrated by the column titled Natural Gas in Table A-8 which shows the variability in GHGi emissions for natural gas.

The last four columns in Table A-8 show how the percent of Renewable Gas required to meet the GHGi target of either a target of $3kgCO_2e/m^2$/year or $1kgCO_2e/m^2$/year would also vary. For example, in this sample of homes, the Renewable Gas blend can range from between 86 percent to 100 percent in order to achieve a $1kgCO_2e/m^2$/year level. This variability makes it extremely difficult to establish the precise percentage of Renewable Gas required to meet the municipal regulation at the design stage. Therefore, providing a service with 100 percent Renewable Gas ensures FEI meets municipal regulation and provides assurance to builders in the project planning stage.

[23] climatezone5-7a.pdf (gov.bc.ca)

The analysis also demonstrates there are many variables that affect the energy use of a building. GHGi targets are typically applied equally to groups of different building types such as large single family homes, townhomes, medium sized homes, duplexes, and small laneway homes. As the GHGi of a building is an intensity standard, the size of the building is a critical variable and affects the use of energy. For example, heating requirements will vary for a small home versus a larger one. Choices in building construction by the builder, such as air tightness, wall and roof insulation and the number of windows, also have a direct impact on energy use. Furthermore, regional differences and climate zones in BC have an impact on a building's energy performance. For example, a home in Climate Zone 4 (Vancouver) will have a different energy profile than the exact same home built in Prince George, which is in Climate Zone 6. This geographic difference alters the Renewable Gas required for homes to meet the GHGi standard. The delivery of 100 percent Renewable Gas addresses these uncertainties and provides assurance to the builder and the local government that the GHGi target can be met.

Appendix B
CUSTOMER RESEARCH AND SURVEYS

Appendix B-1
RESIDENTIAL AND SMALL BUSINESS SURVEY RESULTS

2021 RNG Program Design Survey

Summary of Results

June 2021

Project Objectives and Overview

This report summarizes the key takeaways across the three major components of the **Renewable Natural Gas Program Design Survey**.

The three key audiences surveyed in the project are as follows:

1. **General population of BC adults [n=1,500]**
2. **Current FortisBC RNG customers [n=500]**
3. **Current FortisBC small business customers [n=175]**

The aim of the study is to gain insights to formulate strategies to reimagine and redesign the RNG program. The survey aims to understand:

- **Attitudes generally towards the environment and natural gas** (and whether this has changed over time)
- **Support for different policy options**, including willingness to pay
- Specific needs and preferences when it comes to RNG:
  - **Likelihood to sign up**, barriers and motivators
  - **Payment structure** (universal or opt-in)
  - Price, enrollment and mix **preferences**
  - Current RNG customer **satisfaction**

Note that in order to more concisely summarize the findings, the results shown here do not include every question asked on the surveys and are not shown in the exact order questions were asked. For full question wording and order the questionnaires are also available for review.

Key Research Questions

Context	What is the public opinion environment you are operating in? Has overall support for natural gas been changing over time?
Support RNG	Is there overall support for RNG? Has that changed over time?
Buy RNG	Do British Columbians want to participate in an RNG program and what motivates that interest?
Pay for RNG	Who should pay for RNG? How should the costs be shared?
Policy	When it comes to regulating natural gas in buildings, what policies do British Columbians support?

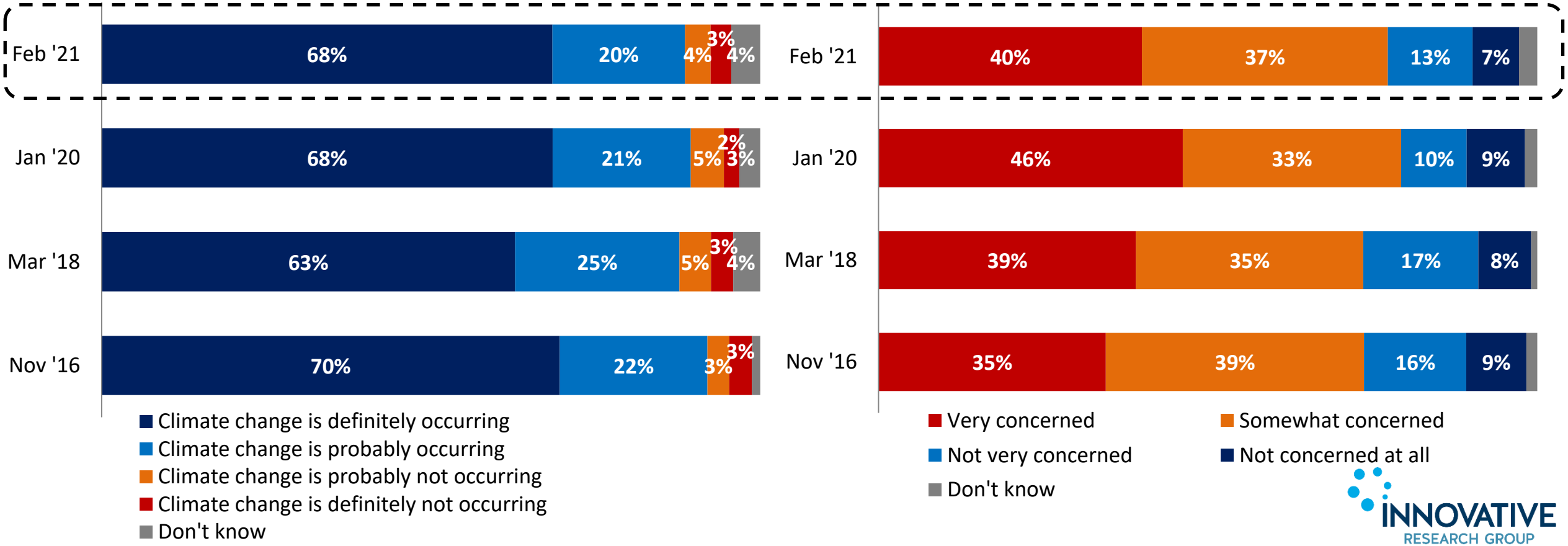
Context: *What is the public opinion environment you are operating in?*

Most British Columbians both say that climate change is occurring and that they are at least somewhat concerned about it

Q Thinking about your own personal view, do you believe that…
[asked of all respondents; n=1,500]

Q How concerned are you about climate change?
[asked of all respondents; n=1,500]

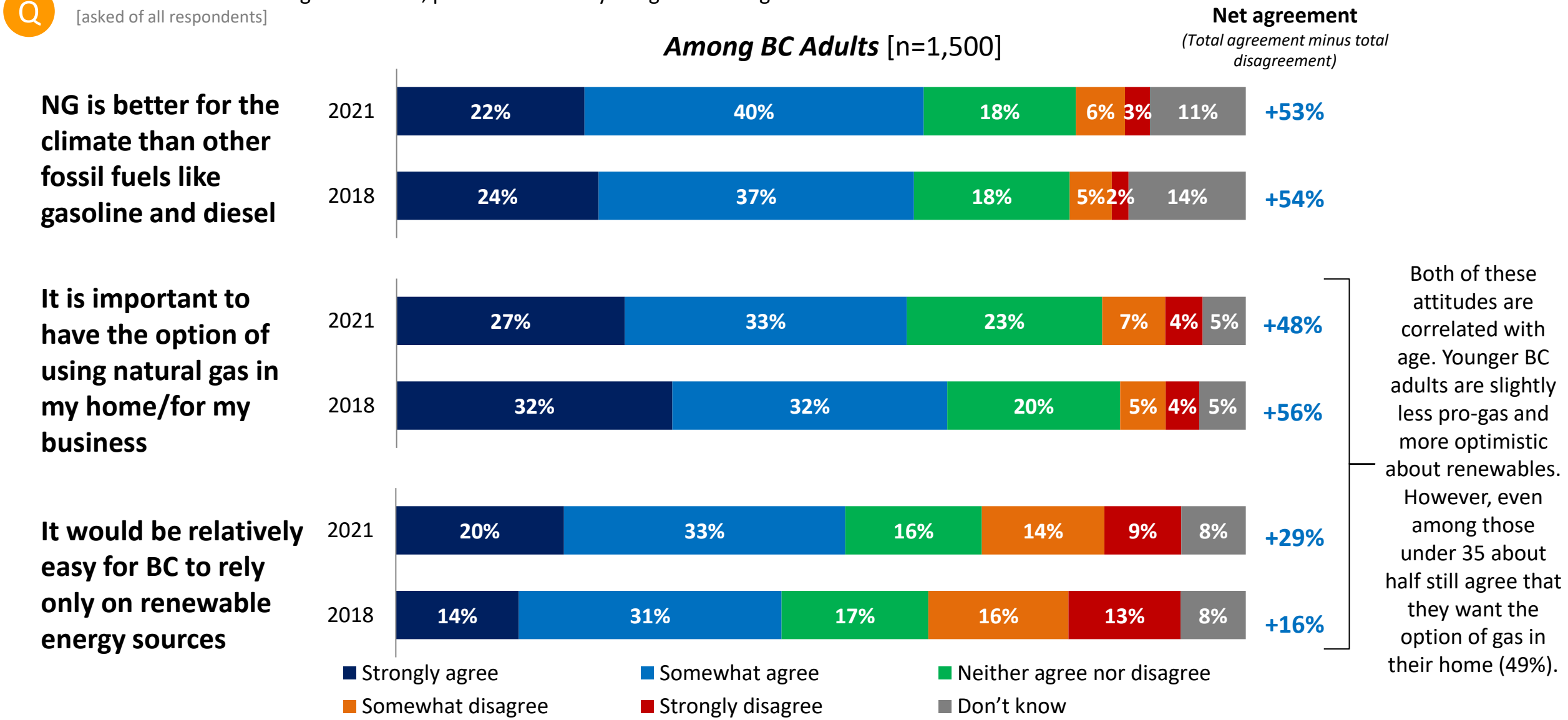
RNG customers are both more likely to say climate change is *definitely occurring* (94%) and that they are *very concerned* about it (73%)



INNOVATIVE RESEARCH GROUP

Among BC adults, agreement that it would be easy for BC rely only on renewables is up compared to 2018

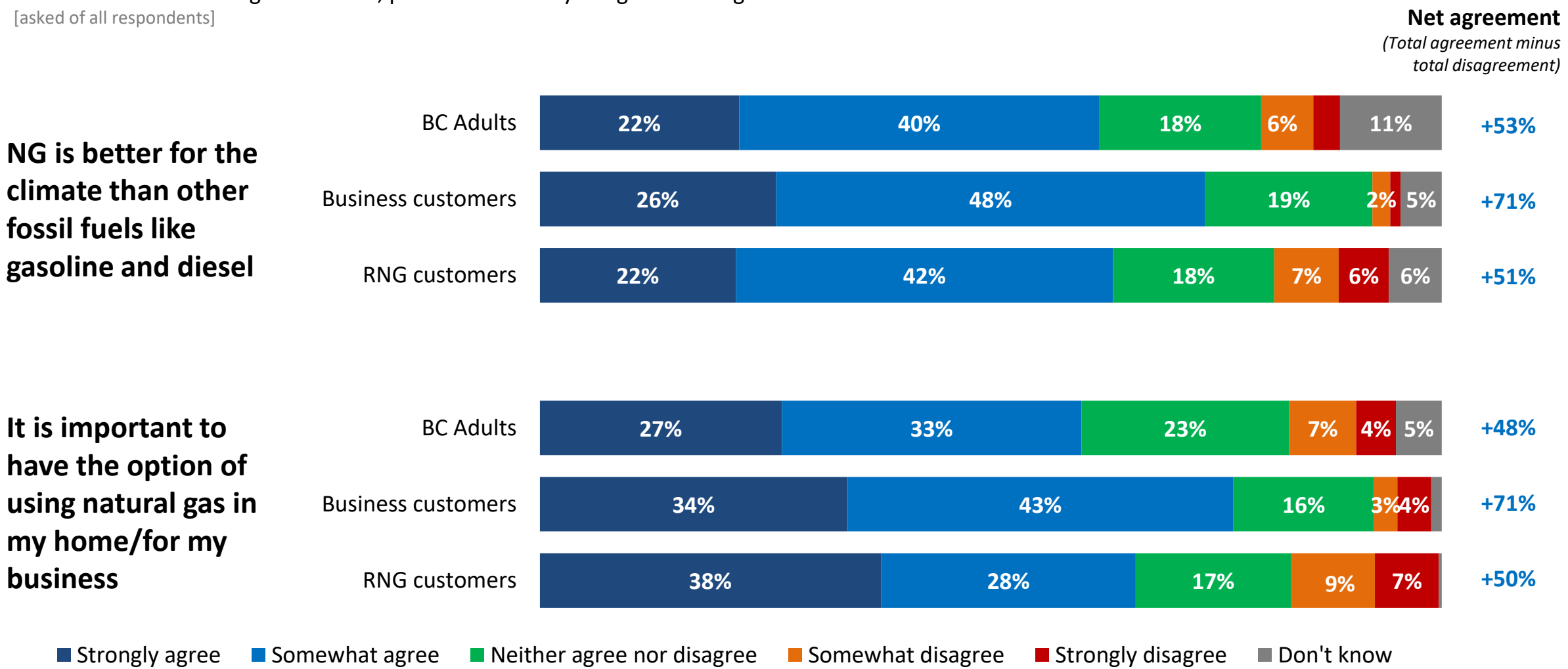
Q For each of the following statements, please indicate if you agree or disagree.
[asked of all respondents]



Both of these attitudes are correlated with age. Younger BC adults are slightly less pro-gas and more optimistic about renewables. However, even among those under 35 about half still agree that they want the option of gas in their home (49%).

Across groups, most agree NG is better for the climate than other fossil fuels and that it's important to have the option of NG

Q For each of the following statements, please indicate if you agree or disagree.
[asked of all respondents]



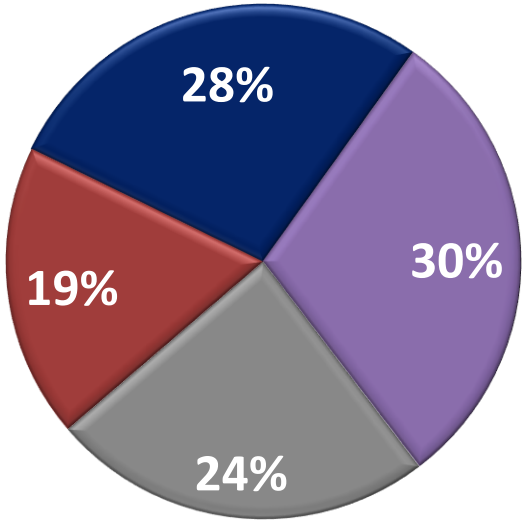
INNOVATIVE RESEARCH GROUP

Few are natural gas opponents; most are either strong or transitional supporters with supporters being highest among business customers

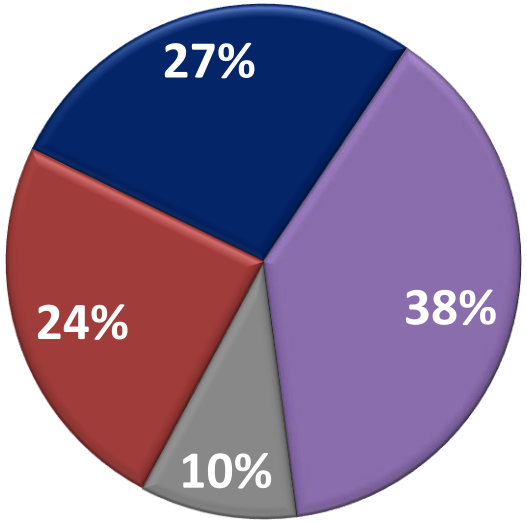
Based on their responses to the four questions on natural gas attitudes we group respondents into four natural gas attitudes segments:

- **Strong Gas Supporter:** believe NG is better than other FFs, that it's important to have the option of NG, and – most importantly – disagree that renewables can meet all of BC's energy needs.
- **Transitional Gas Supporter:** Believe NG is better than other FFs, that it's important to have the option of NG, but also believe that we can rely on renewables and that electricity is cleaner than NG.
- **Natural Gas Opponent:** Believe BC can rely on renewables and don't feel it's important to have the option of NG. Many are skeptical that NG is cleaner than other FFs.
- **Ambivalent:** Are neutral or unsure on most NG attitudes.

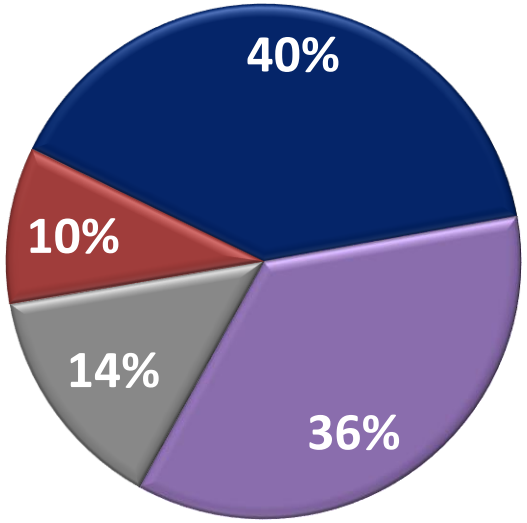
BC Adults [n=1,500]



RNG Customers [n=500]



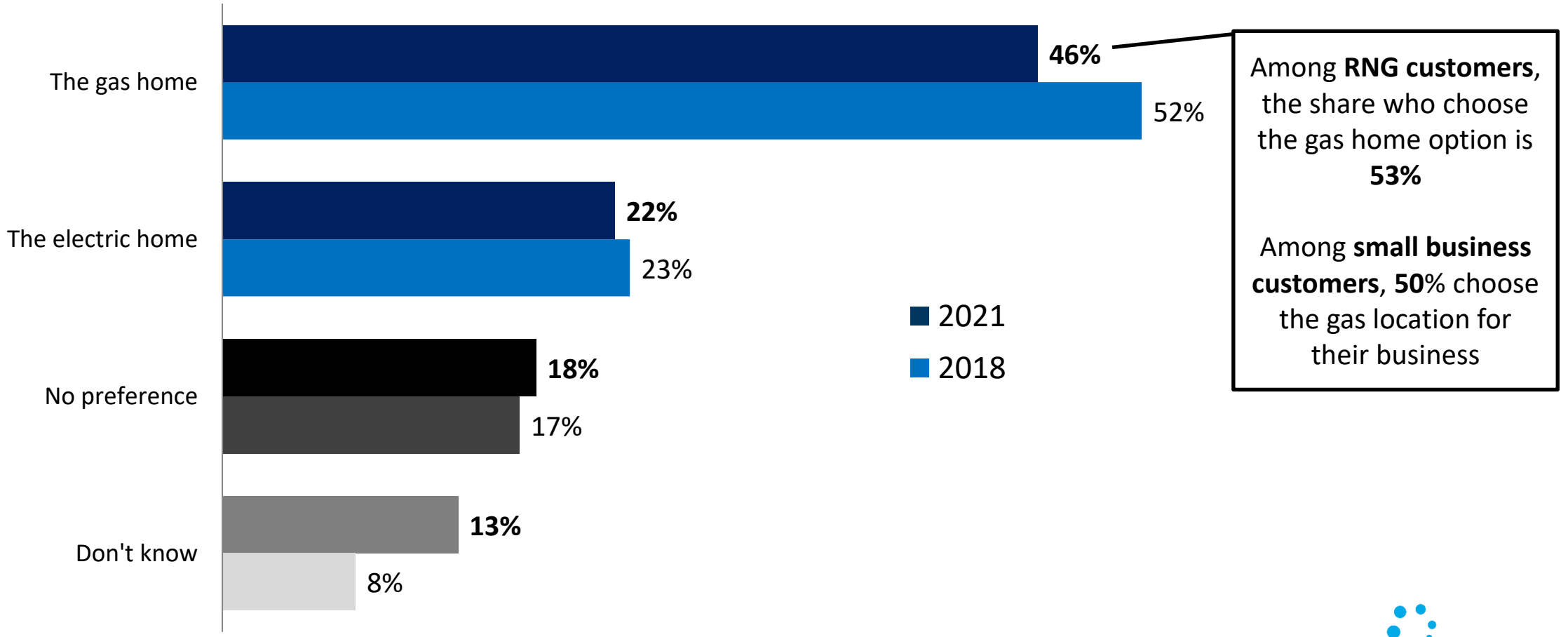
Business Customers [n=175]



Close to half say they would prefer the gas home over the electric alternative, down slightly compared to 2018

Q If you were looking for a new home and you found two similar homes one of which used natural gas for its home heating and water heater and one of which used electricity for its home heating and water heater, which would you prefer?

[asked of all respondents; 2021 n=1,500, 2018 n=1,200]



Note: In 2018, question text was "If you were looking for a new home and you found two similar homes one of which used natural gas for its heating and one of which used electricity for its heating, which would you prefer?"

INNOVATIVE RESEARCH GROUP

When it comes to regulating natural gas in buildings, what policies to British Columbians support?

Across audiences, most support GHG emission regulation generally; highest for RNG customers

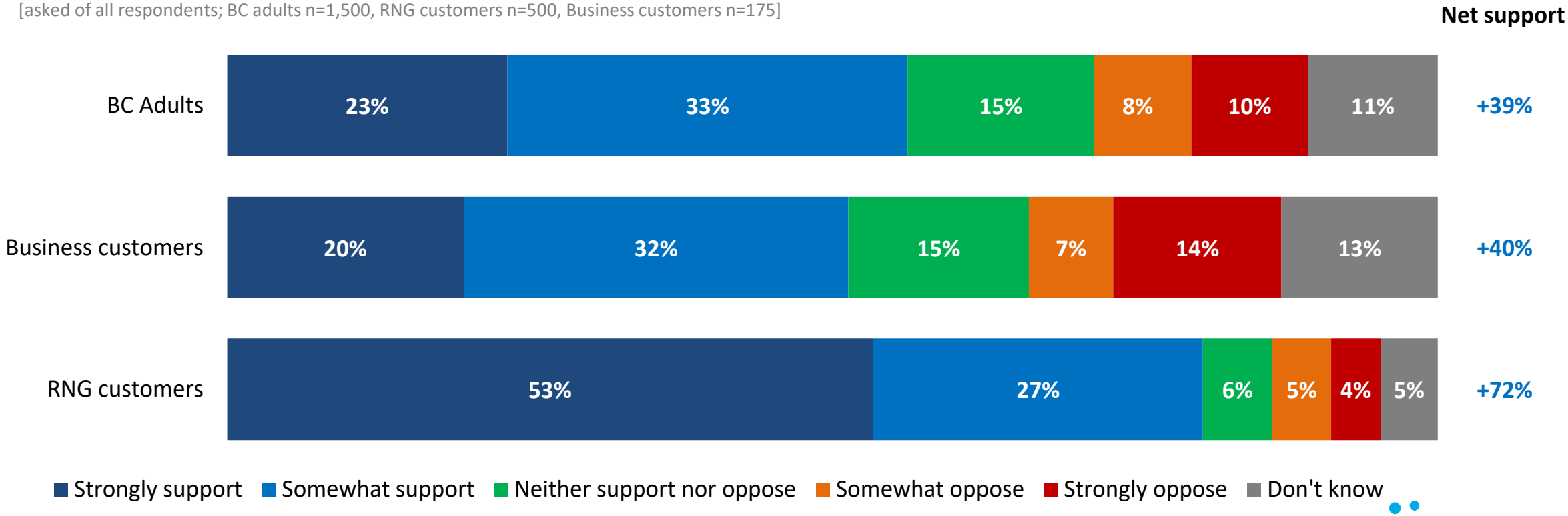
Q

BC Adults/RNG customers: Greenhouse gas emissions from homes and apartment buildings include any emissions produced by home heating, water heater, and cooking.

Business customers: Greenhouse gas emissions from commercial buildings include any emissions produced by space heating, water heating, cooking, or production processes.

Overall, do you support or oppose governments taking steps to regulate greenhouse gas emissions from [homes and apartment buildings/commercial buildings]?

[asked of all respondents; BC adults n=1,500, RNG customers n=500, Business customers n=175]



INNOVATIVE RESEARCH GROUP

Efficiency standards is the clear top choice when it comes to policies; across audiences, support for banning natural gas is low

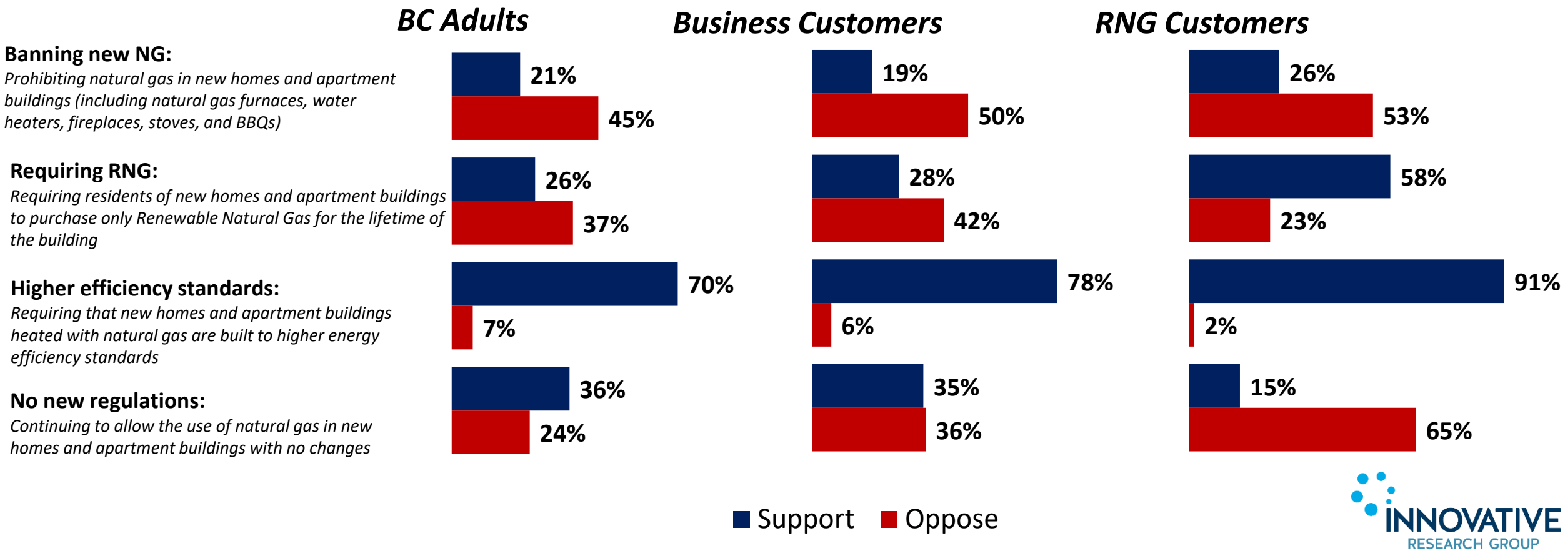
Q

BC Adults/RNG customers: One source of greenhouse gas emissions in homes and apartment buildings is the use of natural gas.

Business customers: One source of greenhouse gas emissions in commercial buildings is the use of natural gas.

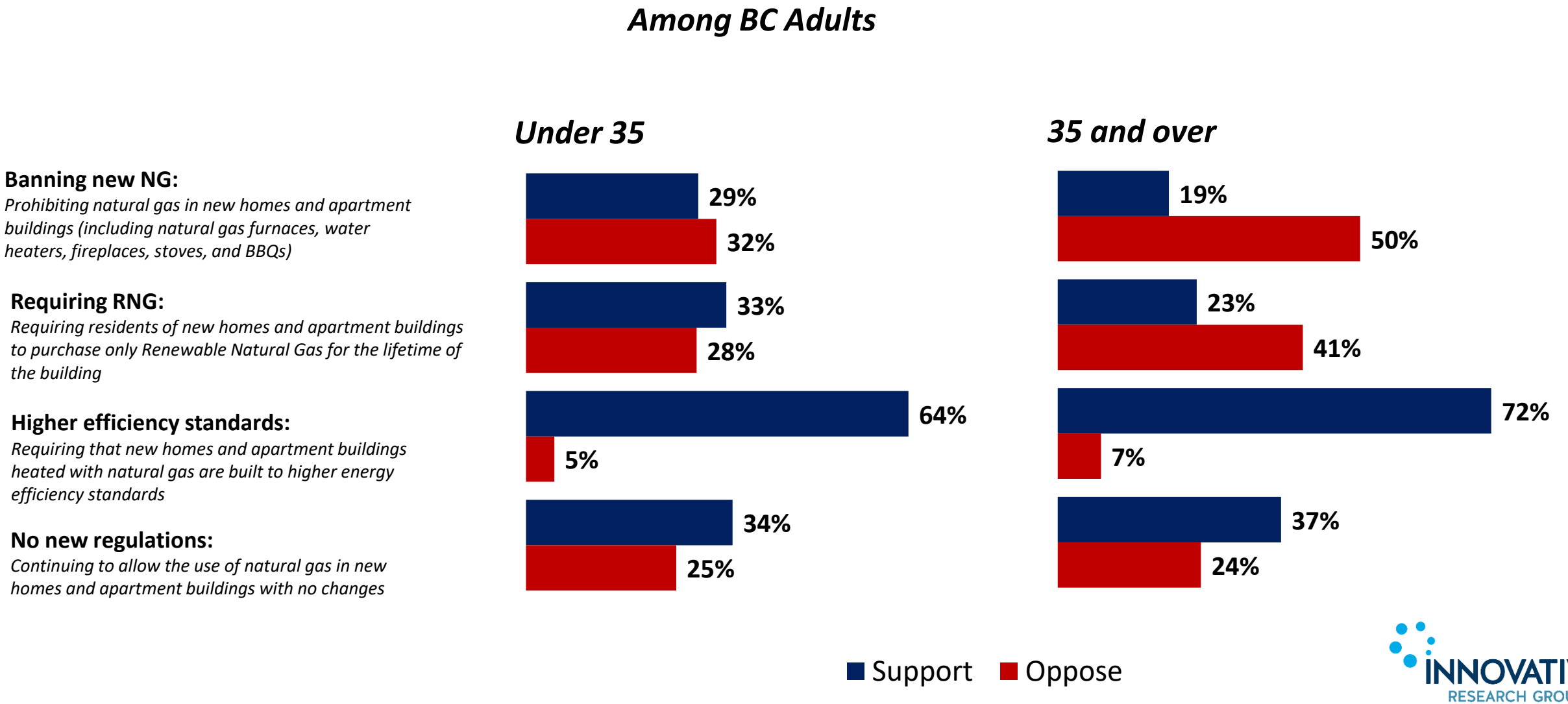
Would you support or oppose each of the following policies with regards to the use of natural gas in [homes and apartment/commercial] buildings?

[asked of all respondents; BC adults n=1,500, RNG customers n=500, Business customers n=175]



BC adults under 35 are higher on support for banning NG or requiring occupants to purchase only RNG; though still prefer efficiency

Q Would you support or oppose each of the following policies with regards to the use of natural gas in homes and apartment buildings?
[asked of all respondents; BC adults n=1,500]



INNOVATIVE RESEARCH GROUP

Past a $4/GJ increment, seeing a potential price decreases support for requiring RNG in new buildings

We asked respondents their support for requiring residents of new homes and apartment/commercial buildings to purchase only RNG for the lifetime of the building before and after randomly exposing them a hypothetical price for RNG at $4/GJ, $8/GJ, $16/GJ, or $32/GJ. Below we show a summary of the pre-post change in net support for **requiring residents of new buildings to purchase RNG** based on which price they were shown.

BC Adults

Price Shown	Pre-post change in net support
Additional **$24** per month [n=389]	**+11%**
Additional **$48** per month [n=362]	**-11%**
Additional **$96** per month [n=367]	**-14%**
Additional **$192** per month [n=382]	**-29%**

RNG Customers

Price Shown	Pre-post change in net support
Additional **$24** per month [n=121]	**+4%**
Additional **$48** per month [n=134]	**0%**
Additional **$96** per month [n=127]	**-15%**
Additional **$192** per month [n=119]	**-53%**

Small Business Customers

Price Shown	Pre-post change in net support
Additional **$113** per month [n=44]	**+17%**
Additional **$227** per month [n=42]	**-14%**
Additional **$453** per month [n=41]	**-19%**
Additional **$907** per month [n=48]	**-30%**

*Note: Results in **blue**/**red** significant at 95% confidence

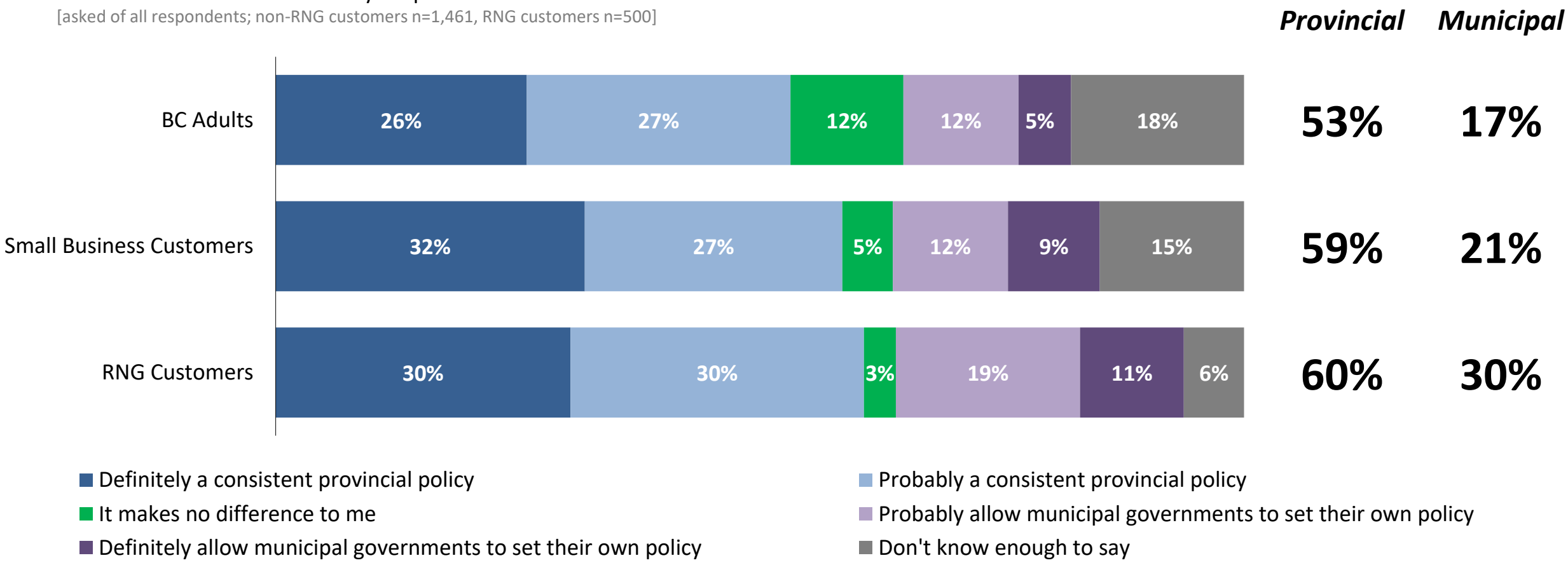
Jurisdiction: A majority (61%) still prefer a provincial policy, but support for municipal policies is higher than it is among the genpop

Q When it comes to these policies to regulate emissions from homes and apartment buildings:

- Some people say the provincial government should set a consistent policy for the whole province so that the rules are the same for everyone
- Some people say municipal governments should be allowed to set more ambitious policies if they choose to

Which of these comes closer to your point of view?

[asked of all respondents; non-RNG customers n=1,461, RNG customers n=500]

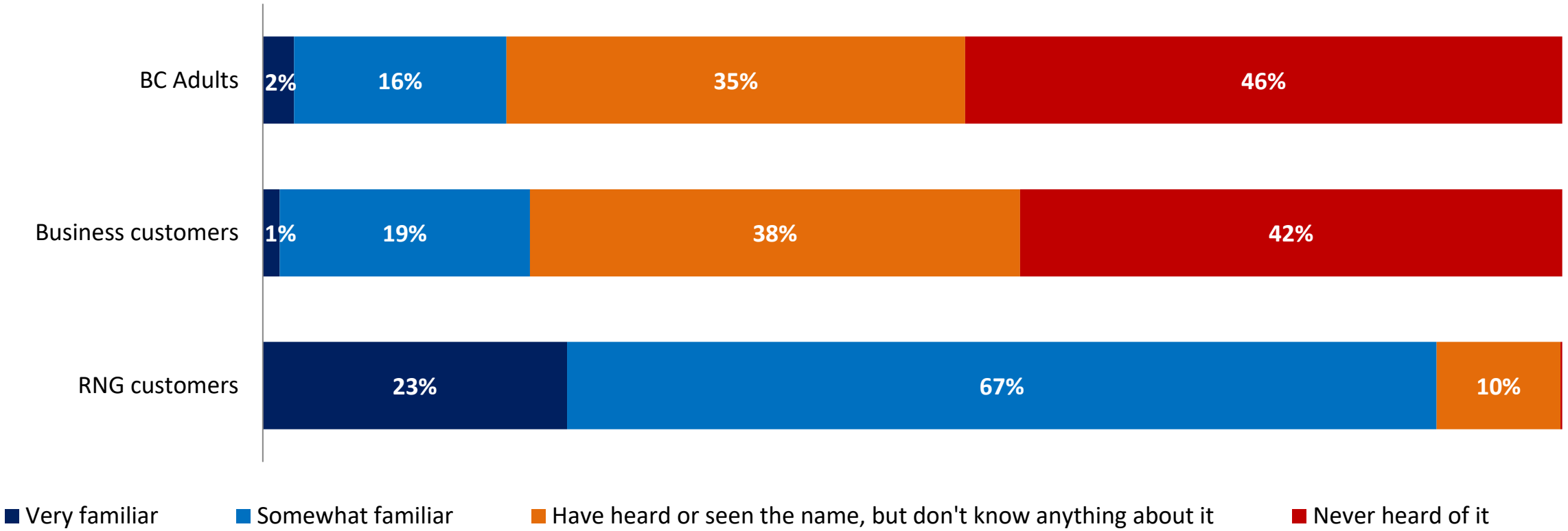


Is there overall support for RNG? Has that changed over time?

Familiarity with the RNG program is low among BC adults and FortisBC business customers

Q How familiar are you with FortisBC's current Renewable Natural Gas (RNG) Program?

[asked of all respondents; BC Adults n=1,500, RNG customers n=500, Business customers n=175]



INNOVATIVE RESEARCH GROUP

A majority in all groups say FortisBC should be investing in RNG programs, especially current RNG customers

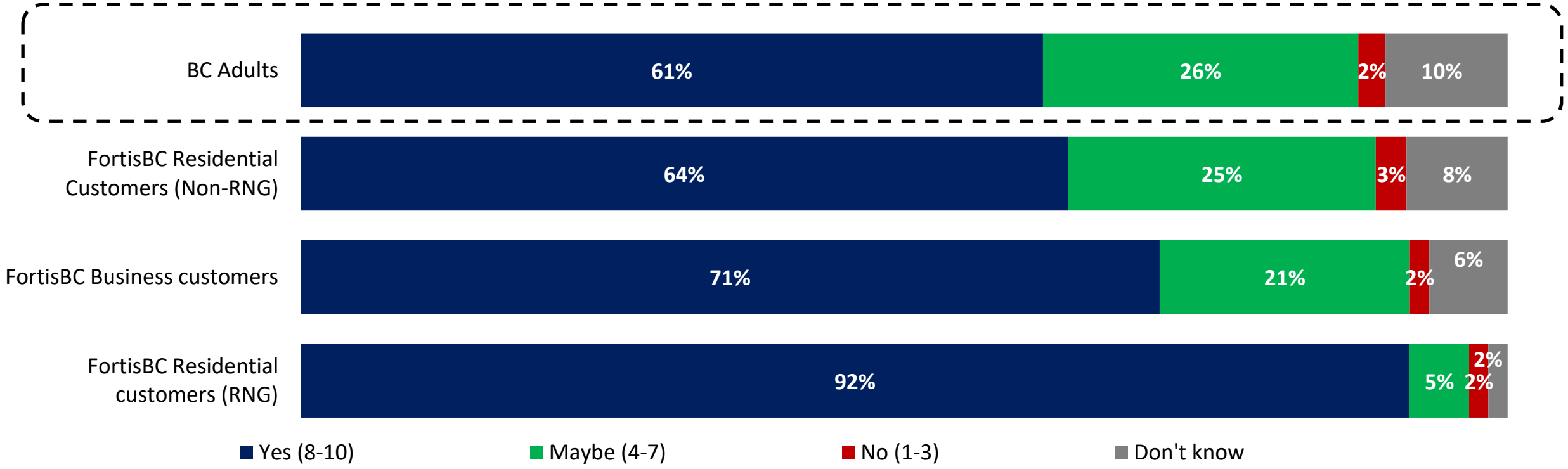
Q Renewable Natural Gas is made from organic waste produced by every day activities. As this organic matter, such as food or cow manure, rots, it releases methane gas which is captured and used as natural gas is used. Capturing this methane that would otherwise escape into the atmosphere makes RNG a carbon neutral energy source.

For the remainder of the survey we will refer to this energy source as "**renewable natural gas**".

Do you think FortisBC should be investing in renewable natural gas projects?

[asked of all respondents; BC Adults n=1,500, Business customer n=175, RNG customer n=500]

Those most concerned about climate change are most supportive (**72%**) while few of the small number of BC adults not concerned about climate change support RNG investment (**36%**)



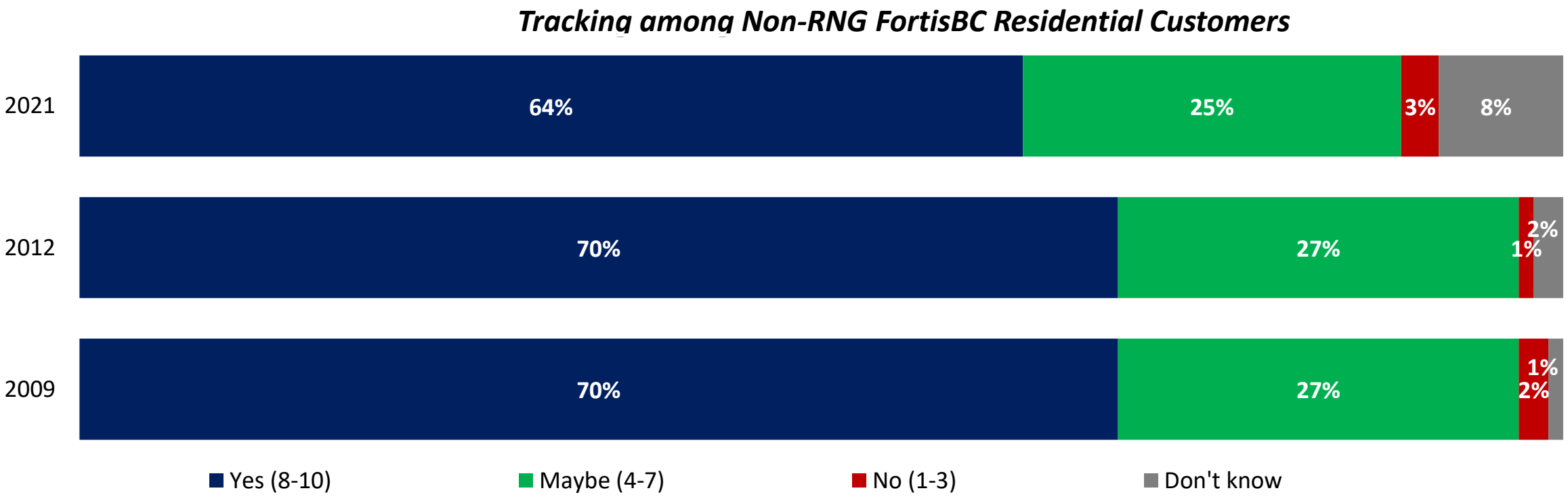
There is slightly more uncertainty today compared to past surveys

Q Renewable Natural Gas is made from organic waste produced by every day activities. As this organic matter, such as food or cow manure, rots, it releases methane gas which is captured and used as natural gas is used. Capturing this methane that would otherwise escape into the atmosphere makes RNG a carbon neutral energy source.

For the remainder of the survey we will refer to this energy source as "**renewable natural gas**".

Do you think FortisBC should be investing in renewable natural gas projects?

[asked of all respondents, shown among non-RNG FortisBC customers; n=725]

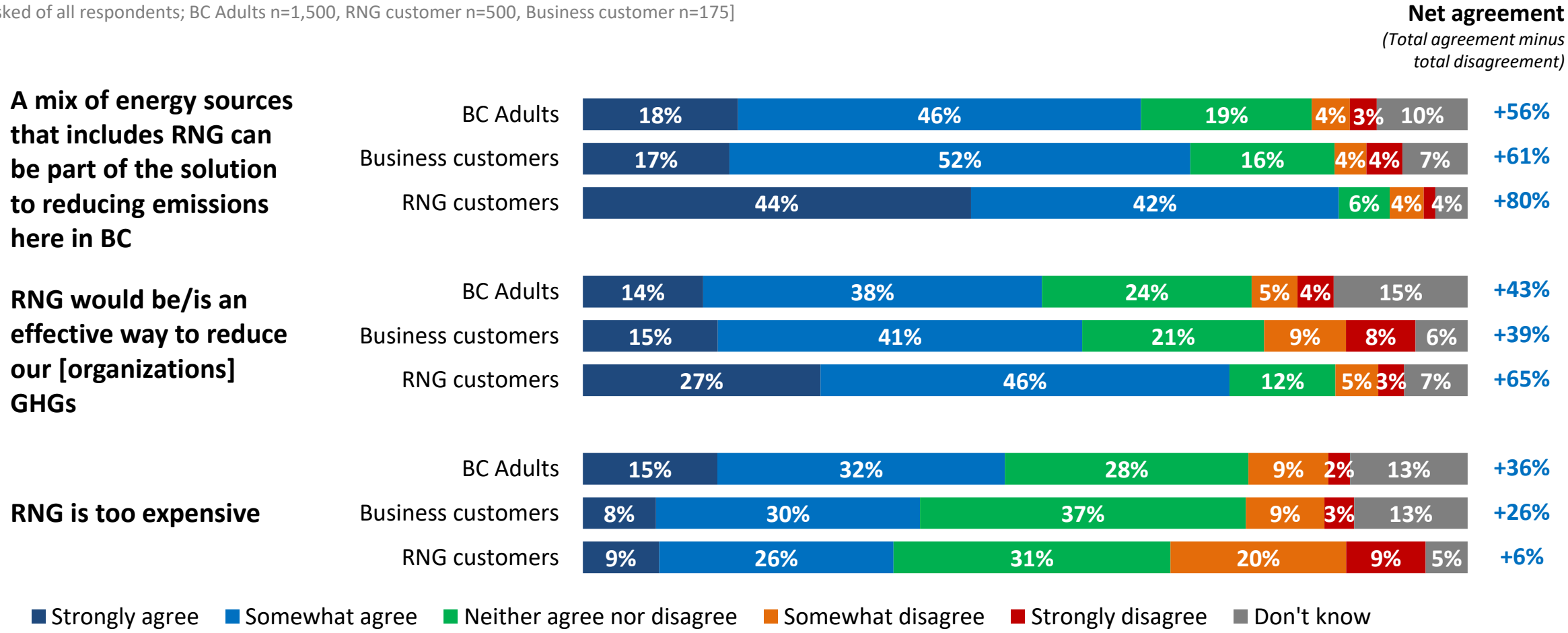


Note: Preamble changed between 2009, 2012, and 2021

A strong majority agree that RNG can be part of the solution to reducing emissions in BC and own household/organization's emissions

Q Please indicate whether you agree or disagree about the following statements about renewable natural gas.

[asked of all respondents; BC Adults n=1,500, RNG customer n=500, Business customer n=175]

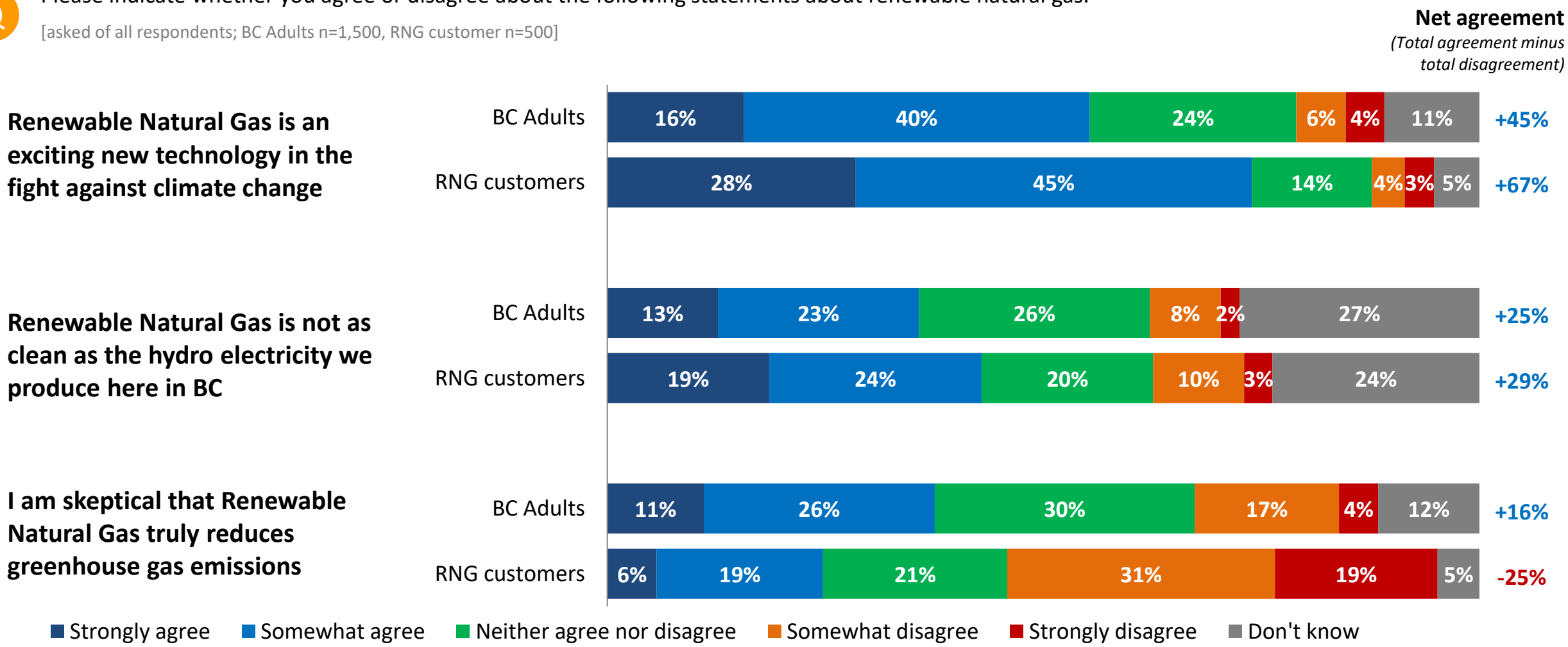


INNOVATIVE RESEARCH GROUP

RNG customers are higher on all positive statements about RNG; and much less skeptical about it reducing GHGs

Q Please indicate whether you agree or disagree about the following statements about renewable natural gas.

[asked of all respondents; BC Adults n=1,500, RNG customer n=500]



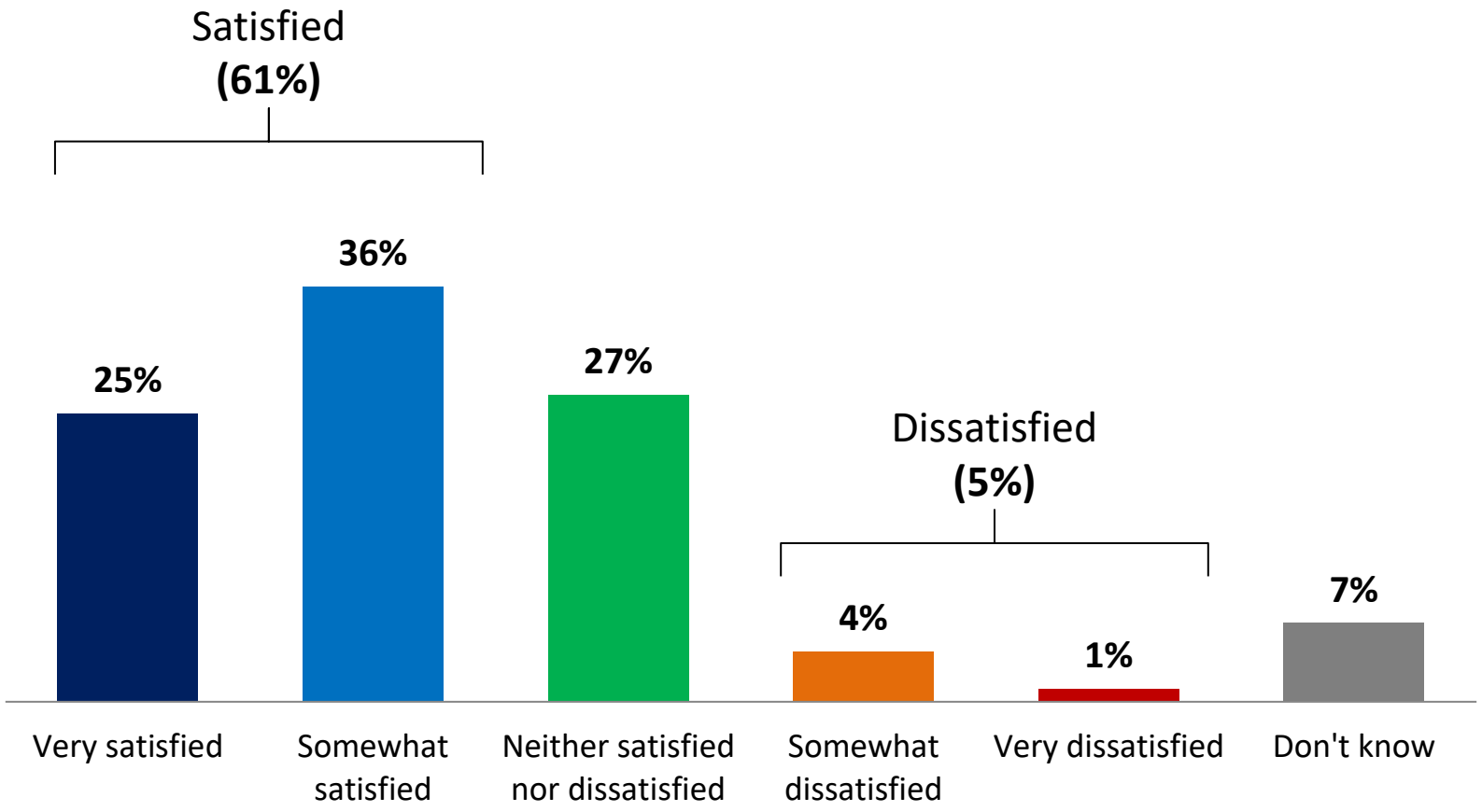
INNOVATIVE RESEARCH GROUP

61% of current RNG customers surveyed are satisfied with the program overall

Among Current RNG Customers

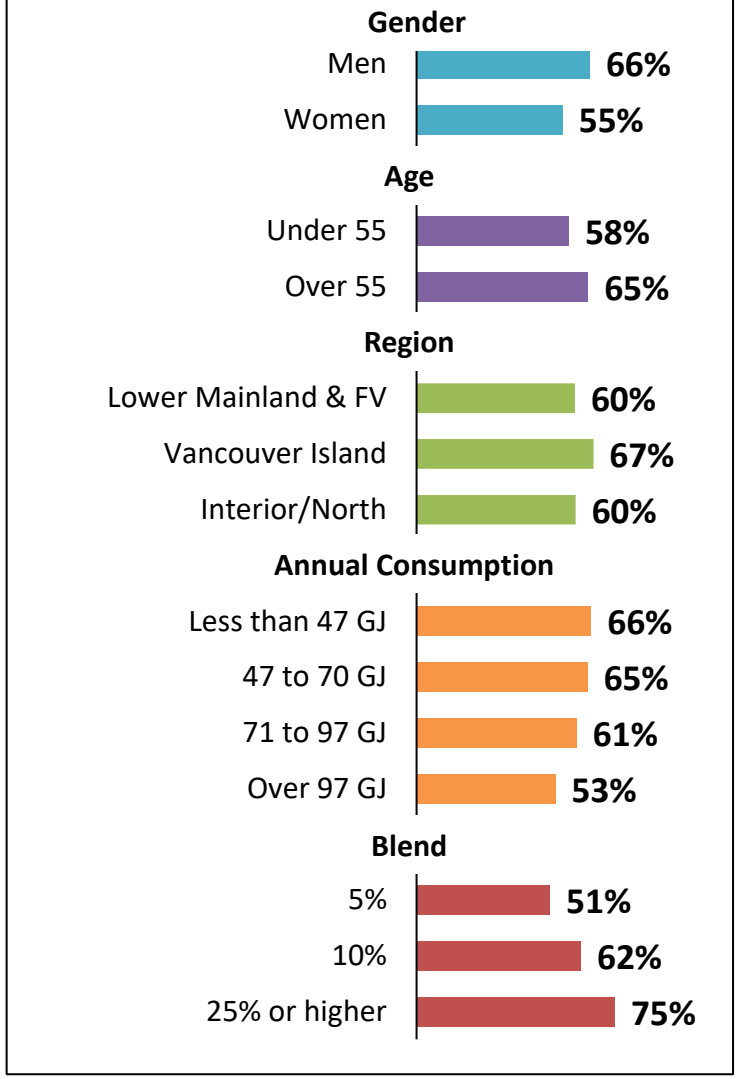
Q Overall, how satisfied have you been with the FortisBC renewable natural gas program since you signed up?

[asked of all current RNG customers; n=500]



Segmentation (RNG customers)

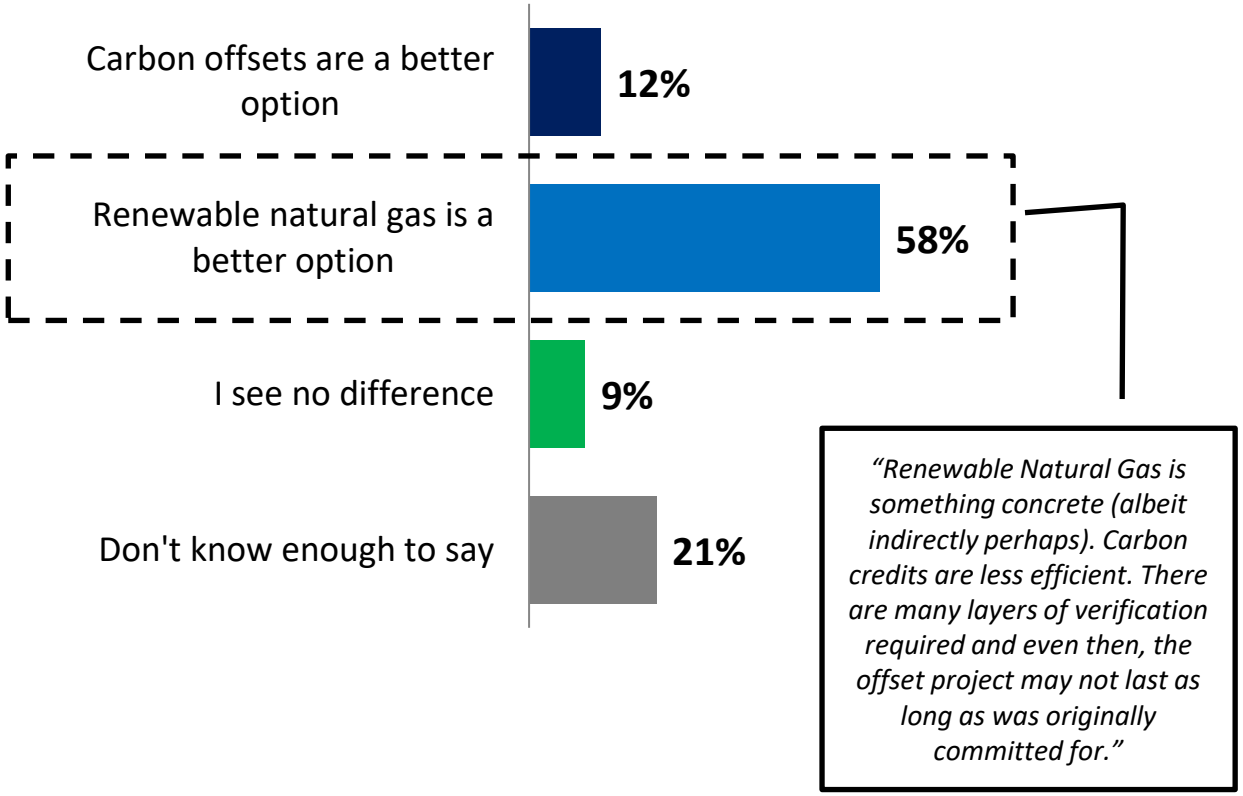
Respondents who say "satisfied"



Likelihood of Signing Up | Comparison: The RNG program (after price) or a combined program are highest on likelihood to sign up

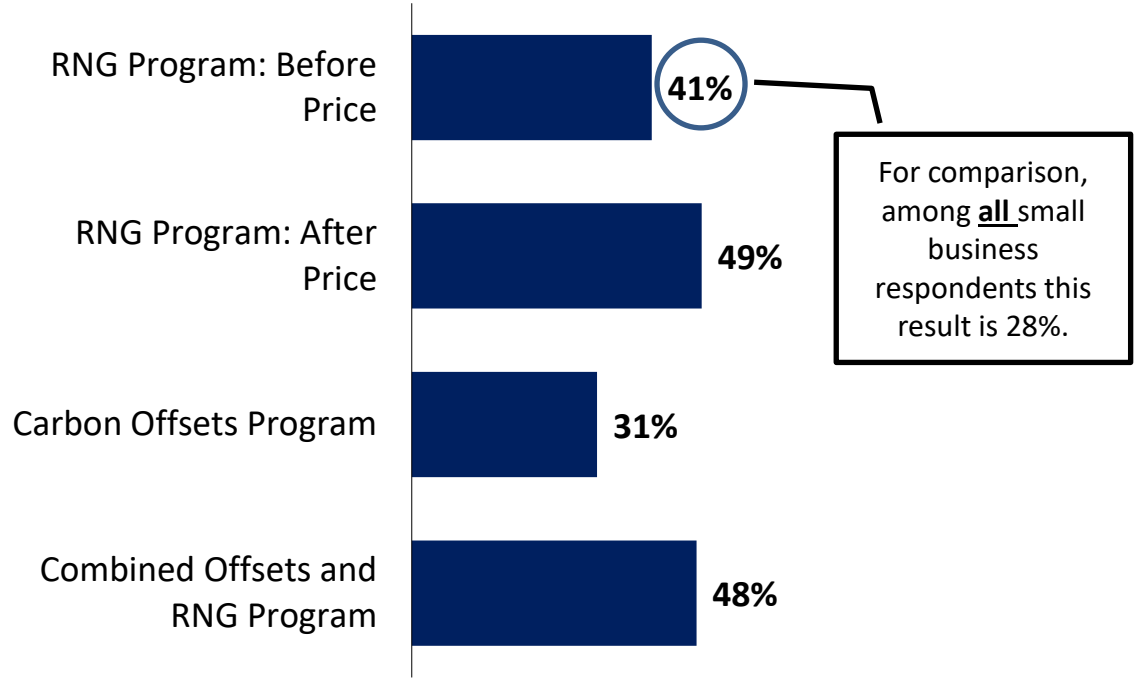
Among small business customers who expect their organization may have specific emissions targets in the next 10 years [N=60]

For your organization, do you feel that carbon offsets are a better option, renewable natural gas is a better option, or do you see no difference between the two options?
[In the survey an explanation of each option is provided including that RNG is likely to be more expensive]



"Renewable Natural Gas is something concrete (albeit indirectly perhaps). Carbon credits are less efficient. There are many layers of verification required and even then, the offset project may not last as long as was originally committed for."

"Likely" to sign up for an RNG and/or Offsets program "all else being equal"
Excluding current RNG customers [n=54]



For comparison, among **all** small business respondents this result is 28%.

INNOVATIVE RESEARCH GROUP

Do British Columbians want to participate in an RNG program and what motivates that interest?

RNG Customer Journey

What motivates participation in an RNG program?

What predicts actually signing up?

- British Columbians are highly **price sensitive** when it comes to actually signing up
- Actual RNG customers are much **more concerned about the climate** than non-customers
- Actual RNG customers are **older**, have **higher incomes**, feel fewer **bill impacts**, more likely to live in **detached homes**, be **homeowners**, and are more **familiar with energy choices**

Not an RNG customer → **Consider the RNG program** → **Become an RNG customer** → **Continue participating in RNG program**

What are the reasons for considering the program?

- All else equal, 24% of BC residents and 28% of business customers say they'd sign up
- BC adults most **concerned about climate change**, **transitional gas supporters**, and those **<35** are the most likely to say they'd sign up
- When asked why they say they'd sign up, **environmental concerns** are the largest motivator while **price** is the most commonly mentioned barrier

What motivates RNG customers to stay in the program?

- Close to half of RNG customers say they want to continue to purchase RNG and half say they'd increase their blend if they could
- **Environmental motivation and concern** is a key driver of wanting to continue in the program, and mitigates the impact of price

1-in-4 (24%) BC adults that aren't RNG customers say they would be likely to sign up for the RNG program

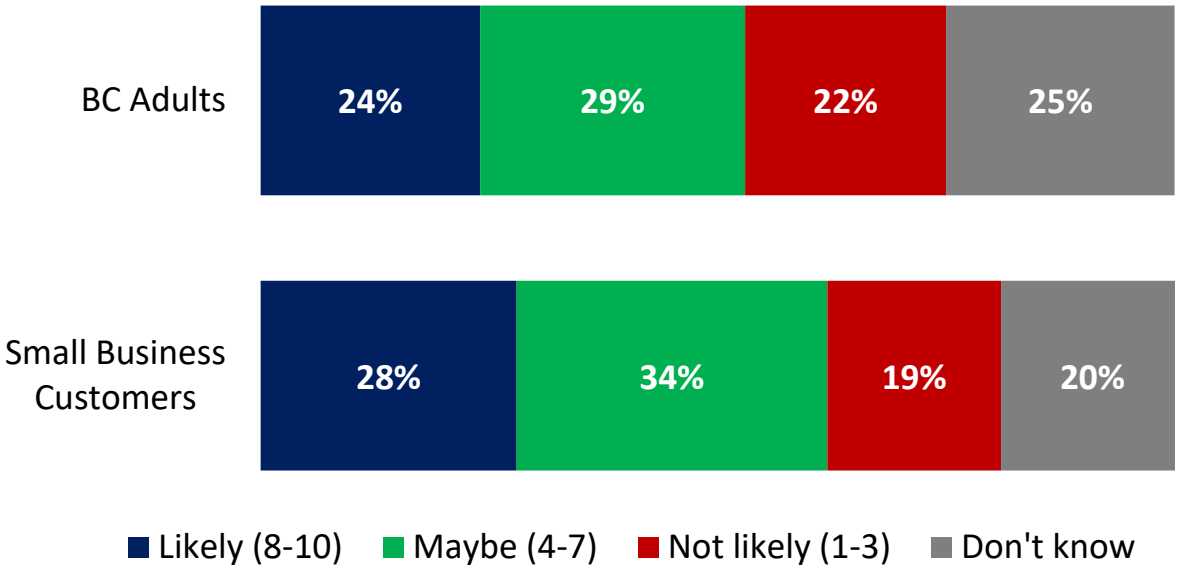
Q In FortisBC's RNG program, customers sign up for a portion of their energy use – between 5% and 100% – to be supplied from renewable natural gas, and pay a higher price on the proportion of renewable gas they use. Currently the program is full, but once new supply of renewable natural gas becomes available the program could be opened to more customers.

All things being equal, how likely would you be to sign up for a FortisBC renewable natural gas program?

[asked of all respondents who are not current RNG customers; shown among FortisBC customers who aren't RNG customers; 2021 n=725, 2012 n=1,003, 2009 n=799]

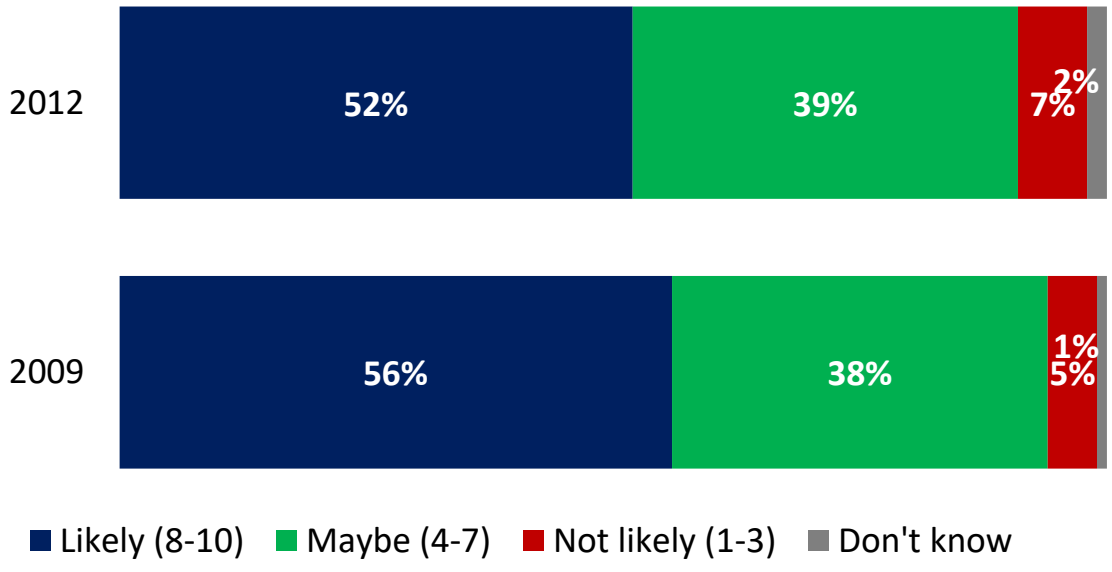
2021 results

[price mentioned in preamble]



Comparison to past surveys (BC Adults)

[price <u>not</u> mentioned in preamble]

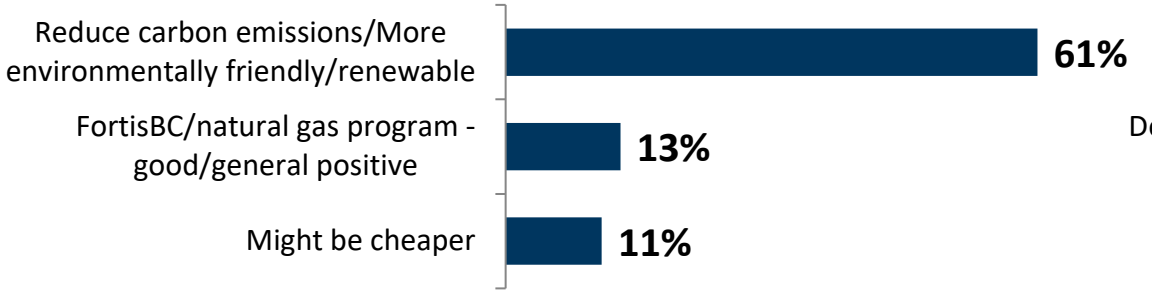


The top reason respondents would be likely to sign up is the environment while top barrier is price

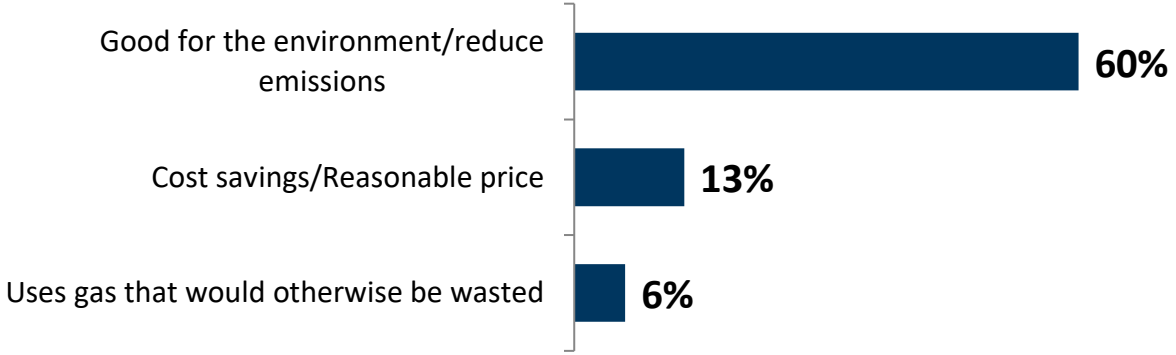
Q And what is the main reason you **would** be likely to sign up for a FortisBC renewable natural gas program?

[asked of all non-RNG customers who say they would be likely to sign up (6-10); open-ended; BC Adults n=551, Business customers n=83]

BC Adults Top 3 Reasons



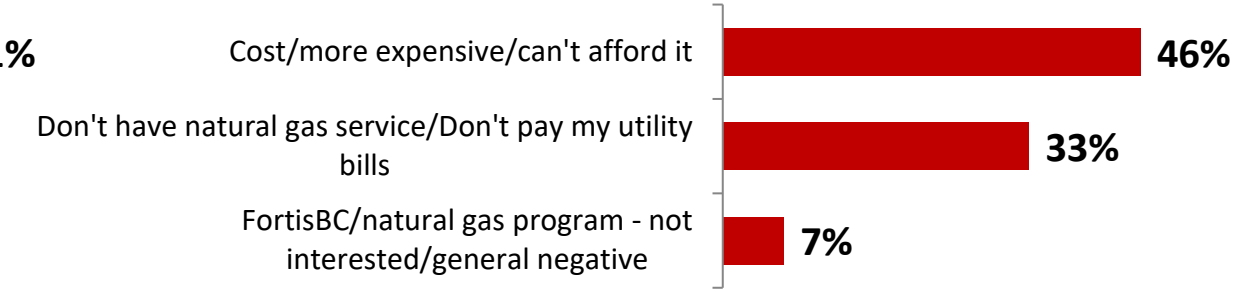
Business Customers Top 3 Reasons



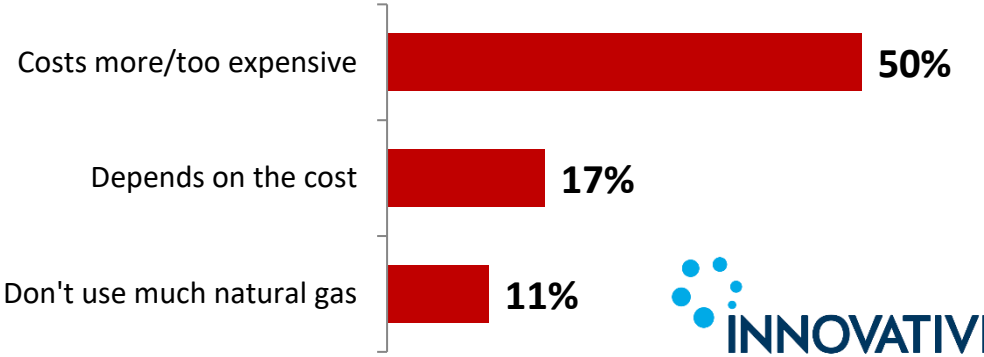
Q And what is the main reason you **would not** be likely to sign up for a FortisBC renewable natural gas program?

[asked of all non-RNG customers who say they wouldn't be likely to sign up (1-4); open-ended; BC Adults n=342 , Business customers n=49]

BC Adults Top 3 Reasons



Business Customers Top 3 Reasons

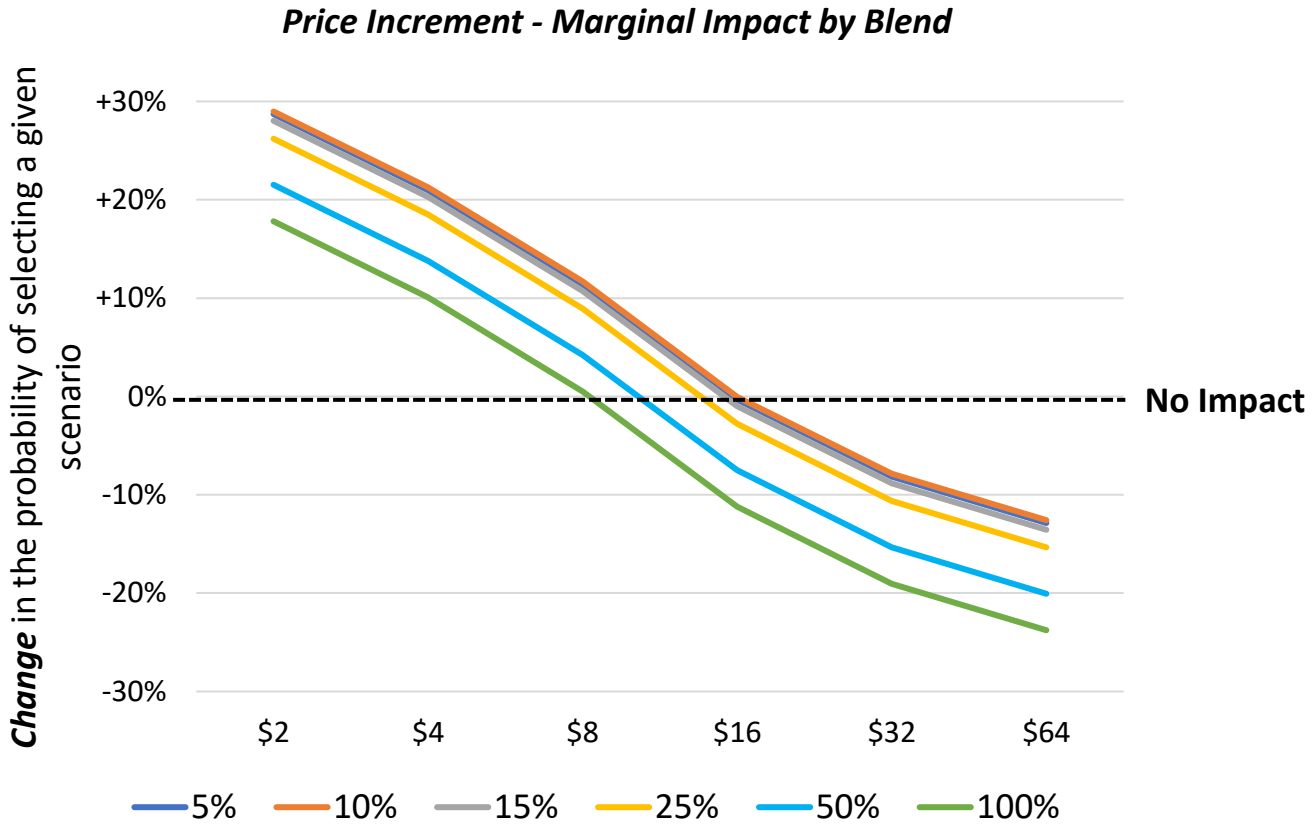


INNOVATIVE RESEARCH GROUP

Potential RNG Customers Are Price Sensitive: As the price increment increases, potential demand quickly drops away

We conducted a conjoint pricing experiment in the BC adult sample.

- Respondents each completed 8 randomize paired-choice tasks.
- Each task presented two RNG scenarios varying by price increment, blend, and whether or not they would require a commitment period.
- Each task included a brief explanation of the program and prices were presented as the difference from a typical bill today.
- For each task participants can select one or the other program they would be more likely to sign up for, or indicate they would sign up for neither.
- Overall 53% of the time one of the two RNG programs presented was selected. This means that on average any particular scenario was selected 26% of the time.
- **We then run a model based on respondent's choices to estimate the relative impact of a change in price or blend on the likelihood to sign up. The results from that model are presented in the chart to the right.**



The results show that customers are sensitive to the premium paid for RNG over conventional gas. As the cost for RNG increases – especially due to a higher premium over conventional gas, but also due to a higher blend – customers' reported likelihood of signing up declined consistently.

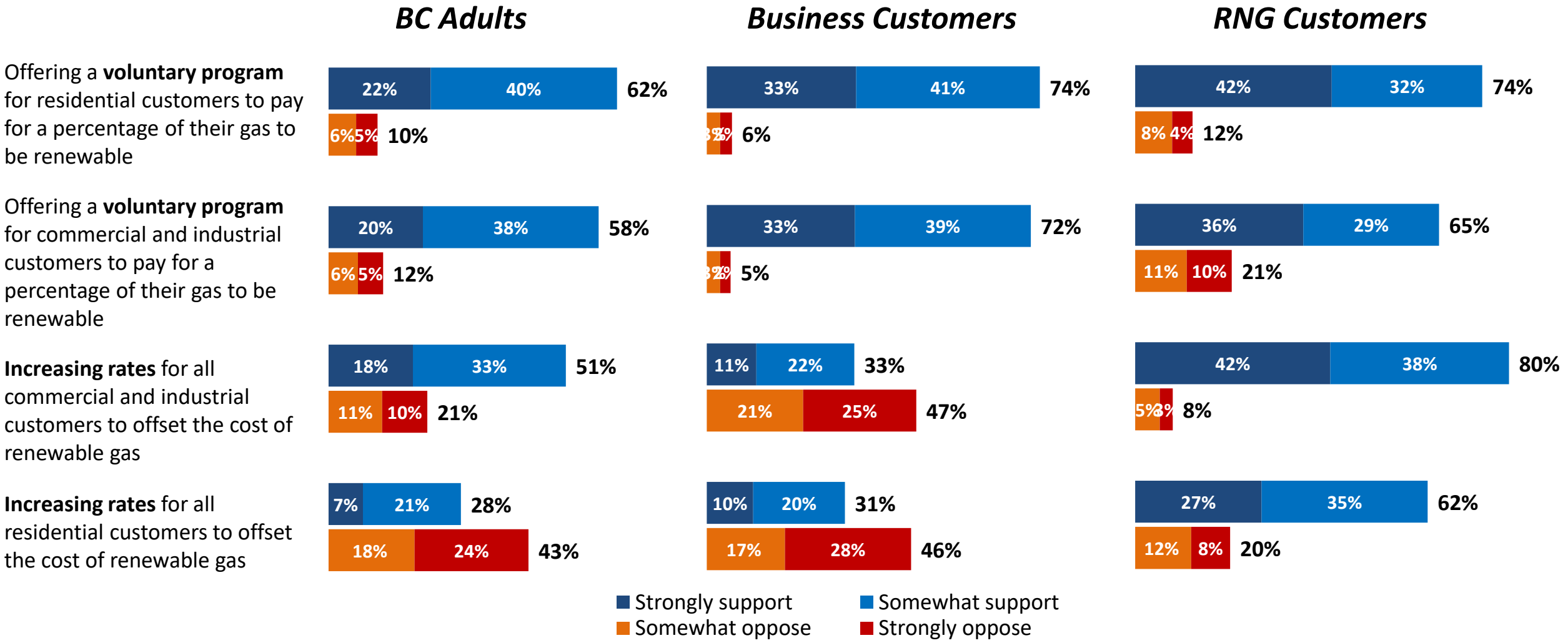
INNOVATIVE RESEARCH GROUP

Who should pay for RNG? How should the costs be shared?

There is broad support for a voluntary RNG program but (aside from current RNG customers) there is more opposition to rate increases

Q In general, do you support or oppose each of the following approaches to paying for additional renewable natural gas in BC?

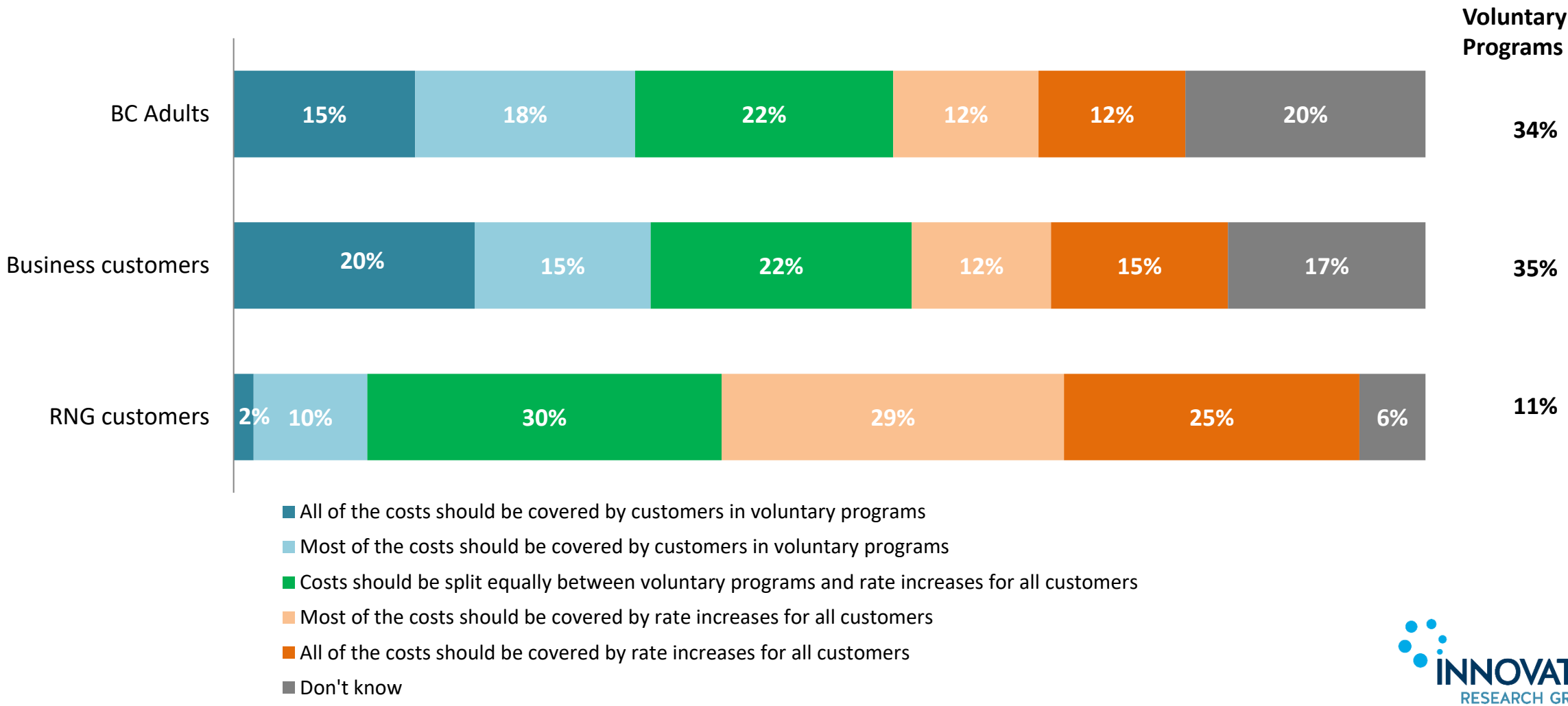
[asked of all respondents; BC Adults n=1,500, RNG customers n=500 , Business customers n=175]



If given the choice, RNG customers are much more likely to say the cost of RNG should be spread out

Q Do you believe a larger share of the costs of renewable gas should be paid for by customers in voluntary programs or should a larger share be paid for by rate increases for all customers? Would you say…

[asked of all respondents; BC Adults n=1,500, RNG customers n=500, Business customers n=175]

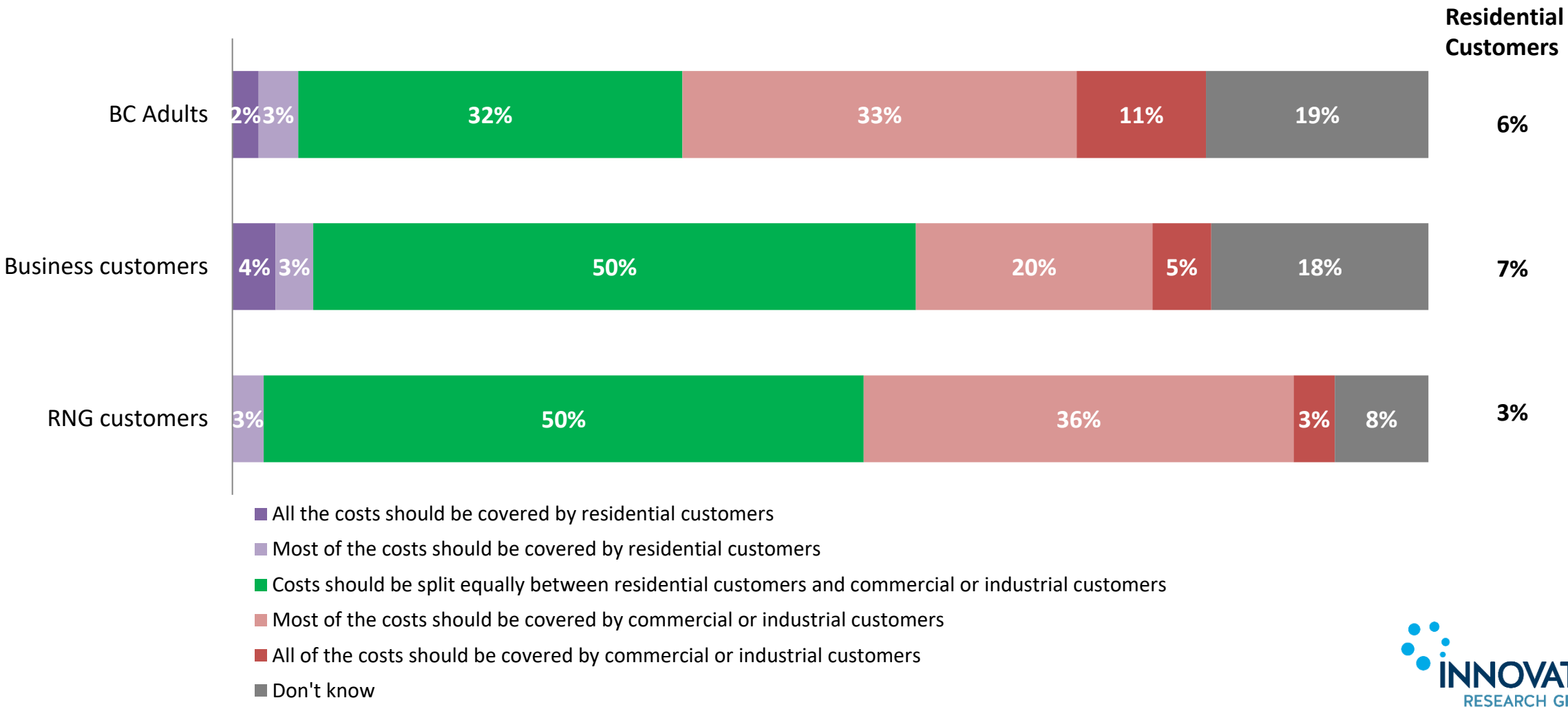


INNOVATIVE RESEARCH GROUP

Half of business and RNG customers say costs should be split equally while it's 32% for the general population

Q Do you believe a larger share of the costs of renewable gas should be paid for by residential customers or should a larger share be paid for by commercial and industrial customers? Would you say…

[asked of all respondents; BC Adults n=1,500, RNG customers n=500, Business customers n=175]



INNOVATIVE RESEARCH GROUP

Appendix: Survey Methodologies

Methodology | BC Adults

These are the results of an online survey conducted between February 2nd and February 8th, 2021.

Method: This online survey was conducted using two leading providers of online sample, Maru/Blue. Each survey is administered to a series of randomly selected samples from the panels and weighted to ensure that the overall sample's composition reflects that of the actual British Columbia population according to Census data to provide results that are intended to approximate a probability sample.

Sample Size: n=1,519 BC residents, 18 years or older. The results are weighted to n=1,500 based on Census data from Statistics Canada.

Field Dates: February 2nd – February 8th, 2021.

Weighting: Results for BC are weighted by age, gender, and region to ensure that the overall sample's composition reflects that of the actual population according to Census data; in order to provide results that are intended to approximate a probability sample. Weighted and unweighted frequencies are reported in the table.

Margin of Error: This is a representative sample. However, since the online survey was not a random probability based sample, a margin of error cannot be calculated. Statements about margins of sampling error or population estimates do not apply to most online panels.

Note: Graphs may not always total 100% due to rounding values rather than any error in data. Sums are added before rounding numbers.

	Unweighted (n)	Unweighted (%)	Weighted (n)	Weighted (%)
Men 18-34	158	10.4%	200	13.4%
Men 35-54	246	16.3%	241	16.1%
Men 55+	319	21.1%	285	19.0%
Women 18-34	208	13.8%	197	13.2%
Women 35-54	265	17.5%	257	17.1%
Women 55+	316	20.9%	317	21.2%
Lower Mainland & Fraser Valley	890	58.6%	889	59.3%
Vancouver Island & Sunshine Coast	292	19.2%	286	19.1%
Interior/North	337	22.2%	325	21.7%

Methodology | RNG Customers

These are the results of an online survey conducted between March 23rd and April 7th, 2021.

Method: This online survey of FortisBC RNG customers was conducted using a customer list provided by FortisBC. All current RNG customers with an email address were sent a unique survey URL to participate in the online survey. The results have been weighted to ensure that the overall sample's composition reflects that of the actual RNG customer population to provide results that are intended to approximate a probability sample.

Sample Size: n=538 current RNG customers. The results are weighted to n=500.

Field Dates: March 23rd – April 7th, 2021.

Weighting: Results are weighted by region, RNG blend, and annual consumption to ensure that the overall sample's composition reflects that of the actual population of RNG customers; in order to provide results that are intended to approximate a probability sample. Weighted and unweighted frequencies are reported in the table.

Margin of Error: This is a representative sample. However, since the online survey was not a random probability based sample, a margin of error cannot be calculated. Statements about margins of sampling error or population estimates do not apply to most online panels.

Note: Graphs may not always total 100% due to rounding values rather than any error in data. Sums are added before rounding numbers.

	Unweighted (n)	Unweighted (%)	Weighted (n)	Weighted (%)
Lower Mainland & Fraser Valley	230	42.8%	294	58.9%
Vancouver Island & Sunshine Coast	143	26.6%	70	14.0%
Interior/North	165	30.7%	135	27.1%
5% blend	113	21.0%	151	30.3%
10% blend	221	41.1%	261	52.2%
25% blend or higher	204	37.9%	88	17.6%
Less than 47 GJ	157	29.2%	123	24.7%
47 to 70 GJ	159	29.6%	125	25.1%
71 to 97 GJ	143	26.6%	124	24.8%
Over 97 GJ	79	14.7%	127	25.4%

Methodology | Business Customers

These are the results of an online survey conducted between April 8th and May 8th, 2021.

Method: This online survey of FortisBC small business customers was conducted using a customer list provided by FortisBC.

All current small business customers with an email address were sent a unique survey URL to participate in the online survey. Additionally, using a list of phone numbers provided by FortisBC, some customers received a phone call reminder and had the opportunity to complete the survey over the phone with an agent.

Invites Sent	Completed Surveys	Response Rate
2,935	177	**6.0%***

The results have been weighted to ensure that the overall sample's composition reflects that of the actual small business customer population to provide results that are intended to approximate a probability sample.

Sample Size: n=177 current RNG customers. The results are weighted to n=175.

Field Dates: April 8th– May 8th, 2021.

Weighting: Results are weighted by region to ensure that the overall sample's composition reflects that of the actual population of small business customers; in order to provide results that are intended to approximate a probability sample. Weighted and unweighted frequencies are reported in the table.

	Unweighted (n)	Unweighted (%)	Weighted (n)	Weighted (%)
Lower Mainland & Fraser Valley	81	45.8%	103	58.9%
Vancouver Island & Sunshine Coast	34	19.2%	25	14.0%
Interior/North	62	35.0%	47	27.1%

Note: Graphs may not always total 100% due to rounding values rather than any error in data. Sums are added before rounding numbers.

***A 6% response rate is within the normal range for studies of this nature with commercial customers. On average we typically expect 5% response rates for commercial customer surveys.**

Building Understanding.

For more information, please contact:

Colin Whelan

Vice President

604 900 6226

cwhelan@innovativeresearch.ca

Appendix B-2
LARGE VOLUME CUSTOMER INTERVIEWS

INNOVATIVE RESEARCH GROUP

Large Customer Interviews

RNG Report

FORTIS BC™

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Project Overview

Research Objective and Participant Profile

Qualitative Methodology

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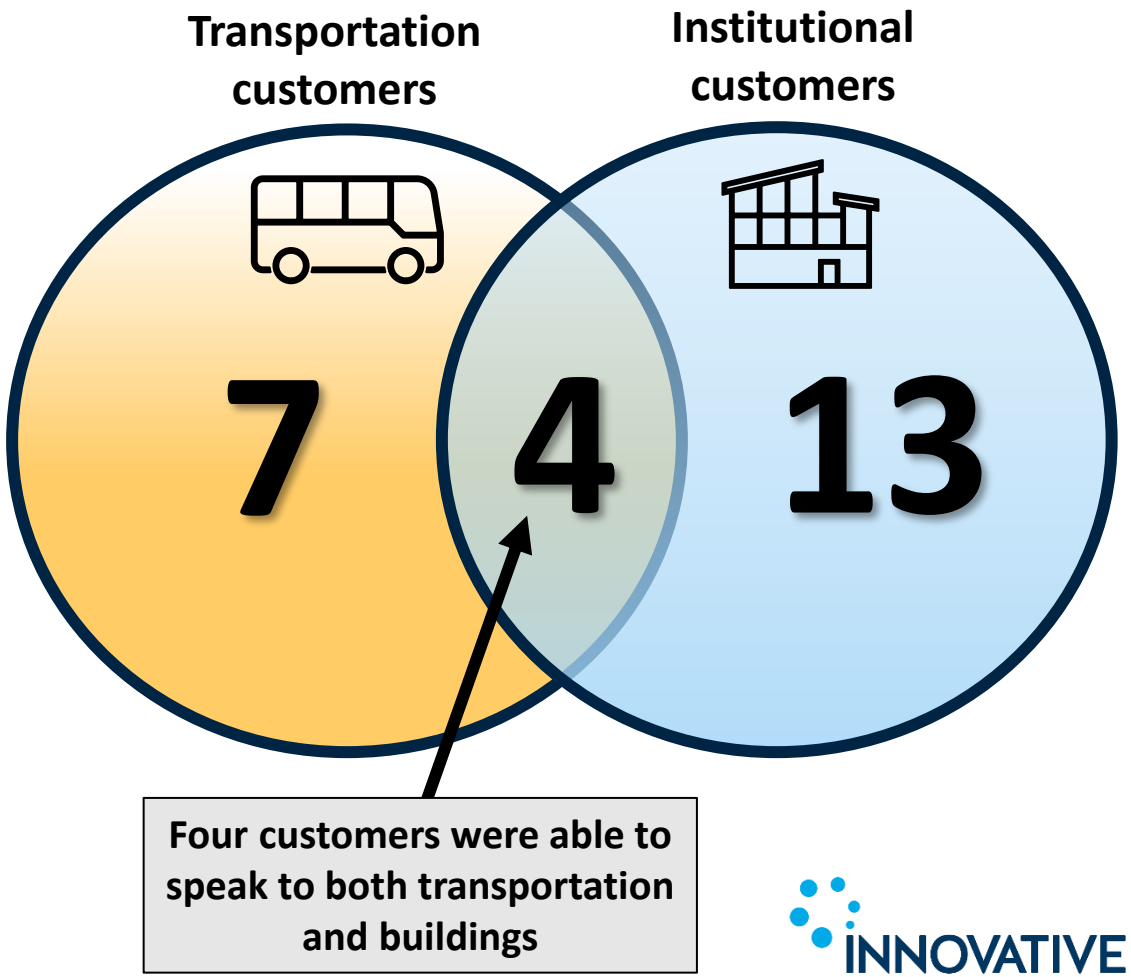
Research Objective and Participant Profile

- INNOVATIVE was engaged to conduct one-on-one interviews with current large-volume FortisBC natural gas customers. Those customers were categorized as either institutional or transportation customers, with some able to speak to both end uses.
- Potential interviewees were identified by FortisBC to provide a representative cross-section of businesses with potential uses for RNG.
- The objective of the research was to understand:
  - Potential interest in RNG
  - Perceptions of RNG overall
  - Barriers to RNG adoption
  - Where RNG fits among alternatives
  - Willingness to pay
- Participants were offered an incentive (charitable donation, $100)
- The interviews were conducted between August 3rd to September 17th, 2021.

24 Interviews were conducted:



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Qualitative Methodology

About this Report:

This report summarizes the key findings and offers observations based on 24 in-depth interviews.

Verbatims are represented in *italics*. In general, the approach is to summarize key themes heard in the virtual focus groups, report representative verbatim comments, and offer interpretation and commentary where necessary.

About Qualitative Research:

The value of in-depth interview research lies in the depth and range of information provided by the participants, rather than in the number of individuals holding each view.

Qualitative research is an exploratory research technique and does not hold the statistical reliability of quantitative research.

Throughout the report, some tallies are shown categorizing interviewees into groups.
These assessments are based on our best interpretation of interview responses, but will not capture the full nuance of responses, which is reflected in accompanying verbatim quotes.

Executive Summary

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Overall Interest in RNG

There is demand at existing price levels for RNG among both transportation and institutional customers. Both customer classes seek to use RNG as a "bridge" solution to, in most cases, electrification over time. Most often, customers from either group who were interested in RNG sought to use it in *existing* (rather than new) natural gas facilities or vehicles.

For **institutional customers**, whether they have "firm and committed" GHG reductions targets was the most important factor influencing RNG demand. For the purposes of this report, "firm and committed" targets are targets supported by one or both of: (1) strong leadership buy-in, (2) clear financial incentives or penalties associated with emissions.

For **transportation customers**, being a Part 3 Fuel Supplier in the Low Carbon Fuel Standard (LCFS) program was an additional key factor that influenced demand for RNG. Demand was strongest for those that were familiar with the program and aware that they could sell LCFS credits. However, firm and committed targets also mattered for transportation customers in the program and those who were not.

An additional 3 transportation customers who did not have firm and committed targets were Part 3 Fuel suppliers, for a total of 12 who hit one or the other of these key drivers (or both).

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Likely Use Cases for Institutional Customers

For institutional customers, whether they face "firm and committed" GHG reductions targets was the most important factor influencing RNG demand. Likely use cases on each side of this divide are summarized below. The potential use cases for those without a firm commitment to reducing emissions represent a much lower total potential volume of RNG.

For those ***with* firm and committed targets**:

Uses	Explanation
Existing buildings	RNG was seen as a bridge solution for older buildings that are too expensive to retrofit. Only organizations in this situation have a strong incentive to consider RNG.
Resilience	RNG would be used as a back-up for resilience purposes, so customers aren't solely relying on electricity.

For those ***without* firm and committed targets**:

Uses	Explanation
Neutral bill impact	RNG could be used in cases where the cost of a lower RNG blend is offset with other bill changes.
Final target gaps	In cases where RNG is used to cover the final gap from where they are to meeting a future target.
Marketing purposes	For marketing purposes (such as making a building carbon neutral/net zero).

Likely Use Cases for Transportation Customers

For Part 3 Fuel Suppliers in the LCFS program**,** the main motivation to use RNG is to monetize its use for credits**.**

For those ***who do not use LCFS credits,*** uses for RNG depend on whether the organization has ***firm and committed targets.***

For those ***with firm and committed targets***, who ***do not use LCFS credits*****:**

Uses	Explanations
Existing fleets	Transportation customers that want to use RNG in CNG/LNG vehicles that are already in their fleet and not likely to be replaced soon.

For those ***with firm and committed targets***, who ***do not use LCFS credits*****:**

Uses	Explanation
Marketing purposes	Some customers were interested in a lower blend of RNG for marketing purposes. Especially when they know that their customers prefer greener suppliers.

Most customers expect to use RNG or CNG as a bridge fuel to battery-electric (or in some cases hydrogen) solutions in the next 5 to 10 years.

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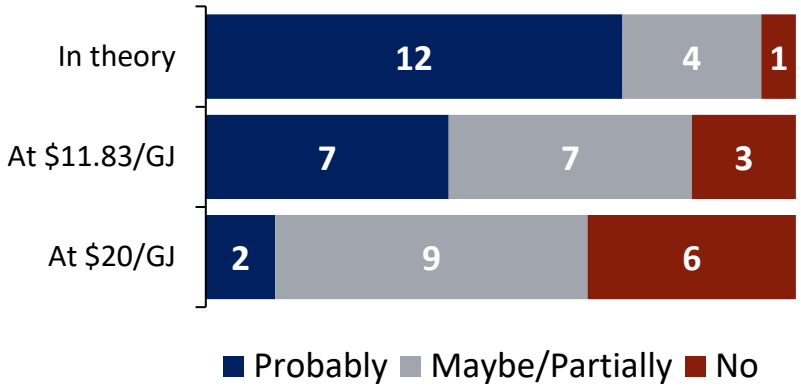
RNG Price Sensitivity

Discussions revealed that both institutional and transportation groups are price sensitive—even transportation customers that profit from selling credits. The extent of this price sensitivity is summarized in the charts below.

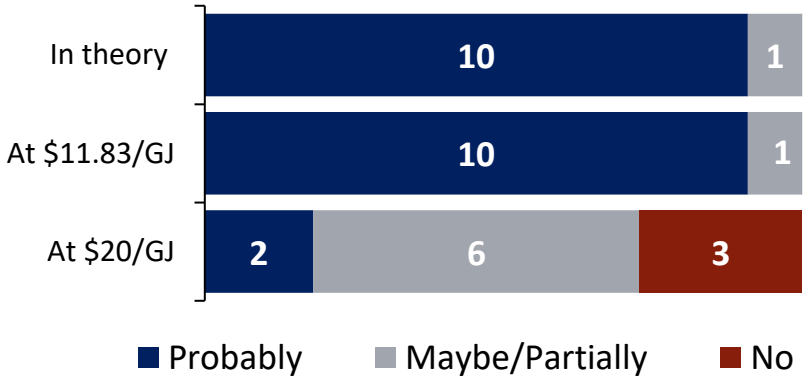
The main driver of price sensitivity varied by circumstance:

- **For transportation/institutional customers *without* firm and committed targets**: the comparison to the status quo of inexpensive conventional gas, and relatively inexpensive option of purchasing offset credits to meet certain certification criteria.
- **For transportation/institutional customers *with* firm and committed targets**: RNG competes with capital projects and electrification. Most customers felt it was competitive at the current price in existing conventional natural gas facilities/vehicles, but not at a higher price.
- **For transportation customers receiving LCFS credits**: concerns about cashflow, uncertainty of future credit prices, and the option to buy low-CI RNG from marketers all create price sensitivity at RNG prices above the current level.

Institutional: Would they purchase RNG?



Transportation: Would they purchase RNG?



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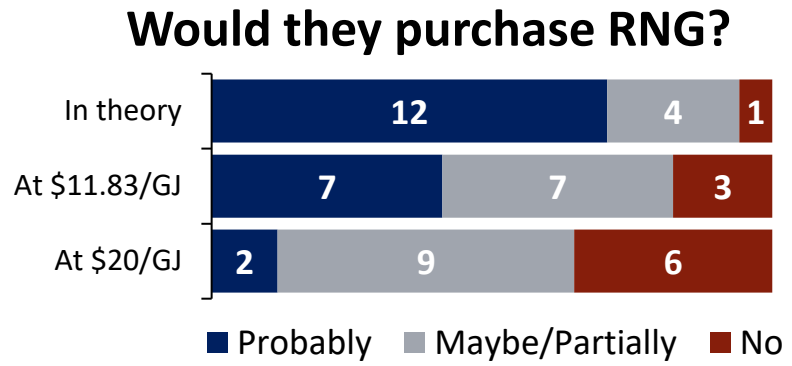
Price Sensitivity Versus Alternatives: Institutional

At the current price, for most organizations with firm and committed targets, RNG is a viable option for existing buildings. The commodity cost of electricity is still above RNG and the cost of a heat pump retrofit on an older building is often prohibitive. However, at a higher price for RNG electrification – especially heat pump retrofits – became much more competitive in most customers' assessments.



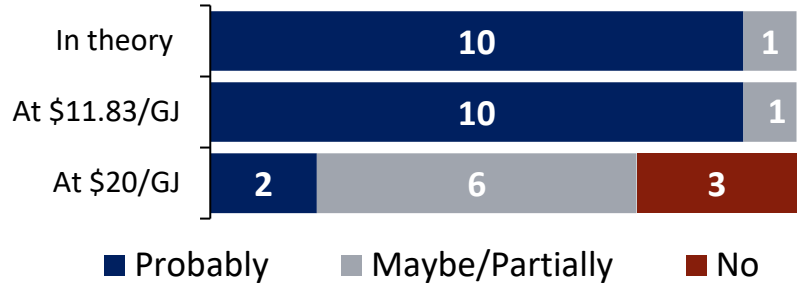
The following were identified as the most common alternatives to RNG:

Alternatives	Explanations
Doing nothing	Without **firm and committed** targets, the main alternative is to continue buying conventional gas. Even some public sector organizations that do have targets will consider the option of failing to meet those targets if they feel cuts in service delivery would be required to meet them.
Electrification (commodity cost or capital projects)	There is a built-in bias towards electrification capital projects (e.g. heat pump retrofits) even when RNG is cost competitive. Many customers have identified electrification as their long-term strategy, prefer capital intensive solutions to ones that increase operating costs, and prefer solutions that avoid combustion. Nonetheless, for many older buildings, the cost to retrofit is so high that RNG is still preferred at the current price. However, at a higher price, customers are much more uncertain about RNG's viability.
Other renewables or DES	Other renewable options that were competitive with RNG in some ***specific*** circumstances were geo-thermal, biomass, and solar energy. District energy systems were mentioned by some as both as an alternative to RNG and as a potential use for RNG.

Price Sensitivity Versus Alternatives: Transportation

LCFS suppliers acknowledge that they earn profit from credits at today's RNG prices. However, concerns about cash flow, future credit prices, and the availability of low CI gas from marketers, all leave alternatives more attractive if the price of RNG were to increase.

Transportation: Would they purchase RNG?



The following were identified as the main alternatives:

Alternatives	Explanations
Conventional Gas (Doing Nothing)	For customers who do not receive LCFS credits and do not have firm and committed targets, the main alternative is to simply keep using conventional gas in their CNG/LNG vehicles.
RNG from Gas Marketers	For those receiving LCFS credits, an attractive alternative to buying RNG from Fortis is to purchase RNG with a much lower CI (and therefore higher credit value) from a gas marketer.
Biodiesel/ Renewable Diesel	Customers say biodiesel remains competitive on ease of use in existing vehicles and provides greater price certainty, but overall is more expensive than RNG.
Electricity	In the long term, electrification was usually cited as the preferred option to reduce emissions. However, in addition to not being feasible for all use cases, it also requires greater infrastructure investments and changes to maintenance training and practices.
Hydrogen	Hydrogen is seen as a competitor of the future, but few see it as a realistic alternative in the near-term.

Key Findings for Transportation: LCFS Credits

When it comes to LCFS credits only 7 of the 11 transportation customers interviewed were (or planned to become) Part 3 Suppliers. The rest were not aware of the program or believed they were not eligible. For those customers who were suppliers, there are impediments within the credit system that pose problems for customers, especially at higher RNG prices.

Issues	Explanations
RNG from Gas Marketers	Customers can buy lower CI RNG from gas marketers and get more credits. Even if this gas comes at a higher price or with a commitment, it is still a strong consideration for some.
Uncertain Future Prices	Uncertainty in the credit market, with surging prices, caused many customers to doubt how long credit prices would stay high enough to make RNG lucrative, especially at higher prices.
Cashflow Issues	Especially for smaller companies, the 1-year delay before selling credits can create a cashflow problem that hampers the RNG business case for these customers.
Capital Upgrade Costs	Despite Fortis and government subsidies, many customers still count on the profit from credits to pay for new CNG vehicle purchases.

Other Barriers to RNG Adoption

Beyond price, some other common barriers to RNG adoption that were also common included:

Issues	Explanations
Supply Issues	Supply issues were a key concern. Many customers felt hesitant to invest in RNG if, at some point, they would have to switch back to conventional gas.
Budgeting (Operational vs. Capital Budgets)	Budgeting was also a concern for many organizations. Decision-makers faced reluctance to commit operating funds to RNG that could instead be used for service delivery. This created a preference for capital-intensive options, which was compounded by greater availability of grant funding for capital projects.
Concerns with Acceptability (Specific and General)	Some were concerned whether RNG was/would be accepted by accreditation programs, emissions standards, or grant programs (these were both specific and general concerns).
Tailpipe Emissions	For transportation customers with targets or mandates to reduce their tailpipe emissions, RNG is less preferred than zero emission battery-electric vehicles.
Personal Orientation Away from Emissions	For some customers, there is a general orientation away from any combustion fuels, which was rooted in many of the interviewees' personal views on the issue.
Not Literal Molecules of RNG	A minority of transportation customers, (3/11), expressed a desire for the actual gas they receive to be the literally molecules RNG.
Heat Pumps Provide Cooling	A key advantage of adding heat pumps versus natural gas is the benefit of added cooling when they're added to a building.

Overall RNG interest

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Organizations can be divided into those that have firm and committed emissions targets and those that do not

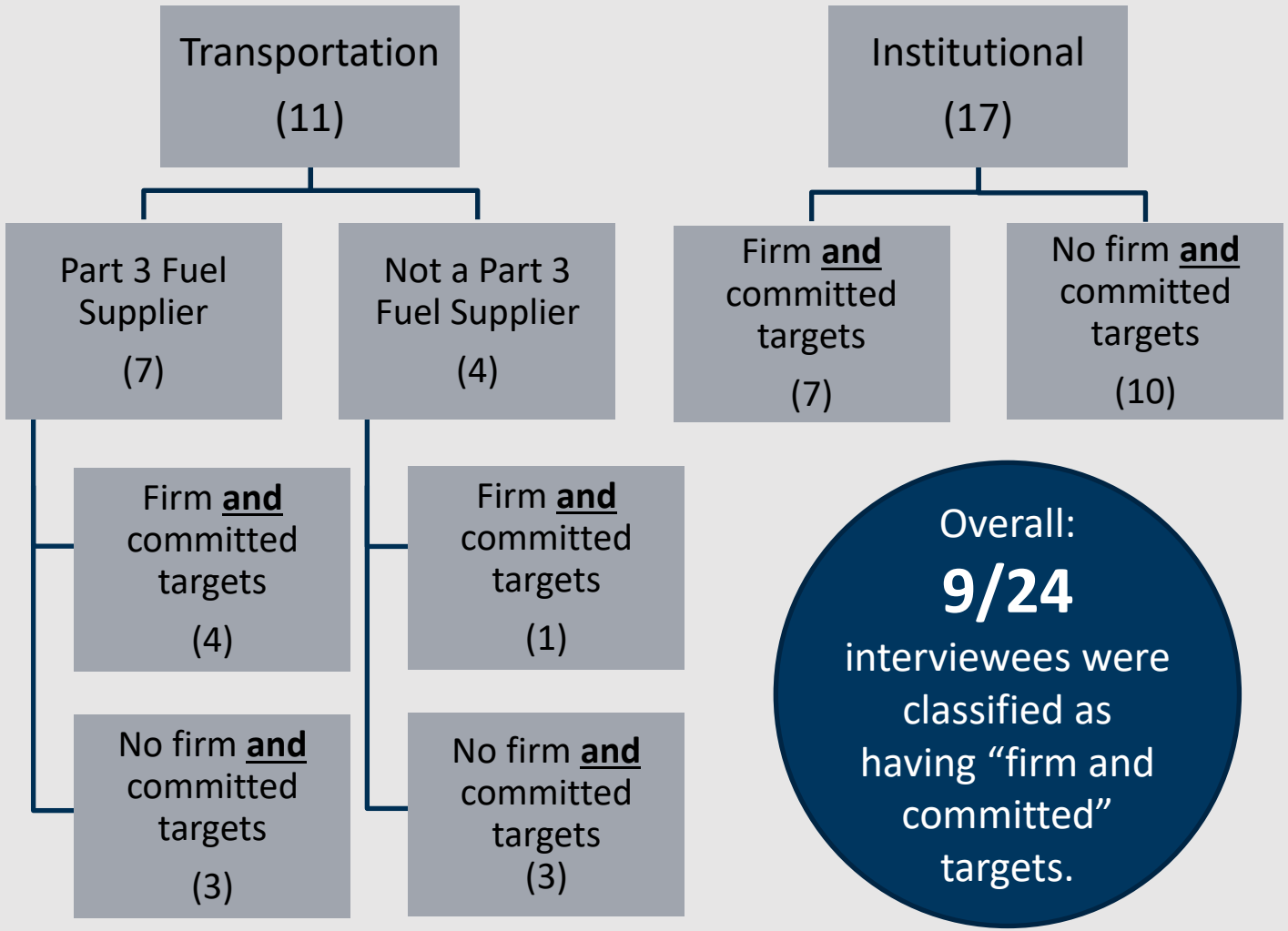
Customers vary both in their specific emissions targets, and their level of commitment to meeting those targets.

Throughout the report, some customers are classified as having **firm and committed emissions targets.** We found that one or both of the following had to hold for an organization take the step from simply having a target to express a firm commitment to meeting that target in spite of the extra costs to do so:

1. Strong leadership buy-in on reducing emissions
2. Financial incentives or penalties associated with emissions.

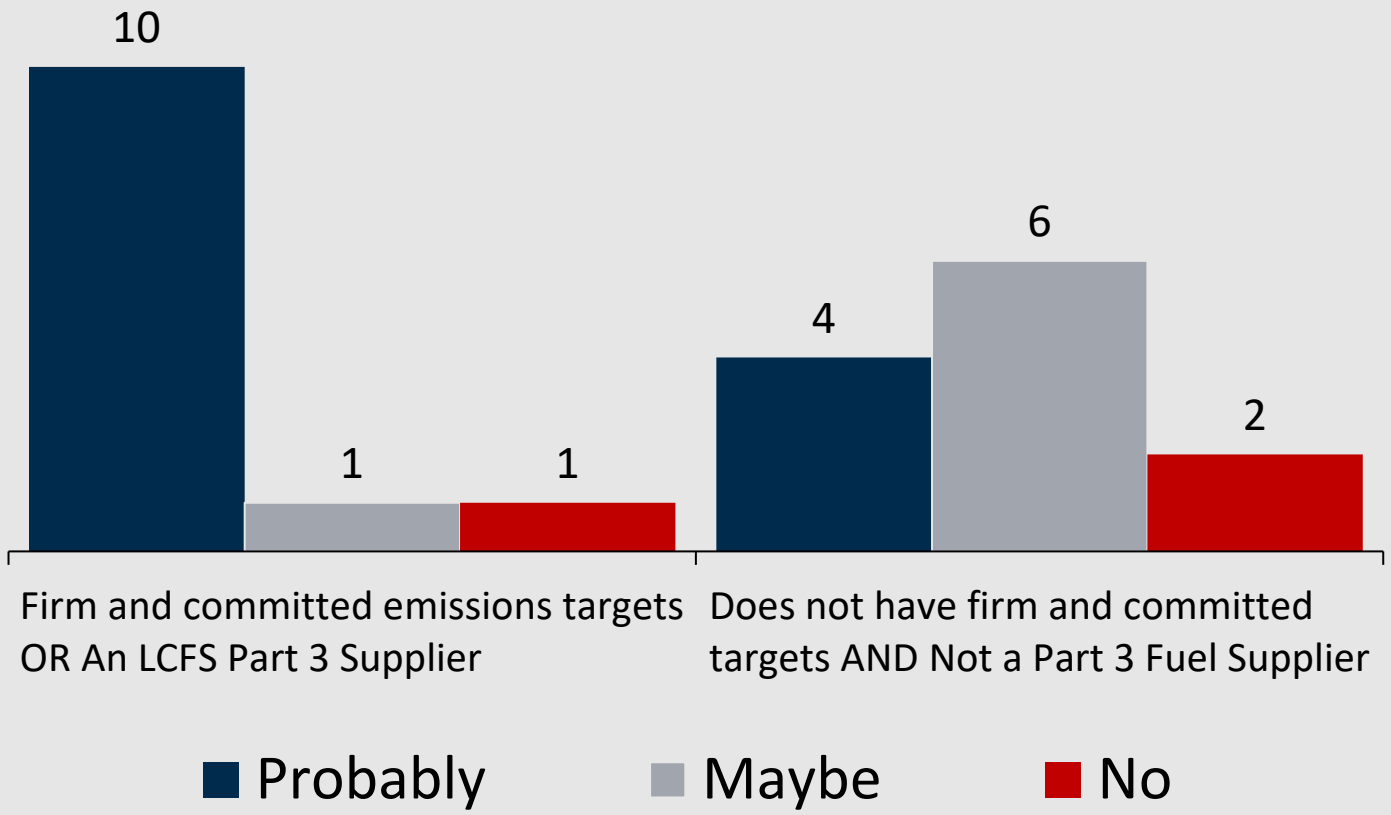
Many customers fall somewhere in the middle, having specific targets, but showing a willingness to be flexible in meeting those targets.

A special case in transportation are Part 3 fuel suppliers in the LCFS program, who have a financial incentive to use RNG regardless of whether they have targets.



Those with firm and committed targets were more likely to be willing to purchase RNG at the current price

Would you purchase RNG at the current price?



Potential Purchasers

The key drivers of willingness to purchase RNG are first, whether or not the customer has firm and committed emissions targets, and second – for transportation customers – whether they are a Part 3 Fuel Supplier.

Among the 12 interviewees who met one or the other of those criteria, 10 were willing to pay for RNG at the current price.

However, customers without firm and committed targets (many of whom still have targets of some form) are less inclined to pay for RNG.

For this group, only 4 are especially likely to consider it at the current price, with another 6 expressing some interest but no firm commitment, and 2 indicating they have no willingness to pay for RNG at that price.

Likely Use Cases

Overview

Organizations with Firm and Committed Targets

Organizations without Firm and Committed Targets

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Overview of Likely Potential Use Cases

Transportation

Are a Part 3 Fuel Supplier

LCFS Credit use

Monetize RNG use for LCFS credits

Are NOT a Part 3 Fuel Supplier

Institutional

Have firm and committed targets

Existing/old buildings

Existing buildings that are too expensive to retrofit – often seen as a bridge solution.

Existing fleets

Transportation customers that want to use RNG in CNG/LNG vehicles. Especially those they already own.

Resilience/Reliability

As a back-up in buildings or for specific applications where resilience matters.

Do not have firm and committed targets

Neutral bill impact

When the cost of an RNG blend can be offset with other efficienct measures so that the net bill impact is neutral.

Final target gaps

In the future, if they need RNG to cover the final gap from where they are to meeting a target.

Marketing purposes

RNG as marketing:

- Have customers who prefer greener suppliers.
- Buildings where a small amount of RNG can make the whole building carbon neutral.

For institutional customers, uses for RNG were **largely dependent on whether organizations had firm and committed targets**. For most, electrification is the long-term strategy. RNG is seen as a bridge solution that can avoid or delay prohibitively expensive retrofits in existing buildings. However, for new buildings (or in cases where retrofits are more affordable) electrification is generally preferred. For customers without firm and committed targets, RNG could be used in cases where the cost of a lower RNG blend is offset by efficiency matters, to cover final gaps in order to meet a future target, or using a small amount for marketing purposes.

For transportation customers, **uses for RNG were dependent firstly on whether they were Part 3 fuel suppliers.** In those cases, they can monetize RNG use for LCFS credits. If not, RNG uses follow the same logic as buildings—**dependent on whether customers had firm and committed targets.** For those with firm and committed targets, RNG could fully fuel their CNG fleet, but these customers are also actively looking at other solutions for new vehicles.

Potential Use Cases: For customers with firm and committed targets, RNG is a practical solution for older buildings

Buildings with firm and committed targets:

RNG is a practical necessity for existing buildings that are too expensive to retrofit

"If you want the perspective on where I think RNG is best placed, I think it's best placed to serve existing facilities. First, do what you can with optimizing, retrofitting. And then, you know that last bit, once you've minimized your emissions, from 1000 tonnes a year to 700 tonnes a year, by doing the retrofits and optimizing your systems. Now start using RNG to take it all the way." – Institutional

"…There's simply no way we can upgrade all of our buildings. We just don't have the funding; we don't have manpower. If you have any shot of hitting that [emissions target] it has to involve renewable natural gas or some sort of carbon [fuel]." – Institutional

"So, RNG the process will not take a lot of renovation or construction. It's not really too technical… because of the nature of renewable natural gas." – Institutional

RNG is often seen as a "bridge" solution for old buildings

"…You know, looking at renewable natural gas is really one of those immediately available tools, and a bridge strategy for medium to long term duration." – Institutional

"You will find all the new buildings rely heavily on electrification…as opposed to less heat recovery, as opposed to the traditional natural gas use" – Institutional

"The big problem is what you do with the old ones, all the legacy buildings…RNG could be an option." – Institutional

Potential Use Cases: Organizations with firm and committed targets would use RNG for to meet resilience needs

Organizations with firm and committed targets:

RNG can also be used as a back-up for resilience purposes, so customers aren't solely relying on electricity

"Even if we were to design a fully electrified [building], our facilities department will insist that we include a full boiler system that is capable of taking on the heating loads that the [building] is designed for. We have been down for an extended period of time where we have to rely on boilers." – Institutional

"I believe there could be some ways we cannot 100% totally rely on electricity. As you can see from the extreme cold this last winter, where they rely mostly on electricity, and the system crashed with high demand for electricity, and they don't have enough natural gas backup. So, anything with a backup could be better than putting every act into one box." – Institutional

"We've got a gas boiler for backup… We view [RNG] as a really good potential for dealing with sort of the peaks of the system. So we can deploy RNG as the system spikes in the morning when demand is high, compared to something like a heat pump, which is better suited and more cost effective for the baseload, when you can just let that thing run flat out all day, every day." – Institutional

"A lot of people don't seem to fully recognize… that [our organization] has to be [an] extremely reliable service. Yes, there is no messing around with that. And we bend over backwards to ensure that ... And yeah, in some cases, that means we will be burning more fuel." – Transportation

Potential use cases: Committed transportation customers either make use of credits or would use RNG for existing fleet

Among Transportation Customers:

Credit Market Benefit

"You own the credit, you get the environmental attribute, and then you can go sell the credit. And hopefully, the cost of RNG nets out to be a little cheaper than your normal gas." - Transportation

"Because of the delay [in payment] *it allows you to build. If I bought 100k GJ this year and paid for it because 18 months later I'll get those credits. That's what our current plan is, to leverage the credits to actually invest in more RNG."* – Transportation

"Another benefit of RNG for us specifically is that we can get carbon credits back for using RNG, that levels the playing field. By comparison, CNG is basically more expensive." – Transportation

"We can balance out the extra cost of RNG by selling the carbon credits, whereas with electrification we can't do that." – Transportation

"Right now, it only works because of the credits. And the carbon credit value is important to stability." – Transportation

Meeting Targets for Existing CNG Fleet

"We knew that without RNG which reduces our tailpipe emissions somewhat that we couldn't hit our target, so that was why the panic for RNG." – Transportation

"With our sustainability targets, we see RNG as a bridging technology because we have 300 CNG buses we can switch fast." – Transportation

"We're trying to reach carbon neutrality by 2040, and since a big part of our emissions come from our buildings and fleet, RNG plays a big role in this." – Transportation

"We'll retrofit for efficiencies and then RNG is for once we've exhausted all retrofits, especially if we need to hit targets." – Transportation

"To reach our targets, if Fortis said we can guarantee 100% RNG supply for 50 years, I'd sign it today." – Transportation

***NOTE**: In order to keep it concise, only the most common themes that were captured from the discussions with the interviewees are mentioned*

Potential Use Cases: Buildings without firm and committed targets could also use smaller amounts of RNG in some cases

Buildings without firm and committed targets:

When the cost of a lower RNG blend can be offset with other changes so that the net bill impact is neutral

"if we, you know, if we did… if other initiatives got our, you know, our $5,000 a month bill down to $3,000. Well, now we've got some money to play with, and maybe we're willing to spend more to make the rest of that RNG." – Institutional

"And, you know, to be honest, like a lot of the other Fortis programs are what… would be funding our ability to switch to RNG right? …if they can do other stuff to help us out, to help us save, then, you know, obviously, we're more inclined to put more of that savings back into the RNG option." – Institutional

If they need a small amount of RNG to cover the final gap from where they are to meeting a future target

"Where I see this going, is if we can purchase a blend, depending on where we are at in 2029. If we're close to our target, we may just fork over the extra to get to that target." – Institutional

"It could be a way to support to reach the target, after we have done some other things. So [it would be] used to top up the portion that may be missed. You don't pay the premium on the whole thing. You do all the electrification, optimization, hardware conversion, wherever you can change the policy on how you use energy, all those things. Then, when there is a portion missing, ***depending on the consequences and the support that you're getting internally,*** *[RNG is] an option."* – Institutional (emphasis added)

"If we're close to our targets but aren't quite over the line then I'll go to Fortis and purchase RNG to get us there." – Transportation

Potential Use Cases: Some RNG could be used by either customer group for promotional purposes

Organizations that don't face targets but want some RNG to use promotionally:

Promotional RNG (Institutional)

"From a business perspective, as well, from clients, they expect more and more, you know… we actually got some exposure out of [RNG] that we weren't even looking for. So that was a plus." – Institutional

"We might be able to utilize [RNG] in cases, like, where we do have hybrid systems and natural gas isn't as big of energy usage. Then we can sort of, you know, if it's not that much natural gas being used, we can maybe try to hit it there. ***And then we can say that [the building] is carbon neutral."*** – Institutional (emphasis added)

"That's where I think the opportunity is for RNG. High Performance buildings, still using some natural gas, wanting to achieve net zero status, being able to use RNG to achieve that." – Institutional

Promotional RNG (Transportation)

"We do it more for sustainability and the message than fuel costs." – Transportation

"We have our own corporate responsibility to justify it. First, the business case, then the environmental impact. I can reduce our GHGs and that's a great story for our organization and we can justify it." – Transportation

"We want being a real green organization to be our calling card." – Transportation

"Every tender comes with a fairly large sustainability portion to it. So, we have to tell them a story about how we're saving the world. So, it's obviously a nice addition we can show." – Transportation

"Meanwhile CNG is a way that we can upsell our clients as well, since a lot of our clients are municipalities, it gives us an advantage." – Transportation

Institutional:
Price Sensitivity and RNG Alternatives

Pricing Overview

Comparison to Alternatives

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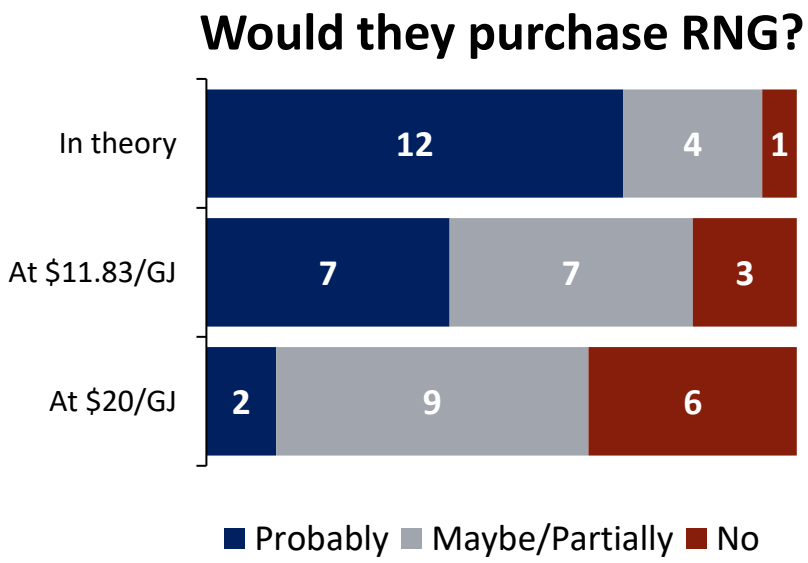
Institutional Pricing Overview

Pricing Overview

As we progressed through the interview, we asked first about interest in RNG in theory, then at the current price of $11.83/GJ, and finally at a hypothetical $20/GJ price.

As shown in the chart, the number of institutional interviewees who would probably pursue RNG drops from 12 in theory, to 7 at the current price, to just 2 at a higher price.

At the higher price, customers are either confident that alternative options would be better or would at least be taking a much closer look at those alternatives.



Reactions to Different Prices

Specific reactions to $12 price

"It's an OK spot right now. But it's not like it's way cheaper than the alternative or anything like that."

"…that cost is not impeding me into making successful business cases."

"…it will be challenging for us to convince the finance people why we should follow that route."

Specific reactions to $20 price

"[It's not a big difference to] us, because, especially as time goes on, we are very serious about reaching our climate action goal."

"Well, it would preclude me from being able to use 100%"

"It would be harder to justify. We would look even more seriously at electrification."

"I would say with 90% certainty, we would switch to offsets."

"that would just make heat pumps look like a more attractive option."

"I think there's some capital investments that would actually be maybe considered in a different way that hadn't been before."

Overview of Alternatives

- Doing Nothing
- Electricity – Commodity Cost
- Electrification Capital Projects
- Other Renewables
- District Energy Systems

Overview

For organizations **with firm and committed targets**, electrification was most often mentioned as the preferred strategy for reducing carbon emissions. Electrification capital projects (usually heat pumps) were generally preferred to direct fuel switching. *Many of these organizations have explicitly identified electrification as their long-term strategy.*

Without firm and committed targets, however, the main alternative is to continue buying conventional gas. Even some public sector organizations that have targets on paper are still willing to consider the option of failing to meet those targets in order to prioritize spending on service delivery instead.

Other renewable options that remain competitive with RNG in certain circumstances are geo-exchange, biomass, and solar, while district energy systems were mentioned both as an alternative to RNG and as a potential use for RNG.

Comparison to Alternatives: Doing nothing is still the main alternative for those without firm and committed targets

Comparison to alternatives: Doing nothing

Without a clear cost associated with emissions, the main alternative is to continue buying conventional gas

"The bulk of my clients when I offered RNG, or mentioned it, they're kind of interested [in theory] but the actual money, they don't want to pay unless they have to." – Institutional

"As you get to smaller office tenants, retail tenants, residential tenants, these become, you know, nice to haves, but really, it's about keeping their utility cost down and making sure they're comfortable." – Institutional

"It's harder and harder to justify really with RNG because of the big price difference between natural gas and RNG." - Institutional

The price of carbon offsets also remains a competitive alternative

"Right now, there's a huge delta between the price premium on RNG, and the availability of carbon offsets, and the pricing of available carbon offsets that are accepted in the marketplace. And, you know, the short version is that that needs to shrink." – Institutional

"In order to be carbon neutral, you [just] need to buy the offsets." - Institutional

Analysis

Without firm and committed targets, the main alternative is to continue buying conventional natural gas. Many of these customers see RNG as something they would pursue if/when there is an increase in the carbon tax or another incentive that would make RNG more comparable in price.

Some of these customers see carbon offsets as a more viable option to meet targets, especially if that method of meeting targets is accepted by certification programs like LEED®.

Comparison to Alternatives: Even those with targets often have the option of being flexible or failing to meet them

Comparison to alternatives: Doing nothing

Even some public sector organizations that do have targets consider the option of failing to meet those targets

"Where I see this going, is if we can purchase a blend, depending on where we are at in 2029. If we're close to our target, we may just fork over the extra to get to that target. ***If we're far off, I don't see that happening. We will just say we didn't meet our target****."* – Institutional (emphasis added)

"I think, frankly, it is, is tough for us to meet the target of 50% reduction until 2030. So we can do whatever we can. But for us to pay any price to meet the target, it is impossible. So we need to be realistic, to see what we can do in our best capacity… even if we want to do something better for the environment, the limitation in financial capacity will… limit us in doing this." – Institutional

"Are there any specific consequences if we don't meet [our targets]? Not at the moment." – Institutional

"*You are competing for those dollars versus clinical needs and patient-oriented specific needs. So dollars are scarce, and that makes a difference."* – Institutional

"…if we can spend less money on heating the school, more of that money goes to the kids. And that's kind of what drives a lot of our decisions." – Institutional

Analysis

Sitting on a fine line in between being firmly committed to their targets or not, some public sector organizations have targets but feel that they retain the option of missing these targets.

These customers often see RNG as an option only if there was an increased leadership willingness to spend operating budgets on emissions reduction; the price difference with conventional gas dropped, or (for some) if a small amount of RNG would be enough to hit the target at the last minute with a higher priority placed on other approaches.

As will be discussed later, for some customers in this situation a key issue is the different decision-making processes for operational budgets than capital spending.

Comparison to Alternatives: The commodity cost of electricity usually favours RNG, but only when it is the relevant comparison

Comparison to alternatives: Electricity (commodity cost)

The comparison in commodity costs usually favours RNG when it is relevant

"You're gonna have to pay electricity that is more expensive on the unit of energy, at the moment, and it will continue to be like that for a while, I think. So you compare to that and say, well, yeah, I could justify RNG." – Institutional

"It's way more cost effective to use RNG than electricity." – Institutional

"It's when you start comparing [RNG] for specific uses that it right now compares well, say against… electric boilers." – Institutional

For some large customers that stops being true at the higher ($20/GJ) price

"Well, [that price] would preclude me from being able to use 100% RNG, because that's about the cost, maybe even higher than the cost of electricity. I think [the price of electricity is] like $17-$18 a Gigajoule." – Institutional

"It would be harder to justify. [At $20], we would look even more seriously at electrification." – Institutional

"[If RNG were priced at $20/GJ], that would just make heat pumps look like a more attractive option." Institutional

Analysis

For organizations that **do have firm and committed targets** but have existing buildings where a heat pump retrofit (or another renewable alternative) is not viable, then the comparison to the commodity cost of electricity becomes relevant.

Much of the time, this is a very favourable comparison when it is relevant. However, for some very large customers a higher ($20/GJ) price for RNG can exceed what they pay for the equivalent amount of electricity and flip the comparison on its head.

Comparison to Alternatives: Customers give mixed responses on RNG versus electrification capital projects

Comparison to alternatives: Electrification capital projects

There are mixed responses on whether RNG is cost competitive with electrification retrofits

"[When] we electrify we need a significant change from how the heat pump system and how the boiler system work. It's totally different. So, a lot of construction and generation [is] needed. So, that [is] also a concern for us to electrify the system. So that's why I mentioned earlier, we only think about electrifying when the equipment or the building is new or renovation or replacement." - Institutional

"So because we're a very complicated, large building,… we're really in a retrofit world within that space. And within that retrofit world, we know that there's going to be extremely costly upgrades that are needed on the electrical supply, in order to go to a fully electric future, in a way that's unrealistic and cost prohibitive right now." - Institutional

"All I can say is that every time we've run [the numbers], [RNG] just doesn't make sense. The gap is so close for electrification, and the maintenance is so different between the two, and the reliability of [RNG], that, almost every single case that's come forward so far, in the last six months to a year [the decision] has been to electrify" - Institutional

"It's not that hard to electrify buildings, you know, even a hospital. More than half the energy that goes into powering a hospital right now [already] has to be electricity… and so I think buildings, as an asset, or as a system is relatively easy to electrify." – Institutional

Analysis

Institutional customers gave mixed responses on the comparison of RNG to electrification capital projects.

Even when electrification was seen as the long-term strategy, many customers noted that those projects are large and expensive; and that RNG was a good medium-term solution.

Others were making decisions about buildings where retrofits were less expensive, or in organizations that placed a higher priority on electrification, and for them the comparison flipped.

Comparison to Alternatives: Some organizations prefer electrification even if the cost is higher

Comparison to alternatives: Electrification capital projects

...But for some organizations, electrification projects are preferred anyways for other reasons

"They [decision-makers] have a strong stance, against switching from, from electric to combustion." - Institutional

"Primarily right now we're looking for ways to electrify where possible." - Institutional

"Electricity is currently available, we have capacity, we can increase the amount of electricity that we're using on most of our sites to reduce our natural gas. And as long as the financials look reasonably good, that's the direction that at least for the short term, that we'll have to go with." – Institutional

"[RNG] is a non-starter, because it's not capital related. It's more operational related, like budget wise." – Institutional

"We're looking at greater electrification, particularly on residential, where residential properties currently don't have air conditioning and so we're looking at introducing heat pumps at the suite level that would produce heating and cooling." - Institutional

Analysis

However, for some customers electrification capital projects are still preferred as an option over RNG *even when the cost is higher.*

This is not a universal sentiment but came up for a few reasons:

- If the organization had placed a strategic priority on electrification;
- Because it is easier to justify capital spending than increased operational costs (or easier to access grants for capital projects); or
- Because of the benefits that come from adding cooling when installing a heat pump.

Comparison to Alternatives: Other renewables also remain competitive alternatives

Comparison to alternatives: Other renewables

Other options explored were geo-thermal, biomass, and solar energy

"I see biomass as a legitimate competitor to RNG. Yeah, for a lot of reasons. There's obviously some disadvantages. But there's also lots of advantages." - Institutional

"Biomass is I think, biomass combustion would probably be cheaper. But it comes with its own challenges around impacts to local air qualities, supply of the resource and things like that." - Institutional

"We have some large solar thermal systems, but I wouldn't advocate the installation of those because they have an exceedingly long payback period. We do have one large solar electric system, which I would support because they do have much more favorable payback period." - Institutional

"…Getting to zero means essentially using hydro, or solar, or wind, or geothermal or something that does not require combustion." - Institutional

"we actually looked and did a lot of work on exploring the opportunity to use biomass. We use biomass, we use sewage heat recovery as well at some of the sites, geothermal for some other needs. All the different range of energy sources." – Institutional

Analysis

Other renewable options, such as geo-thermal, biomass, and solar energy can be competitive with RNG, depending on the situation.

Each of these have various drawbacks that may make RNG preferable. For example, concern with the impact of biomass to local air quality was expressed, while solar thermal systems were seen as having a long payback period.

Compared to these options, the main advantage of RNG was that it is much easier to implement withing existing systems, while some disadvantages include the high commodity cost and the fact that RNG still involves combustion.

Comparison to Alternatives: District energy systems are attractive for customers that can consider them

Comparison to alternatives: District energy systems

District energy systems were mentioned as both an alternative to RNG and a potential use case for RNG

"…We've looked at opportunities for low carbon district energy systems." – Institutional

"So, we'd be looking at different things. One is the concept of the district energy system. And that has been explored across the different municipalities with different options on the table for the different [sites]... of course, we're looking as well at RNG as a carbon or a cleaner natural gas [for the district energy system]. – Institutional

"We're embarking on a huge district energy project. Not only will they help [us] reach its carbon neutrality, but it'll also help us achieve our community GHG reduction goals… and so right now it's planned, I think it's going to be like, the biggest district energy system in Western Canada, if not all of Canada, by the time it's fully built." – Institutional

"It's unfair to compare the district energy system with, with the cost natural gas, because the district energy system, the energy is actually free, so nothing compares to it." – Institutional

Analysis

For customers where they are an option logistically, district energy systems were mentioned both as an alternative and as a potential use for RNG.

These customers were generally very enthusiastic about this approach because the long-payback period on the capital investment in conjunction with the low (or nonexistent) cost for the main energy source (for example, waste heat recovery) creates a very low overall cost.

However, in cases where the total energy requirement from the system exceeds the availability of the main energy source, RNG becomes a popular fuel to consider.

Transportation:
Price Sensitivity and RNG Alternatives

Pricing Overview

Comparison to Alternatives

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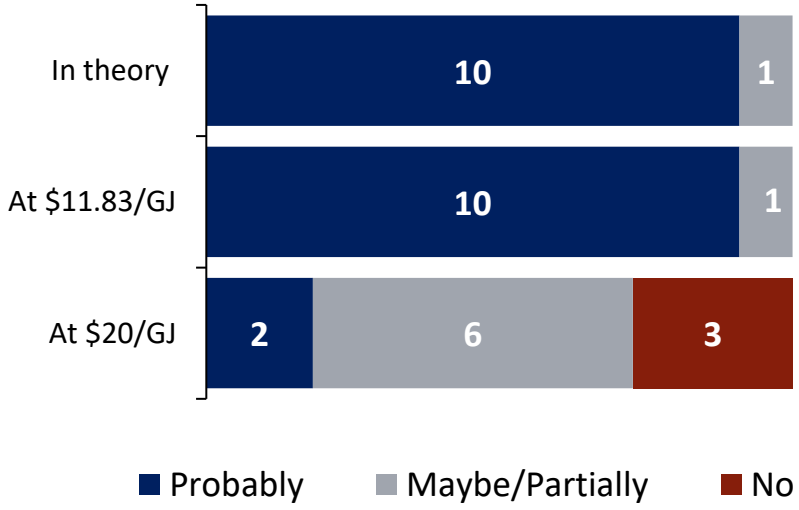
Transportation Pricing Overview

Overview

In part because of the availability of credits for customers who are Part 3 Fuel Suppliers, interest in RNG remains very high at the current price.

However, at the hypothetical higher price interest drops off sharply (even when the credits would still in theory exceed the breakeven). In part this is driven by certain aspects of the credit market, and in part it is because other alternatives become more attractive when comparing to RNG at the higher price.

Would they purchase RNG?



Reactions to Different Prices (Transportation)

Specific reactions to $12 price

"Of course, at break-even I'd still continue to choose RNG."

"If prices stay where they are, it's attractive. But we're looking for stability."

"To our customers, especially large clients, the premium price doesn't matter."

"RNG at these prices is a 'yes' from us, it hasn't scared us off"

"At the price right now it's interesting, the credits can wipe out our fuel costs."

Specific reactions to $20 price

"It doesn't make any sense at that point, if it gets above the $12 price."

"I need it to be cheaper than my traditional fuels."

"At that point, I would secure my own gas, I wouldn't go to Fortis anymore."

"I'd look hard at the open market at the $15 threshold."

"At a higher price it'd be really challenging. Not definitely 'no' though."

"We would probably roll with RNG…[it] *falls into our social purpose."*

Overview of Alternatives

- RNG from Gas Marketers
- Biodiesel/Renewable Diesel
- Conventional CNG (Doing Nothing)
- Electricity
- Hydrogen
- Wait-and-See

Overview

In the long term, electrification was mentioned as the preferred strategy for cutting emissions. In the short term (5-10 years), however, the main alternative to RNG from Fortis for LCFS Part 3 suppliers is RNG from other suppliers on the private market. Even though they pay more for RNG with lower carbon-intensity, the additional credits more than make up the difference. For other customers, waiting to see if they need RNG later to meet reduction goals was mentioned as well.

Without being an LCFS Part 3 supplier, and without strong leadership buy-in, a clear cost associated with emissions, or a directive to use RNG promotionally, the main alternative is conventional gas.

Customers say biodiesel remains competitive on ease of access/use but is less cost effective than RNG. Hydrogen is seen as perhaps a competitor of the future, but few see it as a realistic alternative in the near-term.

Comparison to Alternatives: Transportation customers have options to purchase from other suppliers

Comparison to alternatives: RNG from gas marketers

Transportation customers have options to purchase from other suppliers

"I saw the document from the decision. I'm pretty sure the max Fortis can charge was either $20 or $30. That's what the open marketplace is charging for CI levels that are -200." – Transportation

"There's basically two gigs on the market, there's the Fortis market where you get higher CI than the open marketplace, so the carbon credits are worth less than the open market ones. Privately, I can get -250 CI which would earn significantly more credits. The downside is it's more expensive per GJ, and the contracts are long, like 10 years. So, we're banking on the fact that carbon credits stay like they are now." – Transportation

"We did go to a gas marketer to buy so we could get the credits. Fortis was not transparent about that and it was a remarkable difference between our fuel supplier and Fortis. That difference is why we went to the marketer." – Transportation

"For transportation, [conventional] CNG isn't the alternative, it's other RNG on the open market." – Transportation

"I trust Fortis, Fortis has been a great partner since 2012. They do what they say they're going to do. I didn't like the tactics of gas marketers." – Transportation

Analysis

Other suppliers of gas are offering customers who are Part 3 Fuel Suppliers the option to buy more expensive RNG with a much lower carbon intensity. In this case the greater number of credits results in more profit compared to the RNG from FortisBC.

Some of these customers would stick with FortisBC primarily because they valued the relationship and long-term partnership.

For others, the main thing keeping them with Fortis is a worry about making a long-term supply agreement with a marketer, especially if credit prices fall.

The latter group was more price sensitive, with one expressing that a $15/GJ price would be the max before they switch.

Comparison to Alternatives: Transportation customers consider biodiesel and renewable diesel

Comparison to alternatives: Biodiesel/renewable diesel

Transportation customers consider biodiesel/renewable diesel

"We use electricity, biofuel, diesel, and natural gas. But for certain cases we can't use RNG and there's no business case to replace them. That's where to look to biofuel." – Transportation

"We are also looking at other biosolid products to replace or supplant some of the fuel that's used. Early days there but that's something that we are contemplating." – Transportation

"We're looking at doing changes within the fuel to lower the CI, you know, which means the biodiesel and the renewable diesel without making, you know, the desire or the need to retrofit." – Transportation

"The difficulty is that my mobile unit runs off a diesel engine and no one is certifying CNG engines at that size." – Transportation

"Compared to biodiesel, the situation with RNG [projecting long term prices] is frustratingly complex." – Transportation

Analysis

Some transportation customers brought up biodiesel or renewable diesel as an alternative that is attractive because it avoids the need to retrofit or replace existing vehicles in the fleet.

For some customers, this allows it to compete favourably with CNG or renewable CNG as a way to bridge until fully zero emissions technology is more mature.

One customer also mentioned this as an attractive option for engines where even CNG technology is not mature enough. Another preferred renewable diesel because they felt there was more long-term price certainty (even if the price was higher today).

Comparison to Alternatives: Conventional CNG is seen as a bridge fuel

Comparison to alternatives: Conventional CNG

Conventional CNG can already be a bridge fuel without a need for RNG

"Natural gas use is coming under pressure, but for right now though, CNG is the best practice for us." – Transportation

"We hope technology catches up in the next three years to convert to electric, but CNG is really seen as the platform to get us there." – Transportation

"We have one CNG truck and another three coming. There are savings because our GHGs drop from about 360 with diesel to about 200 with CNG. There are savings we get from it." – Transportation

However, for those receiving LCFS credits, switching to RNG is an easy choice

"CNG is basically more expensive because with RNG we can sell the credits." – Transportation

"So far, we've planned to use CNG. I haven't looked at the comparison between conventional CNG versus RNG versus the value of electric, but [the credits] might be a game changer." – Transportation

Analysis

Conventional CNG is not necessarily seen as a direct alternative to RNG. Most CNG users interviewed were interested in the relative ease of switching CNG for RNG. However, they have reservations relating to the carbon credit market and the supply of RNG.

For many, CNG and RNG are still just "bridge" solutions until there are better electric or hydrogen options for the classes of vehicle they operate.

However, operators of formerly diesel vehicles that are now switched to CNG are pleased with the carbon credits they receive already for CNG use (if they receive credits), and most are interested in deepening that credit advantage by using RNG if they can.

Comparison to Alternatives: Electrification is a long-term strategy

Comparison to alternatives: Electric

Transportation customers have long term electric plans

"Our ultimate goal is obviously to electrify our fleet…in the meantime CNG gives us a competitive advantage". – Transportation

"The strategic direction is to have battery electric buses with zero emissions…but this is a huge shift for us and so CNG is really seen as the platform to get us there." – Transportation

"The majority of our fleet strategy is focusing on electrification…we see RNG as a bridging technology." – Transportation

"We just started electrifying our fleet this year, but we're looking to convert the rest of our fleet …and we're also actively looking at electric for our heavy-duty fleet." – Transportation

"It's easier to explain we're doing electric as opposed to having to explain RNG and emissions and everything." – Transportation

"The majority of our low carbon fleet strategy has more to do with electrification." – Transportation

"Electricity is more expensive than RNG but because of the credits we'd get it's a huge offset. So, you're banking on the longer term. The credits make it cheaper than RNG." – Transportation

Analysis

Most reported that electrification was their long-term strategy but that the technology trails their demand for it.

CNG/RNG are seen as bridge solutions until electric technology is ready.

Some customers doubt whether battery technology will advance soon, most estimated it would be between 3-5 years.

Apart from battery tech, the other obstacle to electric right now is electrification infrastructure and its costs.

But, since electric credits are more valuable, and electric is easy for the public/clients to understand, electric is still considered best long-term.

Comparison to Alternatives: Hydrogen is also seen as a future alternative fuel

Comparison to alternatives: Hydrogen

Transportation customers think about hydrogen for the future

"And then there's obviously the future of hydrogen, ammonia, and methanol…we're looking at eventually doing hydrogen and other fuels too." – Transportation

"The pessimistic view here is that the majority of the focus with the OEMs is on battery electric and hydrogen-based solutions in the long term. With international discussions with OEMs, natural gas isn't really there anymore." – Transportation

"We'd like to burn zero fuel, so whether that's hydrogen electric, or hybrid with a small CNG fired engine to electrify, that's the goal. Not to throw CNG under the bus, but I think it will be around only for a certain time." – Transportation

"I've looked into hydrogen and all-electric. All-electric isn't there yet, plus I think Li batteries are going to be a big problem downstream. I think we're still at least 10 years out from reliable electric and probably longer for hydrogen. So, we're looking at CNG hybrids as a good combination for now." – Transportation

Analysis

Hydrogen is seen by most as perhaps an alternative fuel of the future, alongside battery-electric.

However, those who mentioned it are still in the very early stages of exploring this technology and feel that it is many years from implementation.

This leaves CNG (renewable or conventional) as an important bridge technology, but not always seen as a long-term solution.

Comparison to Alternatives: Customers expressed the desire to wait and see whether RNG would be a viable option

Comparison to alternatives: Wait and see on RNG

Transportation customers consider waiting to see if they need RNG

"And in our background, we know that renewable natural gas has a carbon footprint of next to zero, because it's renewable. So technically, I use that in my long-term forecasting that if it comes down to a crunch that I needed an extra a few gigajoules to meet plan, then I'd like to purchase RNG. But right now, reducing consumption is Plan A and Plan B is alternate fuels." – Transportation

"If I'm if I'm really close to meeting my targets. And I can say that I need X amount of reduction in burning natural gas to meet my targets, then I'll come up to Fortis and say, You know what, you've got to sell me 1000 Giga joules for me to meet my targets, because I'm that close." – Transportation

"We'll retrofit for better efficiencies as the first choice, and RNG is for once we've exhausted all the possible retrofits, especially if we need to hit targets." – Transportation

Analysis

Numerous interviewees reported that RNG would be a last-resort if they were missing their targets with other methods: reducing consumption, capital projects, etc.

This evinces the "bridge" idea brought up earlier by interviewees, that RNG is not seen as a fulsome alternative fuel for the future but as a stop-gap between the status quo and "completely" carbon-free vehicles.

In addition, many have doubts about supply/capacity that add to their "wait and see" attitude towards RNG.

LCFS Credits:
Additional Barriers to RNG adoption

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LCFS Credits: Overview

- RNG from Gas Marketers
- Fuel Supplier Designation
- Uncertainty of Future Credit Prices
- Cashflow Issues
- Upgrade Capital Costs

Overview

Despite the seemingly strong incentive created by the LCFS credits to use RNG, there are still some barriers that leave customers hesitant or price sensitive.

One has already been addressed earlier in the report:

1) Among those who do receive credits, they can purchase lower CI RNG from gas marketers (slide 38).

Four more are covered in this section:

2) Many transportation customers were not aware of the program or believed they were not eligible to participate.

3) The uncertainty of future credit prices inhibits some customers from going “all-in” with RNG.

4) The delay of up to a year before they can sell credits creates a cashflow issue for some.

5) Even with Fortis and government subsidies, some count on the net revenue from credits to cover part of the capital costs for CNG vehicle purchases.

LCFS Credits: Fuel Supplier Program Incentive and Limitations

Beliefs about what is required to be a supplier or general lack of awareness

Suppliers

"We're planning to act as our own supplier for our C/RNG fleet. We have plans to build our own compressor station and let the public of whomever fill up there too and then collect the credits." – Transportation

"If we liquify it ourselves, then we get the credit, we get the environmental attribute and then get to sell it. That's why we went through the trouble of becoming a 'supplier'." – Transportation

"Because we pay for this portion of fueling station capital for them, that qualifies us as a fuel supplier. That's how we qualify for the credit. Because if we were just paying for the commodity we wouldn't, that's my understanding." – Transportation

Non-Suppliers

"We don't get the credits, Fortis does. They wanted to keep the money for themselves. Even though it doesn't even incentivize your customers, it doesn't make sense." – Transportation

"We tried to get the credits but apparently that doesn't apply to us." – Transportation

Analysis

Of 11 interviewees, 7 were Part 3 Fuel Suppliers (or were planning to be) and 4 were not. Most larger operations were aware of the program and had taken steps to participate.

A few interviewees knew about the LCFS program and were under the impression that they could not participate – creating a sense of frustration. However, others were simply unaware of the program in the first place.

Those who are LCFS suppliers are supportive of the plan and realize its benefits, although some are not pleased it took so much effort for Fortis to participate in the program.

LCFS Credits: Uncertain Future Prices Cause Concern

Uncertain credit prices prevent some from committing to RNG long-term

"Price variability is a big deal for us. We don't know what the long-term price of RNG is. Fortis isn't going to give me a number, but if we had long-term contracts at like $12 or $14 or whatever, that would help. There's sometimes a bias towards the comfort of knowing historical fuels and having uncertainty around costs and supply of RNG over the long term is a disadvantage against other fuels." – Transportation

"Any agreement I sign with Fortis would have to include what the price is and if it changed by over 10% then we'd have to renegotiate. RNG is good for the environment, but there needs to be a good business case." – Transportation

"If credit prices stay how they are, then RNG is attractive. But I don't think we could absorb much more in terms of price changes…we're looking for stability over the long term." – Transportation

"Right now, carbon credit pricing is high, but two years ago it wasn't. So, what is to say it couldn't go back?" – Transportation

"The concern is that carbon credits are not a guarantee and could go away tomorrow, depending on elections and that sort of stuff." – Transportation

"Right now, credit value is worth over $200…but it's not going to stay like that." – Transportation

Analysis

Customers generally agreed that at the lower price ($11.83/GJ) the credit prices would stay high enough (above $128.50/credit) to make RNG consistently worthwhile.

But a major barrier to enthusiastic support for RNG over the medium term is the variability in carbon credit prices. Many are concerned the credits will lose value over time as more energy becomes less reliant on GHGs and the market itself becomes smaller.

The concern was that the closer the breakeven price is to the actual credit price, the greater the risk to the business that credit prices drop below the breakeven level.

LCFS Credits: Concerns with Cashflow and Upgrade costs

Cashflow & Upgrade Costs

Cashflow

"It becomes challenging because those credits are only sold once a year, so it's a cashflow problem. If you're having to double fuel spend a month, that's a lot of money that can't be used elsewhere." – Transportation

"The problem with credits is that you hope they retain their value, but you don't see them until the next year." – Transportation

Upgrade Costs

"Whether it's RNG or regular natural gas, the cost of the equipment is a problem. Right now, buying a CNG truck is almost double what a diesel truck is. So, some of that carbon offset is being eaten up already." – Transportation

"If the price of RNG itself gets too high then there isn't a lot of money leftover for the company at the end especially after paying to upgrade the gear to begin with." – Transportation

"If we didn't have incentives from the government to help drive down the costs to upgrade we wouldn't be doing this." – Transportation

Analysis

Cashflow

Especially for smaller customers, the delay (up to 1-year) when you can sell the credits is a barrier to using RNG. If they are counting on income from credit sales to offset extra fuel costs, they need cash/credit available to cover the extra costs until they can sell.

Upgrade Costs

Upgrade costs are another barrier for some, especially smaller customers. Although some pointed to Fortis and government programs to help with upgrade costs, many felt that upgrade costs were still too onerous without the additional incentive of net revenue from the LCFS credits.

Other Weaknesses/Barriers

- Supply Concerns
- Budgeting (Operating vs Capital Budgets)
- Concerns with Acceptability (Real vs. Perceived)
- Tailpipe Emissions
- Heat Pumps Provide Cooling
- Personal Cause Orientations Away from Emissions

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Other Weaknesses/Barriers

- Supply Concerns
- Budgeting (Operating vs Capital Budgets)
- Concerns with Acceptability (Real vs. Perceived)
- Tailpipe Emissions
- Personal Orientation Away from Emissions
- Not Literal Molecules
- Heat Pumps Provide Cooling

Overview

Aside from the price, several other barriers to adopting RNG were raised by both customer groups. Supply issues were a recurring concern, with many customers feeling hesitant to invest in RNG if at some point there was a risk of curtailment.

Budgeting was also a concern for some organizations who found it difficult to justify increases in their operating budgets, leading to a preference for electrification and other capital projects.

The fact that RNG still involves combustion led to concerns with acceptability for emissions standards (both real and perceived), concerns with tailpipe emissions for transportation customers, and a more general orientation away from combustion, which was rooted in many of the customers' personal views on the environment.

Some customers (especially in transportation) also expressed a preference for receiving the actual molecules of RNG.

Lastly, electric heat pumps were seen as advantageous because of the additional benefit of adding cooling in buildings.

Other weaknesses/barriers to use: Concerns with the reliability of supply and program capacity were top of mind

Uncertainty: Supply/Capacity

Transportation

"How much supply is there actually going to be? We're trying to figure out long-term significant reductions. And, if there's not going to be the supply then we might just electrify it all over three years." – Transportation

"There's a split in our staff about how effective RNG can be. The main apprehension to it is the supply. There's no guarantee that the RNG we need will be there." – Transportation

"For our trucks, the way the system is set up, you'd need to guarantee the supply." – Transportation

"There's a bias towards the comfort of historical fuels and having uncertainty around costs and supply of RNG long-term is a disadvantage against other fuels." – Transportation

"We're interested, but we asked Fortis and they said they don't have the supply yet." – Transportation

Institutional

"RNG, whenever it becomes cost efficient and there is enough supply because that's other side of the equation, that there is enough supply, that's a real option. For sure." - Institutional

"The challenge with that is, you know, if we wanted to go out and buy a whole bunch of RNG for our sites, is it even available?... If the RNG was readily available today, I think it would probably be a different story. Do we invest in in assets that consume RNG when there's no guarantee we're going to have the RNG to use? That is a concern." - Institutional

"We were thinking of renewable natural gas two or three years ago, but Fortis doesn't have enough capacity to supply." - Institutional

"We expressed interest, but the program was limited due to scale. So, we didn't get in the first round." - Institutional

Other weaknesses/barriers to use: The structure of operating and capital budgets often disadvantages RNG use

Budgeting: Operational vs. Capital

Transportation

"The other options we have available are eligible for government funding. So even if they're slightly higher, RNG may lose out on competitiveness. Because, from an optics standpoint, electricity is pretty competitive. It's more capital to change out the technology, but there's a lot of support for that and we have a line of sight with how to fund it. It would be hard with renewable requirements to get the government to subsidize us just for more expensive RNG." – Transportation

"Capital costs don't necessarily come out of our budget the same way as an operating cost does, and that weighs into the decision making." – Transportation

"For us, it's just much easier to get funding for new upgrades, whatever capital cost it is, as opposed to covering something that's a rolling cost, something operational." – Transportation

Institutional

"We've always been an easy access to capital type operation, less so than our goods and services operating budget, which was, you know, very constrained." – Institutional

"Long term, what are the implications on the operating costs going forward? That tends to be the deal breaker most of the time, not so much the capital, because there are different funding sources there. You could go to grants, Fortis is great in supporting that. Hydro is great on that as well. We have a really good partnership with them and other entities as well. So the funding... let me put it this way, it's a one time problem" – Institutional

"[RNG] is a non-starter, because it's not capital related. It's more operational related, like budget wise." – Institutional

"So we're having challenges with budgeting, because it's government. And that's the struggle we've had, in addition to there not being capacity in the program." – Institutional

Other weaknesses/barriers to use: The acceptability of RNG for carbon reporting was a concern

Concerns with Acceptability: Real and Perceived

Transportation

"Given that we've got the renewable fuel requirements, and all the stuff around RNG pricing, I think it would be hard to get government to basically subsidize us through similar funding programs just to pay for more expensive RNG, like I think the optics of that would be quite challenged." – Transportation

"I guess the other part of that is that the funding programs for zero emission vehicles, like the Infrastructure Canada, ones that just came out as well are funding 50% of transitions to zero emission technology don't include renewable natural gas. And so, if you're getting vehicles and infrastructure funded at 50%, by the federal government now, it's sort of it again, kind of like incentivizes electrification over renewable natural gas as well." – Transportation

Institutional

"there has been… I guess, a lack of knowledge or information on how it works, in terms of how it fits the process, how it fits carbon reporting, how it affects costs, that kind of thing." – Institutional

"…we still we have to account for those GHGs when we're doing our carbon accounting every year." – Institutional

"There's this perception that, you know, this questioning is RNG, really GHG free, right? It's natural gas. And so, you know, I think that's just an education thing." – Institutional

"If we're buying this renewable natural gas, and the carbon neutral government isn't acknowledging it, then there really isn't a point, or is it? – Institutional

"I think the [issue] is the confirmation on the climate change benefit of our RNG coming from woodchips from gas, from gasification, from an independent source." – Institutional

Other weaknesses/barriers to use: Transportation customers are concerned with tailpipe emissions

Tailpipe Emissions:

Tailpipe emissions	Analysis
"We have government mandates to reduce our tailpipe emissions, and we have very specific goals that we need to meet. That's why RNG is more a bridge for us, because we really need to eventually get to zero." – Transportation *"One of the other things we're concerned about is tailpipe emissions. Carbon intensity too, but also tailpipe emissions. We're purely judged on our emissions at the tailpipe."* – Transportation *"In BC the electricity is 100% green, because of hydro. So, that gives us zero carbon intensity for the creation of electricity, zero intensity at the tailpipe. RNG, regardless of how it's produced, has tailpipe emissions."* – Transportation *"There are other benefits there too. Electric vehicles have zero tailpipe emissions. So, we have RNG as a backstop. Since we can't electrify fast enough, that's our strategy."* – Transportation	For customers that are targeting or mandated to reduce their tailpipe emissions, RNG is not preferred over zero emission battery-electric vehicles. Additionally, while some customers recognized that RNG still produced tailpipe emissions, that was not true uniformly.

Other weaknesses/barriers to use: RNG faces a disadvantage compared to heat pumps, which can be used for cooling

Heat Pumps:

The benefit of adding cooling in buildings with heat pumps

"On some properties we're looking at greater electrification, particularly on residential, where residential properties currently don't have air conditioning and so we're looking at introducing heat pumps at the suite level that would produce heating and cooling." – Institutional

"Recently, as you can learn from the heat wave, we don't have enough cooling capacity in the [buildings]. So we had to have [them] closed during that event. That's also a factor for us to consider electrifying. Recently we've focused on air source heat pumps." – Institutional

We're so we're putting in the heat pumps in the new [buildings]. Namely, well, I mean, there's a lot of benefits. So there is that reduction in carbon. So we want to be green. But more importantly, for us, it's a way of sneaking in sort of space cooling for [our buildings]. – Institutional

Analysis

For building customers, a key advantage of adding heat pumps versus natural gas was the benefit of added cooling.

Several customers mentioned the recent summer heat wave as an inciting incident for this decision.

Other weaknesses/barriers to use: Many customers expressed a personal orientation away from combustion fuels

Cause Orientation: Against emissions and combustion (personally or organizationally)

Transportation

"Ideally we would go all electric. It's the fiscally responsible, environmentally responsible thing to do, not just to hit targets, reduce our emissions, but that's kind of a better goal than burning natural gas." – Transportation

"Even if we're taking cars off the road, we're still actually burning natural gas and putting carbon-dioxide in the air, just capturing it from another area." – Transportation

"For us, the optics is that you're still burning fuel. So, it's easier to explain we're doing electric and we don't have to deal with those conversations. I get RNG, but a lot of other people don't." – Transportation

"Although RNG is a good alternative, if we say we're purchasing alternate natural gas sources, we're still embedding something into the environment, so we're only fooling some of the people." – Transportation

Institutional

"…like I said, it's still combustion… It's just less bad." – Institutional

"So I've had one client, where we've been looking at net zero targets, and they've said, we don't, we don't want to use renewable natural gas, we don't want to use RNG. That's not an option. If we're trying to get to zero, we don't want to be burning anything in the building. That's our goal." – Institutional

"I am concerned with investing in assets that require combustion. Yes, RNG isn't a fossil fuel. But are we going to have enough RNG to satisfy our needs? …We need to be mindful of what we're investing in today…. how do we set ourselves up for eliminating combustion altogether?" – Institutional

"To be honest, I think about what I do if I was building my own house today. I can honestly say that I wouldn't be putting in a natural gas boiler, I wouldn't be putting a natural gas furnace." – Institutional

Other weaknesses/barriers to use: Some transportation customers wish to buy literal molecules of RNG

Desire for Literal RNG Molecules:

Not Buying Literal RNG Molecules

"If we can pump in a blend, if I can say, 'it's going to do this to our costs but we're pumping RNG in our system now, I'm sure the organization would do that…if we knew it was the literal molecules." – Transportation Customer

"In an ideal world, we'd like to be getting the actual molecules, that would be fantastic. But, that doesn't seem realistic. I would still like to see how we are making a difference with RNG, where that gas is coming from and where it's used. Unless Fortis is just buying RNG down in the states and there's no actual RNG being burned in Canada, I'd have a real problem with that." – Transportation Customer

"If we're paying a premium for RNG then we want to get the actual gas from the digester, otherwise there's less value in it. We'd also pay a premium for jus knowing the breakdown of a blend, whether it's 15% or whatever." – Transportation Customer

Analysis

A minority of transportation customers, (3/11), expressed a desire for the actual gas they receive to be RNG.

However, receiving the literal molecules did not seem to be a "deal-breaker" for most these customers, just highly desired. Even without receiving the literal RNG molecules, customers knew they could use their participation in the program promotionally.

Building Understanding.

For more information, please contact:

Colin Whelan
Vice-President
604 379 8338
cwhelan@innovativeresearch.ca

Report Authors:
Colin Whelan
Joshua Tafel
Max Wood

Appendix C
JURISDICTIONAL REVIEW

Renewable Natural Gas International Scan

RNG Program Jurisdictional Review

September 2021

Contents

1 Project Background & Methodology

2 Phase I. Findings

3 Phase II. Findings

4 Lessons Learned

1 Project Background & Methodology

Phase I: Research methodology & approach

Phase I objective:

Perform a broad-level scan of jurisdictions, programs, and general information pertaining to renewable natural gas (biomethane; "RNG") programs. Results will be discussed and evaluated for deep-dive analysis and further investigation in Phase II.

Research methodology - global jurisdictional scan:

1. Begin with network interviews to focus research on jurisdictions known to be (any or all of the following):
    a. Affected or potentially affected by gas boiler legislation;
    b. Facing challenges in energy portfolio due to consumer, political, or commercial pressures relating to pro-climate change targets;
    c. Have energy systems that are sophisticated enough to include systemic networks of natural gas and alternative/renewable fuels (e.g. one of most utilized energy types);
    d. Have significant demand for renewable gas (biomethane or hydrogen) and limited supply.
2. Conduct high level literature review on selected jurisdictions.
3. Supplement review with any additional research on specific jurisdictions known to FortisBC that are of interest or may have relevance or applicability.

Research sources utilized:

- **Primary research -** Interviews with local experts/specialists within the industries of oil and gas, renewable energy, utilities, and resources.
- **Secondary research -** literature review, including:
    - Web searches; academic research
    - Thought leadership by professional services and strategy firms
    - Market intelligence (articles, trend reports, summaries)

Jurisdictions selected in Phase I:

1. United Kingdom
2. Europe
    a. Germany
    b. Ireland
3. North America
    a. United States
4. Australia

No significant or relevant RNG programs involving gas utilities:

1. Asia*
2. Latin America

*From our research, it was determined that other than hydrogen and alternative energy trends, no relevant information could be utilized for scalable RNG strategies for FortisBC.

Phase II: Jurisdiction selection and methodology

Phase II objective: **Perform a deep-dive analysis of select RNG and hydrogen programs on comparable factors.**

The following jurisdictions were selected for analysis in Phase II:

- **United Kingdom**
- **Germany**
- **France**
- **Italy**
- **Sweden**
- **California (USA)**
- **Vermont (USA)**

Sources and research:

Desktop review of secondary research sources (articles, web searches, literature and publicly-available information) as well as primary research including interviews with industry experts and selected utility/program representatives.

Methodology for Phase II:

From observations and findings in Phase I, jurisdictions were kept or eliminated for deeper dive investigation based on the following criteria. Additional jurisdictions, including a jurisdiction focused on hydrogen, were added to Phase II that proved relevant or seemed of note from Phase I research.

1. Renewable gas strategy, whether through regulation, industry associations, local/state governments, etc.;
2. Commitment to RNG/hydrogen demonstrated through investment, evidence of project approval or existence (no pilot/trial programs);
3. Existence of compelling incentives (tax exemptions, regulatory, etc.);
4. Applicable lessons learned including but not limited to customer and pricing models, roll-out, legislation, etc. in the area of renewable gases (including hydrogen).

2 Phase 1 Findings

Summary of Findings: Phase I International Scan

1. The current priorities for governments, utilities and corporations centre around developing strategies to meet Net Zero targets and agreements e.g. the Paris Agreement. Most are thinking long term and therefore hydrogen was more of a focus than renewable natural gas in the jurisdictions selected.

2. In some cases, there is a disconnect between political will and on-the-ground feasibility in energy strategies/priorities. E.g. in Germany the government is delivering green hydrogen to industry, but utilities and industry feel green hydrogen would be best used in difficult to decarbonise sectors (domestic heating) and blue hydrogen should be used in industry.

3. RNG was not considered a broad scale transition fuel in the jurisdictions we interviewed for mainstream or systemic use. This was largely due to lack of feedstock and the cost of upgrading biomethane to be grid-ready. However, some jurisdictions were able to share industry or location-specific examples of RNG use. Often RNG is bypassing the utility and being purchased directly by the transportation sector.

4. All jurisdictions had some kind of new residential gas boiler ban or energy efficiency building mandates. Some (e.g. the UK) specifically note that the ban only applies to 'non-hydrogen ready' boilers.

5. Pricing strategies for the increased costs associated with hydrogen or for RNG differ globally. In the EU they are limited by non-discriminatory legislation, but in the US there may be more scope for different mechanisms. Pricing model examples include: opt-in higher tariffs (e.g. UK - residential), federal government funded subsidies (e.g. Germany - industry), competitive open market pricing that bypasses the utility (e.g. US), and higher ratepayer energy costs (Germany for renewable electricity).

6. *Asia & Australia:* Markets and governments are focused on preparing for a hydrogen future (Japan, Australia) and investing in alternatives like wind, solar and nuclear (Japan, China). As well as alternative energy production, China is primarily focused on switching from coal to LNG. There are no significant RNG plays in Asia of note at a scalable strategy.

3 Phase 2 Findings

United States

California

Region and country	State of California, USA ● Utilities: SoCalGas (Sempra) and SDG&E
RNG program(s)	● Program: **Voluntary Renewable Gas Tariff** Infrastructure to be built to support RNG as 5% of the gas supply by 2022 and 20% by 2030. ● Status: Approved, under development ● 90% of RNG is from out-of-state sources
Relevant regulation / legislation	● California Public Utilities Commission approval to run for 2 years, intention is for 5 years ● California Cap-and-Trade program compliant ● SB1440 - 2018 approved bill requiring the CPUC to *"consider adopting specific biomethane procurement targets or goals for each gas corporation so that each gas corporation procures a proportionate share, as determined by the commission, of biomethane annually.*[1]
Market definition and size	● Central and Southern California - est. participation numbers: 1.5M residential customers, and 50.4K small, 12.6K medium, and 1.6K commercial and industrial based on customer surveys[2]. ● Medium and large business customers are estimated at 38% and 50% RNG gas mixes, respectively, and small businesses at 5%. Residential is est. an average of 9%[2].
Customer pricing model	● Full cost recovery to cover all program costs. Any cap-and-trade savings are accounted for at the program level and redistributed to participants in the form of reduced overall costs. Any leftover costs are to be paid by shareholders. ● Residential customers will be able to select a fixed $ amount per month ($10, $25, or $50). ● Commercial or industrial customers will be able to select a fixed $ amount per month or select a percentage of their consumption for the purchase of renewable natural gas, up to 100%, with a 2-year minimum subscription.

Sources:
1 - https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB1440
2 - Interview with Grant Wooden, RNG Program Manager, August 18, 2021 and company-provided estimates

United States

Region and country	State of Vermont, USA ● Utility: Vermont Gas Systems
RNG program(s)	● Program: **Voluntary RNG Program** for all rate classes of customers ● Status: Ongoing (since 2017) ● **Program: RNG blended into overall gas supply for all retail customers.** ● **Status: Approved August 11, 2021. Ongoing since 2021.** ● Supply from in and out of state - in-state supply injected directly into VGS pipeline system; out of state: environmental attributes dedicated to VGS customers. In the case of undersupply for a period of 12 months, carbon offsets may be purchased to meet environmental criteria. ● **VGS estimates they may achieve a blend of 1% RNG in gas supply to retail customers by the end of 2021.**
Relevant regulation / legislation	● Approval to operate program obtained from Public Utility Commission (PUC) ● Supply contracts must be filed with and approved by PUC, including tariffs on rates ● Comprehensive program review every three years by Dept. of Public Service ● **RNG blending for all retail customers approved under State of Vermont PUC Case No. 19-3529-PET**
Market definition and size	● **All VGS retail customers – Approximately 55,000 customers** ● **Projected program RNG demand of approximately 126,000 GJ/yr in 2021/2022**
Customer pricing model	● Customers can choose a gas mix of 10%, 25%, 50% or 100% - appears as a separate, additional line item on customer's bill ("RNG Adder") ● Customer chooses level of avoided carbon emissions of conventional NG with % of RNG ● Customers pay for the full cost of RNG. ● For voluntary program participants this occurs through an RNG Adder applied per cubic foot of gas ● For all other retail customers receiving a blend of RNG and conventional gas, the cost of RNG is blended into the gas supply costs.

Sources:
* Vermont Gas Systems website: https://www.vermontgas.com/renewablenaturalgas/
* American Gas Association, RNG Activity Tracker, updated as of July 2021
* Discussions with Vermont Gas staff

Vermont

Europe: General notes / attributes

Geographical area:	• Continental Europe, Scandinavia, and British Isles • European Union - 27 member states; excludes United Kingdom
Governing and legislative bodies and organizations:	**European Union:** • European Commission - executive branch of the European Union (EU), responsible for proposing and enforcing EU laws for the 27 member states (laws passed by European Parliament) **Europe/Global:** • United Nations Framework Convention on Climate Change (UNFCCC) - International treaty ratified by 197 parties who commit to "Nationally Determined Contributions" (NDCs) to fight climate change
Relevant legislation and commitments (binding and non-binding):	• Paris Agreement - Legally-binding global agreement for all UNFCCC members • EU Energy Performance of Buildings Directive **European Union:** • European Green Deal - Set legally-binding target for net zero GHG emissions by 2050, and reduction by 55% by 2030 (as compared to 1990 levels) to legally comply with the Paris Agreement (2030 Climate Plan).
Other organizations:	• Gas for Climate - Group of gas transport companies and renewable gas associations representing ~75% of EU gas consumption pushing for decarbonization through green H_2 and renewable gas • European Biogas Association, Gas for Climate and Eurogas calling for an EU-wide renewable target of at least 11%
Market notes:	• As of 2019, Europe and the UK produced 15.8 bcm / 193 TWh of biogas and biomethane, with the rate of production growing steadily. Between 2018 and 2020, the number of biomethane plants has grown by 51%[3]. • Estimates for future growth lie between 35-45 bcm / 467 TwH in 2030 and 95 bcm / 1,020 TwH in 2050[4]. • The European market has historically been driven by Germany (early adopter of biogas). Germany constitutes nearly 45% of primary biogas production in the EU, followed by the UK, Italy and France[5]. There are 18 countries producing RNG in Europe as of 2020[3].

Sources:
3 - https://www.europeanbiogas.eu/eba-gie-biomethane-map/ (live map, continuously updated)
4 - https://www.europeanbiogas.eu/wp-content/uploads/2021/01/Annual-Report-2020-new.pdf
5 - Observ'ER EU, Ademe, PwC Strategy& Analysis

United Kingdom

Region and country	Northern England - UK • Northern Gas Networks (1 of the 4 major gas distributors in the UK)
RNG program(s)	• Program: **Direct RNG injection into the grid** (non-voluntary program) Ongoing program to increase grid connections to local biomethane producers, thereby injecting RNG into the grid. First accepted onto the grid in 2014. • Status: Ongoing • Gas mix: N/A, must comply with Health & Safety Executive (HSE) and other quality standards before injection
Country-specific regulation / legislation	• Gas distribution industry regulated by Office of Gas & Electricity Markets (OFGEM), including price control regulation and expenditure allowances for GDNs • *For producers:* Renewable Heat Incentive - Feed-in-tariff for biomethane injected into the gas grid (since 2011). Installations are paid a predetermined subsidy per GJ injected into the grid, for 20 years of operation. The subsidy is administered by Ofgem (Office of Gas and Electricity Markets). • *For gas suppliers:* Renewable Transport Fuel Obligation - Quota system of certificates to support biomethane use in transportation. Obligated suppliers must show that a certain % of fuel they supply is renewable. May do this by supplying RNG themselves or buying certificates from others.
Market definition and size	• Northern Gas Networks serves 6.7M customers (approx 1,125,000 households) • Equivalent of 50,000 households powered by RNG • NGN is currently connected to 17 suppliers of RNG
Customer pricing model	• RNG paid for by customers as part of their gas supply costs on regular gas bills.

Northern England

Sources:

* **Renewable Gas Trade Centre in Europe - "Mapping the state of play of renewable gases in Europe", 04/02/2020**
* **https://www.regatrace.eu/wp-content/uploads/2020/02/REGATRACE-D6.1.pdf**
* https://biomethane.northerngasnetworks.co.uk/
* https://www.northerngasnetworks.co.uk/2021/01/04/record-number-of-homes-in-the-north-of-england-receive-renewable-gas/

United Kingdom

Region and country	Northern England, UK - specifically: Tyneside, (Newcastle, Gateshead) Teesside, West Yorkshire, (Leeds, Bradford, Halifax, Huddersfield, Wakefield) Manchester, Liverpool
RNG program(s)	• Program: **H21 NoE** - Complete conversion of existing North of England (NoE) gas distribution network to 100% hydrogen through incremental additions of H_2 to the network over 6 years (i.e. non-voluntary program). Based on case study in City of Leeds. • Project partners: Gas distribution networks (GDNs): Northern Gas Networks, Cadent; energy producer: Equinor • Status: Planned (starts 2028) • Gas mix: 100% hydrogen
Country-specific regulation / legislation	• Gas distribution regulated by OFGEM, including price control and expenditure allowances for GDNs. • **The Climate Change Act (2008) commits the UK to reducing 1990 carbon levels by 80% by the year 2050. Heat currently accounts for over 30% of UK carbon emissions and 80% of domestic households in the UK use natural gas to heat their homes. Replacing NG with hydrogen is expected** to displace 258M tonnes of $C0_2$ by 2050. • Current national hydrogen gas allowance: 0.1% (Health & Safety Executive), though have successfully trialled a 20% mix at Keele University.
Market definition and size	• 85% of homes in the UK are connected to a gas grid. H21 would replace this for all homes in H21 counties - plans to convert 3.7 million UK homes and businesses. • 306 PJ energy demand per year
Customer pricing model	• Unclear at time of research.

Sources:
* https://www.europeanbiogas.eu/wp-content/uploads/2021/01/Annual-Report-2020-new.pdf
* https://h21.green/about/

H21 North of England

Germany

Region and country	Germany, EU
RNG program(s)	• Programs: **1. Voluntary -** Majority of supply**.** District operators balance local grids by purchasing RNG from suppliers and injecting into local grid. Primarily used for power and heat production. **2. Non-voluntary -** Gas injection program into major grid(s) in the country with low overall RNG concentration (~1%). • Status: Ongoing • Gas mix: N/A
Country-specific regulation / legislation	• Incentives and regulation for biomethane* (and biofuel*) utilization differ depending on the usage: • *Electricity:* Renewable Energy Law - provides electrical and gas upgrade reimbursements • *Heat:* Renewable Energy Heat Act - allows RNG used for heat to be counted in renewables allowance • *Transportation:* Federal Pollution Control Act - requires reductions in carbon footprints by fuel companies. Can be done through RNG usage or buying GHG certificates from RNG production. • Energy tax reduction for biomethane suppliers when utilized in the production, forestry, and agriculture sectors. (Being phased out for transportation sector as this industry already benefits from other favourable environmental and economic incentives.) • Importing RNG: Imported biomethane is used for heating primarily. Any carbon footprint reduction from imported biomethane used in transportation use is not recognized.
Market definition and size	• 41M households - served by 1.5M active market participants (gas and electric). • In 2017, 33PJ of biomethane was injected into the grid though majority of facilities do not feed into the grid. • Use as Compressed NG: ~810 vehicle-filling stations in Germany, of which 60% are 100% BioCNG/RNG
Customer pricing model	• Voluntary opt-in model: residential and small business customers can choose preferred gas supplier in local area, which will offer different products and gas types/concentrations of RNG. • Large, industrial customers negotiate preferred rates for direct purchase via market brokers.

Sources:
* "Gas-for-Climate-Gas-Decarbonisation-Pathways-2020-2050 Study" - https://gasforclimate2050.eu/sdm_downloads/2020-gas-decarbonisation-pathways-study/
* https://www.europeanbiogas.eu/wp-content/uploads/2021/01/Annual-Report-2020-new.pdf

Sources (continued):
* Renewable Gas Trade Centre in Europe - "Mapping the state of play of renewable gases in Europe", 04/02/2020
*https://www.regatrace.eu/wp-content/uploads/2020/02/REGATRACE-D6.1.pdf
* Gas suppliers: Naturstrom.de; wvv.de

Italy

Region and country	Italy, EU
RNG program(s)	● Program: Government Decree incentive (see legislation) ● Status: Ongoing (since 2018) ● Gas mix: N/A - no specific injection mix/limit; producers must demonstrate to the GSE (Manager of Energy Services) that legal quality standards are met. Once injected, all NG and RNG is treated the same. ● GSE manages entire gas network and is the sole buyer of NG/RNG, thereby controlling supply. ● Primary gas distributor: SNAM (~90% of gas connections in Italy), operates main grid.
Country-specific regulation / legislation	*Ministerial Decree 02, March 2018* ● Legislative support scheme for biomethane injection into the gas distribution grid and production for transport. Supports up to a total quota of 1.1B m^3 or 42.52 PJ. ● Requires ~10% of all transport fuels to be biomethane/"advanced" biomethane. Incentivizes both, with "advanced" production (i.e. from specific sources, technologies) being most incentivized. ● Employs a system whereby "certificates of release for consumption" (CICs) are allocated to producers of fossil and other non-renewable fuels for consumption (e.g. oil producers). These producers are specifically allocated an amount of CICs which equates to their obliged RNG release over a period of time. These obligations can either be fulfilled by purchasing CICs (thereby funding the incentive) or by producing biomethane(6) themselves.
Market definition and size	● Highly natural gas-powered country with widely developed gas grid and mature gas market. Some small, low-pressure, local grids. Supply of RNG is primarily agricultural waste, some landfill. ● Transport sector: ~1 billion m^3 of methane (approx 38.66 PJ) used annually (between CNG vehicles; LNG trucks; CNG filling stations; LNG filling stations). ● Approx. 50% of NG is consumed for industrial use, 30% for residential, and 20% power
Customer pricing model	● Decree costs are borne by the transport fuel retailers via CICs, therefore consumers of NG/RNG (whether residential or transport customers) do not bear the cost of the incentive. Suppliers/retailers then sell their gas to the GSE, the gas network manager, for distribution by SNAM.

Sources:

6 - Ministerial Decree and GSE info:
https://www.iea.org/policies/12162-ministerial-decree-march-2nd-2018
*https://www.regatrace.eu/wp-content/uploads/2020/02/REGATRACE-D6.1.pdf
*https://www.gse.it/servizi-per-te/rinnovabili-per-i-trasporti/biometano/incentivi

France

Region and country	France, EU
RNG program(s)	• Program: Direct biomethane injection into the grid (RNG granted access to national grid in 2011). • Gas mix: biomethane injection directly into the grid without a specific gas mix target. • At least 3 energy providers sell RNG to private and corporate customers through opt in programs (Engie, TotalEnergies, ekWateur)[2,3,4]. Available at blends of 5%, 10% or 100%. • Status: Ongoing
Country-specific regulation / legislation	• France is one of the few countries to set specific biomethane targets - i.e. to produce 6.1 PJ biomethane by 2018 and 28.8 PJ biomethane by 2023[1]. • Act on Energy Transition for Green Growth (“The Act”, 2015) - Sets a target of 10% biomethane coverage in annual average gas consumption by 2030 (reduced to 7% in 2019). • Feed-in Tariffs are the main support/subsidy for biomethane (RNG) plants with the amount of the tariff varying depending on the size and type of the plant and with premiums for various feedstocks[1]. FiTs range from €16.6-€33.3/GJ. *Biogas* plants with capacity higher than 500 kWe (e.g. large-scale digesters) are supported by a tender system. • Continual development of favourable regulatory framework to support biomethane production and growth in biogas sector. • Additional local authority funding and tax breaks available for local studies and investments.
Market definition and size	• As of 2019, there are 123 plants operational in France, accounting for 7.92 PJ/year of capacity (2020 number: 131 plants). The introduction of The Act will support the development of 1,500 RNG plants using agricultural waste, for total capacity of 86.4 PJ/year[1].
Customer pricing model	• Unclear at time of research. In-opt in programs customers appear to pay a premium for RNG service.

Sources:

1 - Renewable Gas Trade Centre in Europe - “Mapping the state of play of renewable gases in Europe”, 04/02/2020 https://www.regatrace.eu/wp-content/uploads/2020/02/REGATRACE-D6.1.pdf
2 - https://particuliers.engie.fr/electricite-gaz/options-gaz-vert.html
3 - https://www.totalenergies.fr/particuliers/gaz/offres-de-gaz/offre-verte-fixe-gaz
4 - https://ekwateur.fr/gaz-vert-renouvelable/

Sweden

Region and country	Sweden, EU
RNG program(s)	● Program: **N/A** - *Limited direct injection*: For household use, only accessible by 30 of Sweden's 290 municipalities: Southwestern Sweden and Stockholm (via a regional gas network of local producers). NG market has been deregulated (2007) and residential customers can choose their preferred NG supplier. Suppliers sell to the grid under the Green Gas Principle* ● *Off-grid:* Majority of RNG market (production and consumption); many small local grids, standalone plants and filling stations. The transmission network operator (e.g. Swedegas) is responsible for grid maintenance, operation and balancing. Some major industrial customers and CHP plants are directly connected to gas networks, though most RNG is used locally or transported as CBG to filling stations. ● Pending: Swedish government to announce new measures and support scheme in 2021.
Country-specific regulation / legislation	● **Green Gas Principle (2011):* RNG users connected to a grid can buy and claim any share of total RNG, even though they receive a physical mix of NG and RNG. RNG from gas grids is fully eligible for full energy tax and carbon tax exemption. Exact amount of RNG injected into the grid must be assured by the supplier (some companies hire third-party assurance for this). Applies to both domestic and imported RNG. ● Energy targets/strategies are derived from EU policy. Relevant regulatory measures/incentives: ○ Exemption from CO_2 & energy taxes for RNG as a transport or heating fuel (extended to 2030) ○ Temporary production support granted for local biomethane producers (under review) ○ National sustainability goals regulated by the Swedish Energy Agency (SEA) under the Sustainability Act: RNG suppliers must apply to the SEA to qualify for any tax, EU ETS, or other incentives. ● Future policy targets focus on overall energy efficiency and renewables - 2030: reduce energy consumption by 33%; energy mix >32% renewable sources; 2040: 100% renewable electricity. ● *Swedish Gas Association:* Industry association; advocates for a National Biogas Strategy with local production targets/support, stronger regulation, & fossil free energy gases by 2045.

Sweden

Region and country	Sweden, EU
Market definition and size	● "Energy gases" comprise ~3% of annual energy use, of which ~21% is biogas, equal to ~14 PJ**. Most biogas produced domestically is used industrially (80%). Most (64%) is upgraded to RNG for transport fuel. ● Demand outpaces local supply - approx ⅔ of supply is imported from Denmark via the European gas grid to satisfy demand. Subsidized gas from Denmark impedes local production.
Customer pricing model	Could not be determined at time of research.

Sources:

* Swedish Gas Association: "Biomethane in Sweden - market overview & policies", Linus Klackenberg, Swedish Gas Association, 2021-03-16 - https://www.energigas.se/media/boujhdr1/biomethane-in-sweden-210316-slutlig.pdf
* Swedish Energy Agency: "Energy in Sweden, an Overview"
* Swedish Energy Markets Inspectorate (Ei R2020:07): "THE SWEDISH ELECTRICITY AND NATURAL GAS MARKET 2019"

4 Lessons Learned

Phase II - Lessons Learned

Programs indicate that RNG has role in achieving a future diversified low-carbon energy mix

Reviewed jurisdictions view RNG as one of the energy options to achieve a low carbon economy that can leverage existing infrastructure: reducing the energy transition costs while achieving emission targets.

- *Example: European nations and biogas associations are advocating for an EU-wide renewable gas target of at least 11% of the energy mix*
- *Example: France - targeting 10% of entire energy mix*

RNG programs are diverse by jurisdiction but share a goal of fostering RNG usage to achieve GHG benefits, while supporting the development of an economically valuable industry

Governments have designed specific legislation and programs to recognize and best fit incentive structures accelerate the process of integrating and reducing the cost of RNG production and utilization.

- *Example: Sweden, Italy - preferentially allocates renewable gas to the transportation sector through tax incentives and legislation*
- *Example: Swedish Biogas Association calls for RNG-specific regulation and RNG strategy*

Like other nascent energy sources (e.g. hydrogen), jurisdictions reviewed found RNG is expensive and still developing, justifying the use of incentives to increase production and use

Availability and costs limit RNG as a energy transition solution.

- *Example: UK - Installations are paid a predetermined subsidy per GJ injected into the grid, administered by OFGEM, for 20 years of operation.*
- *Example: France - Biogas producers in France can receive subsidies from the French Environment & Energy Management Agency (ADEME) as well as from local authorities for studies and investments.*

Appendix D
PROPOSED TARIFF REVISIONS

Appendix D-1

PROPOSED TARIFF REVISIONS
EFFECTIVE FEBRUARY 1, 2022

Definitions

Unless the context indicates otherwise, in the General Terms and Conditions of FortisBC Energy and in the rate schedules of FortisBC Energy the following words have the following meanings:

Application Charge	Means the applicable charges as set out in the Standard Charges Schedule.
Basic Charge	Means a fixed charge required to be paid by a Customer for Service as specified in the applicable Rate Schedule, or the prorated daily equivalent charge – calculated on the basis of a 365.25-day year (to incorporate the leap year), and rounded to four decimal places.
Biogas	Means raw gas substantially composed of methane that is produced by the breakdown of organic matter in the absence of oxygen.
Biomethane	Means Biogas purified or upgraded to pipeline quality gas, also referred to as renewable natural gas.
Biomethane Service	Means the Service provided to Customers under Rate Schedules 1B for Residential Biomethane Service, 2B for Small Commercial Biomethane Service, 3B for Large Commercial Biomethane Service, 5B for General Firm Biomethane Service, 7B for General Interruptible Biomethane Service, 11B for Large Volume Interruptible Biomethane Service, 30 for Off-System Interruptible Biomethane Sales, 46 for Liquefied Natural Gas Sales, Dispensing and Transportation Service or Long Term Biomethane Contracts.
British Columbia Utilities Commission	Means the British Columbia Utilities Commission constituted under the *Utilities Commission Act* of British Columbia and includes and is also a reference to (i) any commission that is a successor to such commission, and (ii) any commission that is constituted pursuant to any statute that may be passed which supplements or supersedes the *Utilities Commission Act* of British Columbia.

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28. Biomethane Service

28.1 Notional Gas

Customers must recognize that the location of generation facilities will determine where Biomethane will physically be introduced to the FortisBC Energy System and that Customers receiving Biomethane Service may not receive actual Biomethane at their Premises, but may instead be contributing to the cost for FortisBC Energy to deliver an amount of Biomethane proportionate to the Customer's Gas usage into the FortisBC Energy System.

28.2 Biomethane Physical Delivery

Customers located in the vicinity of Biomethane generation facilities may receive Biomethane as a component of Gas in such proportion as FortisBC Energy determines in its sole discretion.

28.3 Reduced Supply

Customers must recognize that the production of Biomethane is subject to biological processes and production levels may fluctuate. Customers registered for Biomethane Service for applicable Rate Schedules 1B, 2B, 3B, 5B and 7B, agree that in the event that Biomethane production does not provide sufficient gas supply, FortisBC Energy may purchase Carbon Offsets at a price not to exceed the funding received from Customers registered for Biomethane Service.

28.4 Price Determination

Customers registered for Biomethane Service will be billed for Gas pursuant to their applicable Rate Schedule or Long Term Biomethane Contract.

(a) For those Customers who have entered into a Service Agreement with FortisBC Energy for Biomethane under Rate Schedule 1B, Rate Schedule 2B, Rate Schedule 3B, Rate Schedule 5B, Rate Schedule 7B, Rate Schedule 11B or Rate Schedule 46, the cost of Biomethane will be the sum of:

(i) the British Columbia Utilities Commission approved January 1st Commodity Cost Recovery Charge per Gigajoule;

(ii) the current British Columbia carbon tax applicable to conventional natural gas Customers;

(iii) any other taxes applicable to conventional natural gas sales; and

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(iv) a premium of $7.00 per Gigajoule.

(b) For those Customers who have entered into a Long Term Biomethane Contract, the cost of Biomethane, at the time the Long Term Biomethane Contract is entered into, will be calculated as the highest of;

(i) a $1.00 per Gigajoule discount from the price determination calculated in Section 28.4(a) above;

(ii) $10.00 per Gigajoule; or

(iii) in any period beyond year five of a Long Term Biomethane Contract, the sum of:

a. the British Columbia Utilities Commission approved January 1st Commodity Cost Recovery Charge per Gigajoule;

b. the current British Columbia carbon tax applicable to conventional natural gas Customers; and

c. any other taxes applicable to conventional natural gas sales.

28.5 **Biomethane Customers**

Customers registered for Biomethane Service will be charged a Biomethane Energy Recovery Charge based on a calculation that will deem the Customer's Gas usage to be a percentage of Biomethane and a percentage of conventional natural gas as elected by the Customer and determined by FortisBC Energy. Applicable Rate Schedules will be reviewed and updated quarterly with regard to the price of conventional natural gas and updated annually with regard to the price of Biomethane, with rate changes subject to British Columbia Utilities Commission approval.

28.6 **Enrolment**

In the event a Customer enters into a Service Agreement with FortisBC Energy for Biomethane Service under Rate Schedule 1B, Rate Schedule 2B, Rate Schedule 3B, Rate Schedule 5B, Rate Schedule 7B or Rate Schedule 46, the following terms and conditions will apply:

(a) **Notice** – the Customer must provide notification to FortisBC Energy that he or she wishes to receive Biomethane Service, and FortisBC Energy will provide confirmation to the Customer once the Customer is registered for Biomethane Service.

(b) **Eligibility** – the number of Customers eligible to receive Biomethane Service will be limited and the determination of eligibility will be made by FortisBC Energy in its discretion, acting reasonably.

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(c) **Change in Rate** - Customers registered for Biomethane Service will be charged for Gas at the rates set out in Rate Schedule 1B, Rate Schedule 2B, Rate Schedule 3B, Rate Schedule 5B, Rate Schedule 7B or Rate Schedule 46. FortisBC Energy will use reasonable efforts to switch Customers to Rate Schedule 1B, Rate Schedule 2B, Rate Schedule 3B, Rate Schedule 5B, Rate Schedule 7B or Rate Schedule 46 in a timely manner. However, Rate Schedule 1B, Rate Schedule 2B, Rate Schedule 3B, Rate Schedule 5B, Rate Schedule 7B or Rate Schedule 46 rates will only be commenced on the first day of a Month, therefore, Customers registered for Biomethane Service within one (1) week on the last day of a Month may not be switched to Rate Schedule 1B, Rate Schedule 2B, Rate Schedule 3B, Rate Schedule 5B, Rate Schedule 7B or Rate Schedule 46 until five (5) weeks after their registration date.

(d) **Availability of Biomethane Service** – Subject to availability specified in each applicable Rate Schedule, Biomethane Service is available in all FortisBC Energy Service Areas, provided adequate capacity exists on FortisBC Energy's System. Entry dates for commencing Biomethane Service will be the first day of each month. The number of Customers that may enrol in Biomethane Service under the applicable Rate Schedule for a given entry date may be limited. In the event that there is a limit to the total number of Customers that may be enrolled in Biomethane Service under the applicable Rate Schedule for a particular entry date, enrolments will be processed on a "first come, first served" basis, based on the date of application.

(e) **Moving** – If a Customer registered for Biomethane Service moves to a new Premises where the Biomethane Service remains available under the applicable Rate Schedule, that Customer may remain registered for Biomethane Service at the new Premises.

(f) **Switching Back to FortisBC Energy Standard Rate Schedule** – Customers may at any time request to terminate Biomethane Service and be returned to an applicable FortisBC Energy Rate Schedule. On receiving notice that a Customer wishes to terminate Biomethane Service, FortisBC Energy will return that Customer to the applicable FortisBC Energy Rate Schedule in accordance with the FortisBC Energy General Terms and Conditions.

(g) **Switching to a Gas Marketer Contract** – Customers may at any time request to terminate Biomethane Service and receive their commodity from a Gas Marketer. On receiving notice that a Customer has entered into an agreement with a Gas Marketer, FortisBC Energy will process this request in accordance with Section 27 (Commodity Unbundling Service).

(h) **Program Termination** – FortisBC Energy reserves the right to remove and/or terminate Customers from Biomethane Service at any time.

FORTISBC ENERGY INC.

RATE SCHEDULE 7B

GENERAL INTERRUPTIBLE BIOMETHANE SERVICE

Effective February 1, 2022

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GENERAL INTERRUPTIBLE SERVICE AGREEMENT SA-7B.1

1. Definitions

1.1 Definitions

Except where the context requires otherwise, all words and phrases defined below or in the General Terms and Conditions of FortisBC Energy and used in this Rate Schedule or in a Service Agreement have the meanings set out below or in the General Terms and Conditions of FortisBC Energy. Where any of the definitions set out below conflict with the definitions in the General Terms and Conditions of FortisBC Energy, the definitions set out below govern.

(a) Rate Schedule 7B or this Rate Schedule - means this Rate Schedule, including all rates, terms and conditions, and the Table of Charges, as amended from time to time by FortisBC Energy with the consent of the British Columbia Utilities Commission.

2. Applicability

2.1 Description of Applicability

This Rate Schedule applies to the provision of a bundled interruptible transportation service and the sale of firm Gas, no portion of which may be resold, through one meter station to a Customer. For greater certainty, interruptible transportation service under this Rate Schedule means the provision by FortisBC Energy of transportation service to a Customer which may be interrupted or curtailed by FortisBC Energy pursuant to Sections 4.2 (Curtailment), 11 (Default or Bankruptcy) and 14 (Force Majeure) of Rate Schedule 7 and the General Terms and Conditions of FortisBC Energy. For greater certainty, firm Gas supply under this Rate Schedule means the Gas FortisBC Energy is obligated to sell to a Customer on a firm basis subject to interruption or curtailment pursuant to Sections 11 (Default for Bankruptcy), 14 (Force Majeure) of Rate Schedule 7 and the General Terms and Conditions of FortisBC Energy.

2.2 Service Agreement

FortisBC Energy will only provide bundled interruptible transportation service and the sale of firm Gas under this Rate Schedule, pursuant to an executed General Interruptible Service Agreement under Rate Schedule 7B.

2.3 **British Columbia Utilities Commission**

This Rate Schedule may be amended from time to time with the consent of the British Columbia Utilities Commission.

3. Table of Charges

3.1 **Charges**

In respect of bundled interruptible transportation service and the sale of firm Gas under Rate Schedule 7B and the Service Agreement, the Customer will pay to FortisBC Energy all of the charges set out in the Table of Charges attached hereto. For greater certainty, it is expressly confirmed that the Table of Charges attached to Rate Schedule 7 does not apply to this Rate Schedule 7B.

4. Terms and Conditions

4.1 **Other Terms and Conditions**

The terms and conditions set out in Rate Schedule 7 apply to and form part of this Rate Schedule, with necessary changes and bind FortisBC Energy and the Customer as if set out in this Rate Schedule, except as excluded by operation of Section 4.2 (Inapplicable Terms and Conditions).

4.2 **Inapplicable Terms and Conditions**

The following terms and conditions set out in Rate Schedule 7 do not apply, and are not incorporated by reference, into this Rate Schedule and will not be construed in any way to affect the meaning or intent of any provision this Rate Schedule:

(a) Section 2 (Applicability)

(b) Section 5 (Table of Charges)

If any term or provision of this Rate Schedule is inconsistent with any term or provision of Rate Schedule 7, the term or provision of this Rate Schedule will prevail.

Table of Charges

	Mainland and Vancouver Island Service Area
Delivery Margin Related Charge	
1. **Basic Charge** per Month	$ 880.00
2. **Rider 2** per Month	$ 0.40
Subtotal of per Month Delivery Margin Related Charges	**$ 880.40**
3. **Delivery Charge** per Gigajoule (not in excess of curtailment notice)	$ 1.616
4. **Rider 3** per Gigajoule	$ 0.059
Commodity Related Charges	
5. **Storage and Transport Charge** per Gigajoule	$ 0.912[1]
6. **Rider 6** per Gigajoule	$ (0.094)
7. Subtotal of per Gigajoule **Storage and Transport** Related Charges	**$ 0.818**
8. **Cost of Gas** (Commodity Cost Recovery Charge) per Gigajoule	$ 4.503[1,3]
9. **Cost of Biomethane** (Biomethane Energy Recovery Charge) per Gigajoule	$ 13.808[3,4,5]
10. **Charge** for Unauthorized Overrun Gas	
(a) Per Gigajoule on first 5 percent of specified quantity	Sumas Daily Price[2]
(b) Per Gigajoule on all Gas over 5 percent of specified quantity	The greater of $20.00/GJ or 1.5 x the Sumas Daily Price[2]

Delivery Margin Related Riders

Rider 2 **Clean Growth Innovation Fund Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2022.

Rider 3 **Biomethane Variance Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2022.

Rider 4 (Reserved for future use.)

Rider 5 **Revenue Stabilization Adjustment Charge** - Not applicable.

Commodity Cost Recovery Related Riders

Rider 1 (Reserved for future use.)

Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2022.

Municipal Operating Fee Charge

A Municipal Operating Fee charge is payable (in addition to the above charges), if the facilities to which Gas is delivered under this Rate Schedule are located within the boundaries of a municipality or First Nations lands (formerly, reserves within the *Indian Act*) where FortisBC Energy is required to remit such Municipal Operating Fee to the municipality and excluding any Customer from whom FortisBC Energy is not allowed to collect such Municipal Operating Fee. The Municipal Operating Fee charge will be calculated in accordance with the approved methodology.

Minimum Charge per Month

The minimum charge per Month will be the aggregate of the Basic Charge and the Municipal Operating Fee charge (where applicable and calculated in accordance with the approved methodology).

Notes:

1. **Commodity Cost Recovery Charge and Storage and Transport Charge** - the Commodity Cost Recovery Charge and Storage and Transport Charge are subject to change in accordance with changes to the Rate Schedule 5 Commodity Cost Recovery Charge and Storage and Transport Charge.

2. As defined under Section 1.1, the Sumas Daily Price quoted each Day will apply to Gas consumed on that gas day.

3. The Cost of Gas is based on the calculation of 100% of a Customer's consumption in Gigajoules, minus the percentage of a Customer's selection of Biomethane measured in Gigajoules, multiplied by the Cost of Gas (Commodity Cost Recovery Charge) per Gigajoule. For example, if a Customer selects 30% Biomethane, the Cost of Gas will be calculated on 70% (100% - 30%) of a Customer's consumption.

   The percentage of Biomethane of a Customer's Gas usage available to Customers is set by FortisBC Energy and includes a range between 5% of Biomethane and 100% of Biomethane, increasing by increments of 5%.

4. The Cost of Biomethane is based on the calculation of a Customer's selection of the percentage of Biomethane measured in Gigajoules, multiplied by the Cost of Biomethane (Biomethane Energy Recovery Charge) per Gigajoule.

5. The Cost of Biomethane (Biomethane Energy Recovery Charge) per Gigajoule has been determined in accordance with Section 28.4 (Price Determination) in the General Terms and Conditions of FortisBC Energy). The Cost of Biomethane effective February 1, 2022 equals the sum of:

(i)	The British Columbia Utilities Commission approved January 1st Commodity Cost Recovery Charge per Gigajoule	$	4.503
(ii)	The current British Columbia carbon tax applicable to conventional natural gas Customers per Gigajoule	$	2.305
(iii)	Other taxes applicable to conventional natural gas sales per Gigajoule	$	0.000
(iv)	A premium of $7.00 per Gigajoule	$	7.000
(v)	**Total Cost of Biomethane per Gigajoule**	**$**	**13.808**

GENERAL INTERRUPTIBLE SERVICE AGREEMENT FOR RATE SCHEDULE 7B

This Agreement is dated _____, 20___, between FortisBC Energy Inc. ("FortisBC Energy") and _____ (the "Customer").

WHEREAS:

A. FortisBC Energy owns and operates the FortisBC Energy System;

B. The Customer is the owner and operator of a _____ located in or near _____, British Columbia; and

C. The Customer desires to purchase from FortisBC Energy bundled interruptible Renewable Gas transportation Service and firm gas supply for such facilities in accordance with Rate Schedule 7B and the terms set out herein.

NOW THEREFORE THIS AGREEMENT WITNESSES THAT in consideration of the terms, conditions and limitations contained herein, the parties agree as follows:

1. Specific Information

Estimated Maximum Quantity _____ Gigajoules per day

Commencement Date: _____

Expiry Date: _____
(only specify an expiry date if term of Service Agreement is not to automatically renewed from Year to Year as set out in Section 7.2 of Rate Schedule 7)

Biomethane Percentage _____

Delivery Point: _____

Pressure at the Delivery Point: _____
(only specify where applicable as set out in Section 4.7 of Rate Schedule 7)

Service Address: _____

Account Number: _____

Address of Customer for receiving notices:

_____ Attention: _____
(name of Customer)

_____ Telephone: _____
(address of Customer)

_____ Fax: _____

_____ Email: : _____

_____

The information set out above is hereby approved by the parties and each reference in either this agreement or Rate Schedule 7B to any such information is to the information set out above.

2. Rate Schedule 7B

2.1 Additional Terms

All rates, terms and conditions set out in Rate Schedule 7B and the General Terms and Conditions of FortisBC Energy, as any of them may be amended by FortisBC Energy and approved from time to time by the British Columbia Utilities Commission, are in addition to the terms and conditions contained in this Service Agreement and form part of this Service Agreement and bind FortisBC Energy and the Customer as if set out in this Service Agreement.

2.2 Payment of Amounts

Without limiting the generality of the foregoing, the Customer will pay to FortisBC Energy all of the amounts set out in Rate Schedule 7B for the Services provided under Rate Schedule 7B and this Service Agreement.

2.3 **Conflict**

Where anything in either Rate Schedule 7B or the General Terms and Conditions of FortisBC Energy conflicts with any of the rates, terms and conditions set out in this Service Agreement, this Service Agreement governs. Where anything in Rate Schedule 7B conflicts with any of the rates, terms and conditions set out in the General Terms and Conditions of FortisBC Energy, Rate Schedule 7B governs.

2.4 **Acknowledgment**

The Customer acknowledges receiving and reading a copy of Rate Schedule 7B and the General Terms and Conditions of FortisBC Energy and agrees to comply with and be bound by all terms and conditions set out therein. Without limiting the generality of the foregoing, the Customer acknowledges that it is able to accommodate interruption or curtailment of Gas service and releases FortisBC Energy from any liability for the Customer's inability to accommodate an interruption or curtailment of Gas Service.

IN WITNESS WHEREOF the parties hereto have executed this Service Agreement.

FORTISBC ENERGY INC.

_____
(here insert name of Customer)

BY: _____
(Signature)

_____
(Title)

_____
(Name – Please Print)

DATE: _____

BY: _____
(Signature)

_____
(Title)

_____
(Name – Please Print)

DATE: _____

2.3 **Conflict**

Where anything in either Rate Schedule 7B or the General Terms and Conditions of FortisBC Energy conflicts with any of the rates, terms and conditions set out in this Service Agreement, this Service Agreement governs. Where anything in Rate Schedule 7B conflicts with any of the rates, terms and conditions set out in the General Terms and Conditions of FortisBC Energy, Rate Schedule 7B governs.

2.4 **Acknowledgment**

The Customer acknowledges receiving and reading a copy of Rate Schedule 7B and the General Terms and Conditions of FortisBC Energy and agrees to comply with and be bound by all terms and conditions set out therein. Without limiting the generality of the foregoing, the Customer acknowledges that it is able to accommodate interruption or curtailment of Gas service and releases FortisBC Energy from any liability for the Customer's inability to accommodate an interruption or curtailment of Gas Service.

IN WITNESS WHEREOF the parties hereto have executed this Service Agreement.

FORTISBC ENERGY INC.

BY: _____
(Signature)

_____
(Title)

_____
(Name – Please Print)

DATE: _____

_____
(here insert name of Customer)

BY: _____
(Signature)

_____
(Title)

_____
(Name – Please Print)

DATE: _____

Appendix D-2

PROPOSED TARIFF REVISIONS TO ENABLE RENEWABLE GAS CONNECTIONS AND VOLUNTARY RENEWABLE GAS SERVICES

Definitions

Unless the context indicates otherwise, in the General Terms and Conditions of FortisBC Energy and in the rate schedules of FortisBC Energy the following words have the following meanings:

Apartment Block	Means a multi-family residential dwelling, containing multiple separate housing units or apartments for residential inhabitants within one building or several buildings or within one complex, such as a condominium, strata housing, or apartment, served by a single meter.
Application Charge	Means the applicable charges as set out in the Standard Charges Schedule.
Basic Charge	Means a fixed charge required to be paid by a Customer for Service as specified in the applicable Rate Schedule, or the prorated daily equivalent charge – calculated on the basis of a 365.25-day year (to incorporate the leap year), and rounded to four decimal places.
Biogas	Means raw gas, substantially composed of methane that is produced by the breakdown of organic matter in the absence of oxygen.
Biomethane	Means Biogas purified or upgraded to pipeline quality gas, also referred to as renewable natural gas.
British Columbia Utilities Commission	Means the British Columbia Utilities Commission constituted under the *Utilities Commission Act* of British Columbia and includes and is also a reference to (i) any commission that is a successor to such commission, and (ii) any commission that is constituted pursuant to any statute that may be passed which supplements or supersedes the *Utilities Commission Act* of British Columbia.

Deleted: ***Biomethane Service*** ...

Business Day	Means a Day that commences on other than a Saturday, a Sunday, or a statutory holiday in the Province of British Columbia.
Carbon Offsets	Means the number of metric tons of carbon dioxide or its equivalent volume in other greenhouse gas(es) that FortisBC Energy may purchase as a mechanism to balance demand-supply for Low Carbon Gas in the event of an undersupply of Low Carbon Gas in order to retain the greenhouse gas reductions that Customers would have received from Low Carbon Gas supply.
CNG	Means compressed natural gas.
CNG Service	Means compression and dispensing service for CNG as set out in Section 12B.1 (CNG Service and LNG Service).
Commercial Service	Means the provision of firm Gas supplied to one Delivery Point and through one Meter Set for use in approved appliances in commercial, institutional or small industrial operations.
Commodity Cost Recovery Charge	Means the commodity cost recovery charge defined in the Table of Charges of the applicable FortisBC Energy Rate Schedules.
Commodity Unbundling Service	Means the service provided to Customers under Rate Schedule 1U for Residential Commodity Unbundling Service, Rate Schedule 2U for Small Commercial Commodity Unbundling Service and Rate Schedule 3U for Large Commercial Commodity Unbundling Service.
Conversion Factor	Means a factor, or combination of factors, which converts gas meter data to Gigajoules or cubic metres for billing purposes.
Customer	Means a Person who is being provided Service or who has filed an application for Service with FortisBC Energy that has been approved by FortisBC Energy.
Day	Means any period of 24 consecutive Hours beginning and ending at 7:00 a.m. Pacific Standard Time or as otherwise specified in the applicable Service Agreement.
Delivery Charge	Means the delivery charge defined in the Table of Charges of the applicable Rate Schedules.

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Delivery Point	Means the outlet of the Meter Set unless otherwise specified in the applicable Service Agreement.
Delivery Pressure	Means the pressure of the Gas at the Delivery Point.
Eligible Commercial Premises	Means the Premises of a single Customer that is a single-metered Apartment Block with five or more apartments.
Evacuation Order	An order issued by a local authority, provincial government, federal government, or First Nations band council during a State of Emergency, which requires Evacuee Customers remain away from their Premises until the Evacuation Order is lifted by the issuing authority.
Evacuation Period	The period during which an Evacuee Customer is under an Evacuation Order.
Evacuee Customer	A Customer who receives Service under the following Rate Schedules, as amended and filed with the British Columbia Utilities Commission from time to time, and who is under an Evacuation Order: 1. Residential Service (Rate Schedules 1, 1U, 1X, and 1B); 2. Small Commercial Service (Rate Schedules 2, 2U, 2X, and 2B); and 3. Large Commercial Service (Rate Schedules 3, 3U, 3X, and 3B) and Large Commercial Transportation Service (Rate Schedule 23).
Financing Agreement	Means an agreement under which FortisBC Energy provides financing to a Customer for improving the energy efficiency of a Premises, or a part of a Premises.
First Nations	Means those First Nations that have attained self-government status pursuant to self-government agreements entered into with the Government of Canada and validly enacted self-government legislation in Canada.
FortisBC Energy	Means FortisBC Energy Inc., a body corporate incorporated pursuant to the laws of the Province of British Columbia under number 0778288.
FortisBC Energy System	Means the Gas transmission and distribution system owned and operated by FortisBC Energy, as such system is expanded, reduced or modified from time to time.
Franchise Fees	Has the same meaning as Municipal Operating Fees.

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Gas	Means natural gas (including any added odorant), propane and Low Carbon Gas.
Gas Service	Means the delivery of Gas through a Meter Set.
General Terms and Conditions	Means these general terms and conditions of FortisBC Energy from time to time approved by the British Columbia Utilities Commission.
Gigajoule	Means a measure of energy equal to one billion joules.
Heat Content	Means the quantity of energy per unit volume of Gas measured under standardized conditions and expressed in megajoules per cubic metre (MJ/m^3).
Hour	Means any consecutive 60 minute period.
Hydrogen	Means the gas composed of molecules consisting of two hydrogen atoms.
Landlord	Means a Person who, being the owner of real property, or the agent of that owner, who has leased or rented the property to a Tenant.
Lignin	Means the class of organic polymers that form the structural support of plants, especially trees.
LNG	Means liquefied natural gas (LNG).
LNG Service	Means LNG fueling and fuel storage and dispensing service as set out in Section 12B.1 (CNG Service and LNG Service).
Loan	Means the principal amount of financing provided by FortisBC Energy to a Customer, plus interest charged by FortisBC Energy on the amount of financing and any applicable fees and late payment charges.
Long Term Biomethane Contract (Closed)	A long term contract entered into between FortisBC Energy and a Customer for Biomethane Service, filed as a tariff supplement, for a term of no less than five Years and no greater than ten Years, and for a commitment to purchase no less than 60,000 Gigajoules in aggregate over the term of the contract.
Long Term Low Carbon Gas Contract	A long term contract entered into between FortisBC Energy and a Customer for Low Carbon Gas Service or Vehicle Low Carbon Gas Service, filed as a tariff supplement, for a term of no less than five Years and no greater than ten Years, and for a commitment to purchase no less than 60,000 Gigajoules in aggregate over the term of the contract.
Low Carbon Gas	Means Biomethane, Hydrogen, Lignin or Synthesis Gas.

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Low Carbon Gas Charge	Means the low carbon gas charge defined in Section 28.4 of these General Terms and Conditions and set out in the Table of Charges of the applicable FortisBC Energy Rate Schedules.
Low Carbon Gas Service	Means the Gas Service provided to Customers, but not Natural Gas Vehicle Customers, under Rate Schedules: (a) 1LC for Residential Low Carbon Gas Service; (b) 2LC for Small Commercial Low Carbon Gas Service; (c) 3LC for Large Commercial Low Carbon Gas Service; (d) 5LC for General Firm Low Carbon Gas Service; or (e) 7LC for General Interruptible Low Carbon Gas Service; or a (f) Long Term Low Carbon Gas Contract for such Service.
Main	Means pipe(s) used to carry Gas for general or collective use for the purposes of distribution.
Main Extension	Means an extension of one of FortisBC Energy's mains with low, distribution, intermediate or transmission pressures, and includes tapping of transmission pipelines, installing any required pressure regulating facilities and upgrading of existing Mains or pressure regulating facilities on private property.
Marketer	Means a Person who has entered into an agreement to supply a Customer under Commodity Unbundling Service.
Meter Set	Means an assembly of FortisBC Energy owned metering, including any ancillary equipment and piping.
Month or Monthly	Means a period of time, for billing purposes, of 27 to 34 consecutive Days.
Municipal Operating Fees	Means the monies payable by FortisBC Energy to municipalities and First Nations (a) for the use of the streets and other property to construct and operate the utility business of FortisBC Energy within municipalities and First Nations lands (formerly, reserves within the *Indian Act*), (b) relating to the revenues received by FortisBC Energy for Gas consumed within municipalities and First Nations lands (formerly, reserves within the *Indian Act*), or (iii) relating, where applicable, to the value of Gas transported by FortisBC Energy through municipalities and First Nations lands (formerly, reserves within the *Indian Act*).
Natural Gas Vehicle Customers	Means Customers that receive Gas Service for use in a vehicle, including marine vehicles.

Other Service	Means the provision of Service other than Gas Service including, but not limited to rental of equipment, natural gas vehicle fuel compression, alterations and repairs, merchandise purchases, and financing.
Other Service Charges	Means charges for rental, natural gas vehicle fuel compression service, damages, alterations and repairs, financing, insurance and merchandise purchases, and late payment charges, Municipal Operating Fees, Provincial Sales Tax, Goods and Services Tax or other taxes related to these charges.
Permanent Connection Low Carbon Gas Service	Means firm Gas Service consisting of 100 percent Renewable Gas that is exclusive to and mandatory for Permanent Connection Low Carbon Gas Service Customers under Rate Schedules: (a) 1PLC for Residential Permanent Connection Low Carbon Gas Service; (a) 2PLC for Small Commercial Permanent Connection Low Carbon Gas Service; (b) 3PLC for Large Commercial Permanent Connection Low Carbon Gas Service; and (c) 5PLC for General Firm Permanent Connection Low Carbon Gas Service.
Permanent Connection Low Carbon Gas Service Customer	Means a Customer taking Gas Service for Residential Premises or Eligible Commercial Premises that are connected to the FortisBC Energy System by a service line installed on or after the effective date of the Permanent Connection Low Carbon Gas Service.
Person	Means a natural person, partnership, corporation, society, unincorporated entity or body politic.
Premises	Means a building, a separate unit of a building, or machinery together with the surrounding land.
Profitability Index	Means the revenue to cost ratio comparing the revenues expected from: a Main Extension, a connection to a Customer of Rate Schedule 3 or a Customer of a Rate Schedule numbered higher than Rate Schedule 3, or a connection to a Service Header (including Vertical Subdivisions), to the expected costs over a period of time of 40 Years.

Standard Charges Schedule	Means the schedule attached to and forming part of the General Terms and Conditions which lists the various charges relating to Service provided by FortisBC Energy as approved from time to time by the British Columbia Utilities Commission.
State of Emergency	A state of emergency declared by a local authority, provincial government, federal government, or First Nations band council, pursuant to a statutory authority.
Storage and Transport Charge	Means the storage and transport charge defined in the Table of Charges of the applicable Rate Schedules.
Synthesis Gas	Means a mixture of gases produced from the gasification or pyrolysis of biomass.
System Extension Fund	Means the fund available from FortisBC Energy to provide assistance to eligible new Customers who are required to pay a contribution in aid of construction in order for a system extension to proceed as set forth in these General Terms and Conditions.
Temporary Service	Means the provision of Service for what FortisBC Energy determines will be a limited period of time.
Tenant	Means a Person who has the temporary use and occupation of real property owned by another Person.
Transportation Low Carbon Gas Service	Means the Gas Service provided to a Customer under Rate Schedule 11LC for Large Volume Interruptible Low Carbon Gas Service, including a Long Term Low Carbon Gas Contract for such Service.
Unauthorized Transportation Service	Means any transportation service utilized in excess of the curtailed quantity specified in any notice to interrupt or curtail transportation service.

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Vehicle Low Carbon Gas Service	Means the Gas Service provided to Natural Gas Vehicle Customers under Rate Schedules: (a) 3VLC for Large Commercial Vehicle Low Carbon Gas Service; or (b) 5VLC for General Firm Vehicle Low Carbon Gas Service; or (c) 46 for Liquefied Natural Gas Sales, Dispensing, Liquefied Natural Gas Transportation Service and Transportation Service; or (d) a Long Term Low Carbon Gas Contract for such Service.
Vertical Subdivision	Means a multi-storey building that has individually metered units and a common Service Header connecting banks of meters, typically located on each floor.
Year	Means a period of 12 consecutive Months totalling at least 365 Days.
10^3m^3	Means 1,000 cubic metres.

28. Low Carbon Gas Service

28.1 Notional Gas

The location of generation facilities will determine where Low Carbon Gas will physically be introduced to the FortisBC Energy System. Customers receiving Low Carbon Gas Service may not receive actual Low Carbon Gas at their Premises, but may instead be contributing to the cost for FortisBC Energy to deliver an amount of Low Carbon Gas proportionate to the Customer's Gas usage into the FortisBC Energy System.

28.2 Low Carbon Gas Physical Delivery

Customers located in the vicinity of Low Carbon Gas generation facilities may receive Low Carbon Gas as a component of Gas in such proportion as FortisBC Energy determines in its sole discretion.

28.3 Reduced Supply

Low Carbon Gas may be subject to biological processes and production levels may fluctuate or FortisBC Energy's suppliers of Biomethane may fail to deliver Biomethane to FortisBC Energy. In the event that FEI is not supplied with sufficient Low Carbon Gas supply, FortisBC may purchase Carbon Offsets or curtail delivery of Low Carbon Gas as set out below:

(a) Carbon Offsets:

For Low Carbon Gas Service, Vehicle Low Carbon Gas Service, and Long Term Biomethane Contracts, FortisBC Energy may purchase Carbon Offsets at a price not to exceed the funding received from Low Carbon Gas Service, Vehicle Low Carbon Gas Service and Long Term Biomethane Contract customers.

(b) Curtailment:

For Customers registered for Low Carbon Gas Service and Vehicle Low Carbon Gas Service, a Long Term Biomethane Contract, or a Long Term Low Carbon Gas Contract FortisBC Energy may, for any length of time, curtail the sale and/or delivery of Low Carbon Gas for any reason including but not limited to the purposes and reasons specified in the Curtailment section of the applicable Rate Schedule and under Section 13.2 (Right to Restrict) in these General Terms and Conditions.

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28.4 **Price Determination**

Customers registered for Low Carbon Gas Service, Vehicle Low Carbon Gas Service and Transportation Low Carbon Gas Service will be billed for Gas pursuant to their applicable Rate Schedule or Long Term Low Carbon Gas Contract.

(a) Low Carbon Gas Service

For Customers who have entered into a Service Agreement with FortisBC Energy for Low Carbon Gas Service, including a Long Term Low Carbon Gas Contract, the Low Carbon Gas Charge will be the sum of:

(i) the British Columbia Utilities Commission approved Commodity Cost Recovery Charge per Gigajoule;

(ii) the current British Columbia carbon tax applicable to conventional natural gas Customers;

(iii) any other taxes applicable to conventional natural gas sales; and

(iv) a premium of $7.00 per Gigajoule.

(b) Vehicle Low Carbon Gas Service

For Customers who have entered into a Service Agreement with FortisBC Energy for Vehicle Low Carbon Gas Service, including a Long Term Low Carbon Gas Contract, the Low Carbon Gas Charge will be the annual forecast Renewable Gas weighted average supply cost per GJ approved by the British Columbia Utilities Commission.

(c) Transportation Low Carbon Gas Service

For Customers who have entered into a Service Agreement with FortisBC Energy for Transportation Low Carbon Gas Service, including a Long Term Low Carbon Gas Contract, the Low Carbon Gas Charge will be the annual forecast Renewable Gas weighted average supply cost per GJ approved by the British Columbia Utilities Commission.

(d) Permanent Connection Low Carbon Gas Service

For Customers who have entered into a Service Agreement with FortisBC Energy for Permanent Connection Low Carbon Gas Service, the Low Carbon Gas Charge will be:

(i) the British Columbia Utilities Commission approved Commodity Cost Recovery Charge per Gigajoule;

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$10.00 per Gigajoule; or¶
in any period beyond year five of a Long Term Biomethane Contract, the sum of:¶
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(ii) the current British Columbia carbon tax applicable to conventional natural gas Customers; and

(iii) any other taxes applicable to conventional natural gas sales.

28.5 Basis for Billing

Customers registered for Low Carbon Gas Service, Vehicle Low Carbon Gas Service or Transportation Low Carbon Gas Service will be charged a Low Carbon Gas Charge determined in accordance with section 28.4 of these General Terms and Conditions and based on a calculation that will deem the Customer's Gas usage to be a percentage or quantity in gigajoules of Low Carbon Gas as elected by the Customer and determined by FortisBC Energy in accordance with the applicable Rate Schedule. Applicable Rate Schedules will be reviewed and updated quarterly with regard to the price of conventional natural gas and reviewed and updated quarterly or annually, as applicable, for the price of Low Carbon Gas, with rate changes subject to British Columbia Utilities Commission approval.

28.6 Enrolment

In the event a Customer enters into a Service Agreement with FortisBC Energy for Low Carbon Gas Service, Vehicle Low Carbon Gas Service or Transportation Low Carbon Gas Service the following terms and conditions:

(a) **Notice** – the Customer must provide notification to FortisBC Energy that they wish to receive Low Carbon Gas Service, Vehicle Low Carbon Gas Service or Transportation Low Carbon Gas Service, and FortisBC Energy will provide confirmation to the Customer once the Customer is registered for the applicable service.

(b) **Eligibility** – the number of Customers eligible to receive Low Carbon Gas Service, Vehicle Low Carbon Gas Service or Transportation Low Carbon Gas Service will be limited and the determination of eligibility will be made by FortisBC Energy in its discretion, acting reasonably.

(c) **Change in Rate** - Customers registered for Low Carbon Gas Service, Vehicle Low Carbon Gas Service or Transportation Low Carbon Gas Service will be charged for Gas at the rates set out under the applicable Rate Schedule. Subject to the terms and conditions set out in the applicable Rate Schedule or Service Agreement, FortisBC Energy will use reasonable efforts to switch Customers to Low Carbon Gas Service, Vehicle Low Carbon Gas Service or Transportation Low Carbon Gas Service under the applicable rate schedule in a timely manner. The rates set out under the applicable Rate Schedule will only be commenced on the first day of a Month. Customers registered for Low Carbon Gas Service, Vehicle Low Carbon Gas Service or Transportation Low Carbon

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Gas Service within one (1) week of the last day of a Month may not be switched to the applicable Rate Schedule until five (5) weeks after their registration date.

(d) **Availability of Low Carbon Gas Service, Vehicle Low Carbon Gas Service, Service or Transportation Low Carbon Gas Service** – Subject to the terms and conditions set out in the applicable Rate Schedule or Service Agreement, Low Carbon Gas Service, Vehicle Low Carbon Gas Service or Transportation Low Carbon Gas Service are available in all FortisBC Energy Service Areas (with the exception of Fort Nelson), provided adequate capacity exists on FortisBC Energy's System. Entry dates for commencing Service will be the first day of each month. The number of Customers that may enrol under the applicable Rate Schedule for a given entry date may be limited. In the event that there is a limit to the total number of Customers that may be enrolled under the applicable Rate Schedule for a particular entry date, enrolments will be processed on a "first come, first served" basis, based on the date of application.

(e) **Moving** – If a Customer registered for Low Carbon Gas Service, Vehicle Low Carbon Gas Service or Transportation Low Carbon Gas Service moves to a new Premises where the Service remains available under the applicable Rate Schedule, that Customer may remain registered for Low Carbon Gas Service, Vehicle Low Carbon Gas Service or Transportation Low Carbon Gas Service at the new Premises.

(f) **Switching Back to FortisBC Energy Standard Rate Schedule** – Subject to the terms and conditions set out in the applicable Rate Schedule or Service Agreement, Customers may at any time request to terminate Low Carbon Gas Service, Vehicle Low Carbon Gas Service or Transportation Low Carbon Gas Service and be returned to an applicable FortisBC Energy Rate Schedule. On receiving notice that a Customer wishes to terminate Low Carbon Gas Service, Vehicle Low Carbon Gas Service or Transportation Low Carbon Gas Service, FortisBC Energy will return that Customer to the applicable FortisBC Energy Rate Schedule.

(g) **Switching to a Gas Marketer Contract** – Subject to the terms and conditions set out in the applicable Rate Schedule or Service Agreement, Customers may at any time request to terminate Low Carbon Gas Service, Vehicle Low Carbon Gas Service or Transportation Low Carbon Gas Service and receive their commodity from a Gas Marketer. On receiving notice that a Customer has entered into an agreement with a Gas Marketer, FortisBC Energy will process this request in accordance with Section 27 (Commodity Unbundling Service).

(h) **Program Termination** – FortisBC Energy reserves the right to remove and/or terminate Customers from Low Carbon Gas Service, Vehicle Low Carbon Gas Service or Transportation Low Carbon Gas Service at any time.

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FORTISBC ENERGY INC.

RATE SCHEDULE 1LC

RESIDENTIAL LOW CARBON GAS SERVICE

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Rate Schedule 1LC: Residential Low Carbon Gas Service

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Available

This Rate Schedule is available in all territory served by FortisBC Energy, with the exception of the Municipality of Revelstoke and the Fort Nelson Service Area, provided adequate capacity exists on the FortisBC Energy System.

Applicable

This Rate Schedule is applicable to firm Gas supplied to Customers, who have elected to take all or a portion of their Gas as Low Carbon Gas, at one Residential Premises for use in approved appliances for all residential applications in single-family residences, separately metered single-family townhouses, rowhouses, condominiums, duplexes and apartments and single metered apartment blocks with four or less apartments. Natural Gas Vehicle Customers are not eligible to enrol. Customers who are currently disconnected are not eligible to enrol. Customers who are currently enrolled in Commodity Unbundling Service under Rate Schedule 1U are ineligible to enrol until their existing contract term with their Marketer expires.

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Table of Charges

Mainland and Vancouver Island Service Area

Delivery Margin Related Charges	
1. **Basic Charge** per Day	**$ TBD**
2. Rider 2 per Day	$ TBD
Subtotal of per Day **Delivery** Margin Related Charges	**$ TBD**
3. Delivery Charge per Gigajoule	$ TBD
4. Rider 3 per Gigajoule	$ TBD
5. Rider 5 per Gigajoule	$ TBD
Subtotal of per Gigajoule **Delivery** Margin Related Charges	**$ TBD**
Commodity Related Charges	
6. Storage and Transport Charge per Gigajoule	$ TBD
7. Rider 6 per Gigajoule	$ TBD
Subtotal of per Gigajoule **Storage and Transport** Related Charges	**$ TBD**
8. **Cost of Gas** (Commodity Cost Recovery Charge) per Gigajoule	**$ TBD**[1,2]
9. **Cost of Low Carbon Gas** (Low Carbon Gas Charge) per Gigajoule	**$ TBD**[2,3]

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Delivery Margin Related Riders

Rider 2 **Clean Growth Innovation Fund Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Rider 3 **Biomethane Variance Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Rider 4 (Reserved for future use.)

Rider 5 **Revenue Stabilization Adjustment Charge** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Rider 8 (Reserved for future use.)

Municipal Operating Fee Charge

A Municipal Operating Fee charge is payable (in addition to the above charges), if the Premises to which Gas is delivered under this Rate Schedule is located within the boundaries of a municipality or First Nations lands (formerly, reserves within the *Indian Act*) where FortisBC Energy is required to remit such Municipal Operating Fee to the municipality and excluding any Customer from whom FortisBC Energy is not allowed to collect such Municipal Operating Fee. The Municipal Operating Fee charge will be calculated in accordance with the approved methodology.

Minimum Charge per Month

The minimum charge per Month will be the aggregate of the Basic Charge and the Municipal Operating Fee charge (where applicable and calculated in accordance with the approved methodology).

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Notes:

1. The Cost of Gas is based on the calculation of 100% of a Customer's consumption in Gigajoules, minus the percentage of a Customer's selection of Low Carbon Gas measured in Gigajoules, multiplied by the Cost of Gas (Commodity Cost Recovery Charge) per Gigajoule. For example, if a Customer selects 30% Low Carbon Gas, the Cost of Gas will be calculated based on 70% (100% - 30%) of a Customer's consumption.
2. The percentage of Low Carbon Gas of a Customer's Gas usage available to Customers is set by FortisBC Energy and includes a range between 5% of Low Carbon Gas and 100% of Low Carbon Gas, increasing by increments of 5%.
3. The Cost of Low Carbon Gas is based on the calculation of a Customer's selection of the percentage of Low Carbon Gas measured in Gigajoules, multiplied by the Low Carbon Gas Charge per Gigajoule. The Low Carbon Gas Charge per Gigajoule has been determined in accordance with Section 28.4 (Price Determination) in the General Terms and Conditions of FortisBC Energy.

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FORTISBC ENERGY INC.

RATE SCHEDULE 2LC

SMALL COMMERCIAL LOW CARBON GAS SERVICE

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Rate Schedule 2LC: Small Commercial Low Carbon Gas Service

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Available

This Rate Schedule is available in all territory served by FortisBC Energy, with the exception of the Municipality of Revelstoke and the Fort Nelson Service Area, provided adequate capacity exists on the FortisBC Energy System.

Applicable

This Rate Schedule is applicable to Customers, who have elected to take all or a portion of their Gas as Low Carbon Gas, with a normalized annual consumption at one Premises of less than 2,000 Gigajoules of firm Gas, for use in approved appliances in commercial, institutional or small industrial operations. Natural Gas Vehicle Customers are not eligible to enrol. Customers who are currently disconnected are not eligible to enrol. Customers who are currently enrolled in Commodity Unbundling Service under Rate Schedule 2U are ineligible to enrol until their existing contract term with their Marketer expires.

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Table of Charges

Mainland and
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Delivery Margin Related Charges	
1. **Basic Charge** per Day	**$ TBD**
2. Rider 2 per Day	$ TBD
Subtotal of per Day **Delivery** Margin Related Charges	**$ TBD**
3. Delivery Charge per Gigajoule	$ TBD
4. Rider 3 per Gigajoule	$ TBD
5. Rider 5 per Gigajoule	$ TBD
Subtotal of per Gigajoule **Delivery** Margin Related Charges	**$ TBD**
Commodity Related Charges	
6. Storage and Transport Charge per Gigajoule	$ TBD
7. Rider 6 per Gigajoule	$ TBD
Subtotal of per Gigajoule **Storage and Transport** Related Charges	**$ TBD**
8. **Cost of Gas** (Commodity Cost Recovery Charge) per Gigajoule	**$ TBD**[1,2]
9. **Cost of Low Carbon Gas** (Low Carbon Gas Charge) per Gigajoule	**$ TBD**[2,3]

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Delivery Margin Related Riders

Rider 2 **Clean Growth Innovation Fund Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Rider 3 **Biomethane Variance Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Rider 4 (Reserved for future use.)

Rider 5 **Revenue Stabilization Adjustment Charge** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Rider 8 (Reserved for future use.)

Municipal Operating Fee Charge

A Municipal Operating Fee charge is payable (in addition to the above charges), if the Premises to which Gas is delivered under this Rate Schedule is located within the boundaries of a municipality or First Nations lands (formerly, reserves within the *Indian Act*) where FortisBC Energy is required to remit such Municipal Operating Fee to the municipality and excluding any Customer from whom FortisBC Energy is not allowed to collect such Municipal Operating Fee. The Municipal Operating Fee charge will be calculated in accordance with the approved methodology.

Minimum Charge per Month

The minimum charge per Month will be the aggregate of the Basic Charge and the Municipal Operating Fee charge (where applicable and calculated in accordance with the approved methodology).

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Notes:

1. The Cost of Gas is based on the calculation of 100% of a Customer's consumption in Gigajoules, minus the percentage of a Customer's selection of Low Carbon Gas measured in Gigajoules, multiplied by the Cost of Gas (Commodity Cost Recovery Charge) per Gigajoule. For example, if a Customer selects 30% Low Carbon Gas, the Cost of Gas will be calculated based on 70% (100% - 30%) of a Customer's consumption.
2. The percentage of Low Carbon Gas of a Customer's Gas usage available to Customers is set by FortisBC Energy and includes a range between 5% of Low Carbon Gas and 100% of Low Carbon Gas, increasing by increments of 5%.
3. The Cost of Low Carbon Gas is based on the calculation of a Customer's selection of the percentage of Low Carbon Gas measured in Gigajoules, multiplied by the Low Carbon Gas Charge per Gigajoule. The Low Carbon Gas Charge per Gigajoule has been determined in accordance with Section 28.4 (Price Determination) in the General Terms and Conditions of FortisBC Energy.

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FORTISBC ENERGY INC.

RATE SCHEDULE 3LC

LARGE COMMERCIAL LOW CARBON GAS SERVICE

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Rate Schedule 3LC: Large Commercial Low Carbon Gas Service

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Available

This Rate Schedule is available in all territory served by FortisBC Energy, with the exception of the Municipality of Revelstoke and the Fort Nelson Service Area, provided adequate capacity exists on the FortisBC Energy System.

Applicable

This Rate Schedule is applicable to Customers, who have elected to take all or a portion of their Gas as Low Carbon Gas, with a normalized annual consumption at one Premises of greater than 2,000 Gigajoules of firm Gas, for use in approved appliances in commercial, institutional or small industrial operations. Natural Gas Vehicle Customers are not eligible to enrol. Customers who are currently disconnected are not eligible to enrol. Customers who are currently enrolled in Commodity Unbundling Service under Rate Schedule 3U are ineligible to enrol until their existing contract term with their Marketer expires.

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Table of Charges

	Mainland and Vancouver Island Service Area
Delivery Margin Related Charges	
1. **Basic Charge** per Day	**$ TBD**
2. Rider 2 per Day	$ TBD
Subtotal of per Day **Delivery** Margin Related Charges	**$ TBD**
3. Delivery Charge per Gigajoule	$ TBD
4. Rider 3 per Gigajoule	$ TBD
5. Rider 5 per Gigajoule	$ TBD
Subtotal of per Gigajoule **Delivery** Margin Related Charges	**$ TBD**
Commodity Related Charges	
6. Storage and Transport Charge per Gigajoule	$ TBD
7. Rider 6 per Gigajoule	$ TBD
Subtotal of per Gigajoule **Storage and Transport** Related Charges	**$ TBD**
8. **Cost of Gas** (Commodity Cost Recovery Charge) per Gigajoule	**$ TBD**[1,2]
9. **Cost of Low Carbon Gas** (Low Carbon Gas Charge) per Gigajoule	**$ TBD**[2,3]

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Delivery Margin Related Riders

Rider 2 **Clean Growth Innovation Fund Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Rider 3 **Biomethane Variance Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Rider 4 (Reserved for future use.)

Rider 5 **Revenue Stabilization Adjustment Charge** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Rider 8 (Reserved for future use.)

Municipal Operating Fee Charge

A Municipal Operating Fee charge is payable (in addition to the above charges), if the Premises to which Gas is delivered under this Rate Schedule is located within the boundaries of a municipality or First Nations lands (formerly, reserves within the *Indian Act*) where FortisBC Energy is required to remit such Municipal Operating Fee to the municipality and excluding any Customer from whom FortisBC Energy is not allowed to collect such Municipal Operating Fee. The Municipal Operating Fee charge will be calculated in accordance with the approved methodology.

Minimum Charge per Month

The minimum charge per Month will be the aggregate of the Basic Charge and the Municipal Operating Fee charge (where applicable and calculated in accordance with the approved methodology).

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Notes:

1. The Cost of Gas is based on the calculation of 100% of a Customer's consumption in Gigajoules, minus the percentage of a Customer's selection of Low Carbon Gas measured in Gigajoules, multiplied by the Cost of Gas (Commodity Cost Recovery Charge) per Gigajoule. For example, if a Customer selects 30% Low Carbon Gas, the Cost of Gas will be calculated based on 70% (100% - 30%) of a Customer's consumption.
2. The percentage of Low Carbon Gas of a Customer's Gas usage available to Customers is set by FortisBC Energy and includes a range between 5% of Low Carbon Gas and 100% of Low Carbon Gas, increasing by increments of 5%.
3. The Cost of Low Carbon Gas is based on the calculation of a Customer's selection of the percentage of Low Carbon Gas measured in Gigajoules, multiplied by the Low Carbon Gas Charge per Gigajoule. The Low Carbon Gas Charge per Gigajoule has been determined in accordance with Section 28.4 (Price Determination) in the General Terms and Conditions of FortisBC Energy.

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FORTISBC ENERGY INC.

RATE SCHEDULE 5LC

GENERAL FIRM LOW CARBON GAS SERVICE

Effective November 1, 2018

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1. Definitions

1.1 Definitions

Except where the context requires otherwise, all words and phrases defined below or in the General Terms and Conditions of FortisBC Energy and used in this Rate Schedule or in a Service Agreement have the meanings set out below or in the General Terms and Conditions of FortisBC Energy. Where any of the definitions set out below conflict with the definitions in the General Terms and Conditions of FortisBC Energy, the definitions set out below govern.

(a) **Rate Schedule 5LC or this Rate Schedule** - means this Rate Schedule, including all rates, terms and conditions, and the Table of Charges, as amended from time to time by FortisBC Energy with the consent of the British Columbia Utilities Commission.

2. Applicability

2.1 Description of Applicability

This Rate Schedule applies to the sale of firm Gas, no portion of which may be resold, through one meter station to a Customer who has elected to receive a portion of their Gas as Low Carbon Gas. Natural Gas Vehicle Customers are not eligible to enroll in this Rate Schedule. For greater certainty, firm Gas service under this Rate Schedule means the Gas FortisBC Energy is obligated to sell to a Customer on a firm basis subject to interruption or curtailment pursuant to Sections 0 (Default for Bankruptcy) and 0 (Force Majeure) of Rate Schedule 5 and the General Terms and Conditions of FortisBC Energy.

2.2 Service Agreement

FortisBC Energy will only provide the sale of firm Gas under this Rate Schedule, pursuant to an executed General Firm Service Agreement under Rate Schedule 5LC.

2.3 British Columbia Utilities Commission

This Rate Schedule may be amended from time to time with the consent of the British Columbia Utilities Commission.

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<#>**Contract Year** - means a period of 12 consecutive Months commencing at the beginning of the 1st Day of November and ending at the beginning of the next succeeding 1st Day of November.¶
<#>**Customer** - means a person who enters into a Service Agreement with FortisBC Energy.¶
<#>**Day** - means, subject to Section 1.2 (Change in Definition of "Day"), any period of twenty-four consecutive hours beginning and ending at 7:00 a.m. Pacific Standard Time.¶
<#>**Delivery Point** - means the point specified in a Sales Service Agreement or a Transportation Agreement where FortisBC Energy delivers Gas to a Customer or a Shipper.¶
<#>**Force Majeure** - means any acts of God; strikes, lockouts, or other industrial disturbances; civil disturbances, arrests and restraints of rulers or people; interruptions by government or court orders; present or future valid orders of any regulatory body having proper jurisdiction; acts of the public enemy, wars, riots, blackouts, insurrections; failure or inability to secure materials or labour by reason of regulations or orders of government; serious epidemics; landslides, lightning, earthquakes, fires, storms, floods, washouts, explosions, breakage or accident to machinery or lines of pipes, or freezing of wells or pipelines; or the failure of gas supply, temporary or otherwise, from a Supplier of gas, which act of Force Majeure was not due to negligence of the party claiming Force Majeure. Further, Force Majeure will also include a declaration of force majeure by a Transporter that results in Gas being unavailable for delivery at the Interconnection Point.¶ ...

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3. Table of Charges

3.1 **Charges**

In respect of all quantities of Gas delivered to the Delivery Point pursuant to this Rate Schedule and the Service Agreement, the Customer will pay to FortisBC Energy all of the charges set out in the Table of Charges. For greater certainty, it is expressly confirmed that the Table of Charges attached to Rate Schedule 5 does not apply to this Rate Schedule 5LC.

4. Terms and Conditions

4.1 **Other Terms and Conditions**

The terms and conditions set out in Rate Schedule 5 apply to and form part of this Rate Schedule, with necessary changes and bind FortisBC Energy and the Customer as if set out in this Rate Schedule, except as excluded by operation of Section 4.2 (Inapplicable Terms and Conditions). Inapplicable Terms and Conditions

The following terms and conditions set out in Rate Schedule 5 do not apply, and are not incorporated by reference, into this Rate Schedule and will not be construed in any way to affect the meaning or intent of any provision this Rate Schedule:

(a) Section 2 (Applicability)

(b) Section 5 (Table of Charges)

If any term or provision of this Rate Schedule is inconsistent with any term or provision of Rate Schedule 5, the term or provision of this Rate Schedule will prevail.

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<#>Conditions ¶
<#>Subject to Section 28.6 (Enrolment) of the General Terms and Conditions of FortisBC Energy, FortisBC Energy will only sell Gas under this Rate Schedule to Customers in the territory served by FortisBC Energy under the FortisBC Energy tariff of which this Rate Schedule is a part if:¶
<#>the Customer has entered into a General Firm Service Agreement (Service Agreement);¶
<#>adequate Gas volumes for such Service are available;¶
<#>adequate capacity exists on the FortisBC Energy System;¶
<#>the Customer purchases under this Rate Schedule all of the Gas required for its facilities specified in the Service Agreement; and¶
<#>FortisBC Energy has installed at the Delivery Point the facilities and equipment referred to in Section 8.1 (Facilities and Equipment). ¶
<#>Customers who are currently disconnected are not eligible to enrol.Security ¶ ...

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<#>Term ¶

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Early Termination ¶ ...

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Statements to be Provided ¶ ...

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Indemnity ¶
The Customer will indemnify and hold harmless each of FortisBC Energy, its employees, contractors and agents from and against any and all adverse claims, losses, suits, actions, judgments, demands, debts, accounts, damages, costs, penalties and expenses (including all legal fees and disbursements) arising from or out of each of the following:¶
Municipal Operating Fees not otherwise collected by FortisBC Energy under the Table of Charges; and¶
all federal, provincial, municipal taxes (or payments made in lieu thereof) and royalties, whether payable on the delivery of Gas to FortisBC Energy by the Customer or on the delivery of Gas to the Customer by FortisBC Energy, or on any other Service provided by FortisBC Energy to the Customer.Force Majeure¶
Force Majeure ¶
Subject to the other provisions of Section 13 (Force Majeure), if either party is unable or fails by reason of Force Majeure to perform in whole or in part any obligation or covenant set out in this Rate Schedule under which Service is rendered or in the Service Agreement, the obligations of both FortisBC Energy and the Customer will be suspended to the extent necessary for the period of the Force Majeure condition.¶
Curtailment Notice ¶
If FortisBC Energy claims suspension pursuant to Section 13 (Force Majeure), FortisBC Energy will be deemed to have issued to the Customer a notice of curtailment.¶
Exceptions ¶
Neither party will be entitled to the benefit of the provisions of Section 13.1 (Force Majeure) under any of the following circumstances:¶
to the extent that the failure was caused by the negligence or contributory negligence of the party claiming suspension;¶
to the extent that the failure was caused by the party claiming suspension having failed to diligently attempt to remedy the condition and to resume the performance of the covenants or obligations with reasonable dispatch; or¶
unless as soon as possible after the happening of the occurrence relied on or as soon as possible after determining that the occurrence was in the nature of Force Majeure and would affect the claiming party's ability to observe or perform any of its covenants or obligations under the Rate Schedule or the Service Agreement, the party claiming suspension will have given to the other party notice to the effect that the party is unable by reason of Force Majeure (the nature of which will be specified) to perform the particular covenants or obligations.¶ ...

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Table of Charges

	Mainland and Vancouver Island Service Area
Delivery Margin Related Charges	
1. **Basic Charge** per Month	$ TBD
2. **Rider 2** per Month	$ TBD
Subtotal of per Month **Delivery** Margin Related Charges	**$ TBD**
3. **Demand Charge** per Month per Gigajoule of Daily Demand	$ TBD[1]
4. **Delivery Charge** per Gigajoule	$ TBD
5. **Rider 3** per Gigajoule	$ TBD
Commodity Related Charges	
6. **Storage and Transport Charge** per Gigajoule	$ TBD
7. **Rider 6** per Gigajoule	$ TBD
Subtotal of per Gigajoule **Storage and Transport** Related Charges	**$ TBD**
8. **Cost of Gas** (Commodity Cost Recovery Charge) per Gigajoule	$ TBD[2,3]
9. **Cost of Low Carbon Gas** (Low Carbon Gas Charge) per Gigajoule	$ TBD[3,4]

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Delivery Margin Related Riders

Rider 2 **Clean Growth Innovation Fund Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Rider 3 **Biomethane Variance Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Rider 4 (Reserved for future use.)

Rider 5 **Revenue Stabilization Adjustment Charge** - Not applicable.

Commodity Cost Recovery Related Riders

Rider 1 (Reserved for future use.)

Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Municipal Operating Fee Charge

A Municipal Operating Fee charge is payable (in addition to the above charges) if the facilities to which Gas is delivered under this Rate Schedule are located within the boundaries of a municipality or First Nations lands (formerly, reserves within the *Indian Act*) where FortisBC Energy is required to remit such Municipal Operating Fee to the municipality and excluding any Customer from whom FortisBC Energy is not allowed to collect such Municipal Operating Fee. The Municipal Operating Fee charge will be calculated in accordance with the approved methodology.

Minimum Charge per Month

The minimum charge per Month will be the aggregate of the Basic Charge, Demand Charges and the Municipal Operating Fee charge (where applicable and calculated in accordance with the approved methodology).

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Notes:

1. Daily Demand is equal to 1.10 multiplied by the greater of:

   (a) the Customer's highest average daily consumption of any month during the winter period (November 1 to March 31); or

   (b) one half of the Customer's highest average daily consumption of any month during the summer period (April 1 to October 31).

   The calculation of Daily Demand will be based on the Customer's actual gas use during the preceding Contract Year.

2. The Cost of Gas is based on the calculation of 100% of a Customer's consumption in Gigajoules, minus the percentage of a Customer's selection of Low Carbon Gas measured in Gigajoules, multiplied by the Cost of Gas (Commodity Cost Recovery Charge) per Gigajoule. For example, if a Customer selects 30% Low Carbon Gas, the Cost of Gas will be calculated based on 70% (100% - 30%) of a Customer's consumption.

3. The percentage of Low Carbon Gas of a Customer's Gas usage available to Customers is set by FortisBC Energy and includes a range between 5% of Low Carbon Gas and 100% of Low Carbon Gas, increasing by increments of 5%.

4. The Cost of Low Carbon Gas is based on the calculation of a Customer's selection of the percentage of Low Carbon Gas measured in Gigajoules, multiplied by the Low Carbon Gas Charge per Gigajoule. The Low Carbon Gas Charge per Gigajoule has been determined in accordance with Section 28.4 (Price Determination) in the General Terms and Conditions of FortisBC Energy.

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GENERAL FIRM SERVICE AGREEMENT FOR RATE SCHEDULE 5LC

This Agreement is dated _____, 20___, between FortisBC Energy Inc. ("FortisBC Energy ") and _____ (the "Customer").

WHEREAS:

A. FortisBC Energy owns and operates the FortisBC Energy System;

B. The Customer is the owner and operator of a _____ located in or near _____, British Columbia; and

C. The Customer desires to purchase from FortisBC Energy firm Gas for such facilities in accordance with Rate Schedule 5LC and the terms set out herein.

NOW THEREFORE THIS AGREEMENT WITNESSES THAT in consideration of the terms, conditions and limitations contained herein, the parties agree as follows:

1. Specific Information

Estimated Maximum Quantity _____ Gigajoules per day

Commencement Date: _____

Expiry Date: _____

(only specify an expiry date if term of Service Agreement is not automatically continue from Year to Year as set out in Section 6.2 of Rate Schedule 5)

Low Carbon Gas Selection ☐ Gigajoules per Year

_____

Or:

☐ Percentage

_____

Delivery Point: _____

_____

_____

Pressure at the Delivery Point: _____

(only specify where applicable as set out in Section 4.3 of Rate Schedule 5)

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Service Address: _____

Account Number: _____

Address of Customer for receiving notices:

_____ Attention: _____
(name of Customer)

_____ Telephone: _____
(address of Customer)

_____ Fax: _____

_____ Email: _____

_____

The information set out above is hereby approved by the parties and each reference in either this agreement or Rate Schedule 5LC to any such information is to the information set out above.

2. Rate Schedule 5LC

2.1 Additional Terms

All rates, terms and conditions set out in Rate Schedule 5LC and the General Terms and Conditions of FortisBC Energy, as any of them may be amended by FortisBC Energy and approved from time to time by the British Columbia Utilities Commission, are in addition to the terms and conditions contained in this Service Agreement and form part of this Service Agreement and bind FortisBC Energy and the Customer as if set out in this Service Agreement.

2.2 Payment of Amounts

Without limiting the generality of the foregoing, the Customer will pay to FortisBC Energy all of the amounts set out in Rate Schedule 5LC for the Services provided under Rate Schedule 5LC and this Service Agreement.

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2.3 **Conflict**

Where anything in either Rate Schedule 5LC or the General Terms and Conditions of FortisBC Energy conflicts with any of the rates, terms and conditions set out in this Service Agreement, this Service Agreement governs. Where anything in Rate Schedule 5LC conflicts with any of the rates, terms and conditions set out in the General Terms and Conditions of FortisBC Energy, Rate Schedule 5LC governs.

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2.4 **Acknowledgement**

The Customer acknowledges receiving and reading a copy of Rate Schedule 5LC and the General Terms and Conditions of FortisBC Energy and agrees to comply with and be bound by all terms and conditions set out therein.

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IN WITNESS WHEREOF the parties hereto have executed this Service Agreement.

FORTISBC ENERGY INC.

_____
(here insert name of Customer)

BY: _____
(Signature)

BY: _____
(Signature)

_____
(Title)

_____
(Title)

_____
(Name – Please Print)

_____
(Name – Please Print)

DATE: _____

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FORTISBC ENERGY INC.

RATE SCHEDULE 7LC

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GENERAL INTERRUPTIBLE LOW CARBON GAS SERVICE

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Effective February 1, 2022

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2.2	Service Agreement	R-7LC.2
2.3	British Columbia Utilities Commission	R-7LC.3
3.	**TABLE OF CHARGES**	**R-7LC.3**
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4.	**TERMS AND CONDITIONS**	**R-7LC.3**
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4.2	Inapplicable Terms and Conditions	R-7LC.3
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GENERAL INTERRUPTIBLE SERVICE AGREEMENT		**SA-7LC.1**

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1. Definitions

1.1 **Definitions**

Except where the context requires otherwise, all words and phrases defined below or in the General Terms and Conditions of FortisBC Energy and used in this Rate Schedule or in a Service Agreement have the meanings set out below or in the General Terms and Conditions of FortisBC Energy. Where any of the definitions set out below conflict with the definitions in the General Terms and Conditions of FortisBC Energy, the definitions set out below govern.

(a) **Rate Schedule 7LC or this Rate Schedule** - means this Rate Schedule, including all rates, terms and conditions, and the Table of Charges, as amended from time to time by FortisBC Energy with the consent of the British Columbia Utilities Commission.

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2. Applicability

2.1 **Description of Applicability**

This Rate Schedule applies to the provision of a bundled interruptible transportation service and the sale of firm Gas, no portion of which may be resold, through one meter station to a Customer who has elected to receive a portion of their Gas as Low Carbon Gas. Natural Gas Vehicle Customers are not eligible to enroll in this Rate Schedule. For greater certainty, interruptible transportation service under this Rate Schedule means the provision by FortisBC Energy of transportation service to a Customer which may be interrupted or curtailed by FortisBC Energy pursuant to Sections 4.2 (Curtailment), 11 (Default or Bankruptcy) and 14 (Force Majeure) of Rate Schedule 7 and the General Terms and Conditions of FortisBC Energy. For greater certainty, firm Gas supply under this Rate Schedule means the Gas FortisBC Energy is obligated to sell to a Customer on a firm basis subject to interruption or curtailment pursuant to Sections 11 (Default for Bankruptcy), 14 (Force Majeure) of Rate Schedule 7 and the General Terms and Conditions of FortisBC Energy.

2.2 **Service Agreement**

FortisBC Energy will only provide bundled interruptible transportation service and the sale of firm Gas under this Rate Schedule, pursuant to an executed General Interruptible Service Agreement under Rate Schedule 7LC.

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2.3 **British Columbia Utilities Commission**

This Rate Schedule may be amended from time to time with the consent of the British Columbia Utilities Commission.

3. Table of Charges

3.1 **Charges**

In respect of bundled interruptible transportation service and the sale of firm Gas under Rate Schedule 7LC and the Service Agreement, the Customer will pay to FortisBC Energy all of the charges set out in the Table of Charges attached hereto. For greater certainty, it is expressly confirmed that the Table of Charges attached to Rate Schedule 7 does not apply to this Rate Schedule 7LC.

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4. Terms and Conditions

4.1 **Other Terms and Conditions**

The terms and conditions set out in Rate Schedule 7 apply to and form part of this Rate Schedule, with necessary changes and bind FortisBC Energy and the Customer as if set out in this Rate Schedule, except as excluded by operation of Section 4.2 (Inapplicable Terms and Conditions).

4.2 **Inapplicable Terms and Conditions**

The following terms and conditions set out in Rate Schedule 7 do not apply, and are not incorporated by reference, into this Rate Schedule and will not be construed in any way to affect the meaning or intent of any provision this Rate Schedule:

(a) Section 2 (Applicability)

(b) Section 5 (Table of Charges)

If any term or provision of this Rate Schedule is inconsistent with any term or provision of Rate Schedule 7, the term or provision of this Rate Schedule will prevail.

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Table of Charges

	Mainland and Vancouver Island Service Area
Delivery Margin Related Charge	
1. **Basic Charge** per Month	$ TBD
2. **Rider 2** per Month	$ TBD
Subtotal of per Month Delivery Margin Related Charges	**$ TBD**
3. **Delivery Charge** per Gigajoule (not in excess of curtailment notice)	$ TBD
4. **Rider 3** per Gigajoule	$ TBD
Commodity Related Charges	
5. **Storage and Transport Charge** per Gigajoule	$ TBD[1]
6. **Rider 6** per Gigajoule	$ TBD
7. Subtotal of per Gigajoule **Storage and Transport** Related Charges	**$ TBD**
8. **Cost of Gas** (Commodity Cost Recovery Charge) per Gigajoule	$ TBD[1,3,4]
9. **Cost of Low Carbon Gas** (Low Carbon Gas Charge) per Gigajoule	$ TBD[4,5]
10. **Charge** for Unauthorized Overrun Gas	
(a) Per Gigajoule on first 5 percent of specified quantity	Sumas Daily Price[2]
(b) Per Gigajoule on all Gas over 5 percent of specified quantity	The greater of $20.00/GJ or 1.5 x the Sumas Daily Price[2]

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Delivery Margin Related Riders

Rider 2 **Clean Growth Innovation Fund Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Rider 3 **Biomethane Variance Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Rider 4 (Reserved for future use.)

Rider 5 **Revenue Stabilization Adjustment Charge** - Not applicable.

Commodity Cost Recovery Related Riders

Rider 1 (Reserved for future use.)

Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Municipal Operating Fee Charge

A Municipal Operating Fee charge is payable (in addition to the above charges), if the facilities to which Gas is delivered under this Rate Schedule are located within the boundaries of a municipality or First Nations lands (formerly, reserves within the *Indian Act*) where FortisBC Energy is required to remit such Municipal Operating Fee to the municipality and excluding any Customer from whom FortisBC Energy is not allowed to collect such Municipal Operating Fee. The Municipal Operating Fee charge will be calculated in accordance with the approved methodology.

Minimum Charge per Month

The minimum charge per Month will be the aggregate of the Basic Charge and the Municipal Operating Fee charge (where applicable and calculated in accordance with the approved methodology).

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Notes:

1. **Commodity Cost Recovery Charge and Storage and Transport Charge** - the Commodity Cost Recovery Charge and Storage and Transport Charge are subject to change in accordance with changes to the Rate Schedule 5 Commodity Cost Recovery Charge and Storage and Transport Charge.

2. As defined under Section 1.1, the Sumas Daily Price quoted each Day will apply to Gas consumed on that gas day.

3. The Cost of Gas is based on the calculation of 100% of a Customer's consumption in Gigajoules, minus the percentage of a Customer's selection of Low Carbon Gas measured in Gigajoules, multiplied by the Cost of Gas (Commodity Cost Recovery Charge) per Gigajoule. For example, if a Customer selects 30% Low Carbon Gas, the Cost of Gas will be calculated based on 70% (100% - 30%) of a Customer's consumption.

2. The percentage of Low Carbon Gas of a Customer's Gas usage available to Customers is set by FortisBC Energy and includes a range between 5% of Low Carbon Gas and 100% of Low Carbon Gas, increasing by increments of 5%.

3. The Cost of Low Carbon Gas is based on the calculation of a Customer's selection of the percentage of Low Carbon Gas measured in Gigajoules, multiplied by the Low Carbon Gas Charge per Gigajoule. The Low Carbon Gas Charge per Gigajoule has been determined in accordance with Section 28.4 (Price Determination) in the General Terms and Conditions of FortisBC Energy.

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5.

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The British Columbia Utilities Commission approved January 1st Commodity Cost Recovery Charge per Gigajoule ...

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GENERAL INTERRUPTIBLE SERVICE AGREEMENT FOR RATE SCHEDULE 7LC

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This Agreement is dated _____, 20___, between FortisBC Energy Inc. ("FortisBC Energy") and _____ (the "Customer").

WHEREAS:

A. FortisBC Energy owns and operates the FortisBC Energy System;

B. The Customer is the owner and operator of a _____ located in or near _____, British Columbia; and

C. The Customer desires to purchase from FortisBC Energy bundled interruptible Renewable Gas transportation Service and firm gas supply for such facilities in accordance with Rate Schedule 7LC and the terms set out herein.

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NOW THEREFORE THIS AGREEMENT WITNESSES THAT in consideration of the terms, conditions and limitations contained herein, the parties agree as follows:

1. Specific Information

Estimated Maximum Quantity _____ Gigajoules per day

Commencement Date: _____

Expiry Date: _____

(only specify an expiry date if term of Service Agreement is not to automatically renewed from Year to Year as set out in Section 7.2 of Rate Schedule 7)

Low Carbon Gas Selection ☐ Gigajoules per Year

Or:

☐ Percentage

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Delivery Point: _____

Pressure at the Delivery Point: _____

(only specify where applicable as set out in Section 4.7 of Rate Schedule 7)

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Service Address: _____

Account Number: _____

Address of Customer for receiving notices:

_____ Attention: _____
(name of Customer)

_____ Telephone: _____
(address of Customer)

_____ Fax: _____

_____ Email: : _____

_____

The information set out above is hereby approved by the parties and each reference in either this agreement or Rate Schedule 7LC to any such information is to the information set out above.

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2. Rate Schedule 7LC

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2.1 Additional Terms

All rates, terms and conditions set out in Rate Schedule 7LC and the General Terms and Conditions of FortisBC Energy, as any of them may be amended by FortisBC Energy and approved from time to time by the British Columbia Utilities Commission, are in addition to the terms and conditions contained in this Service Agreement and form part of this Service Agreement and bind FortisBC Energy and the Customer as if set out in this Service Agreement.

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2.2 Payment of Amounts

Without limiting the generality of the foregoing, the Customer will pay to FortisBC Energy all of the amounts set out in Rate Schedule 7LC for the Services provided under Rate Schedule 7LC and this Service Agreement.

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2.3 **Conflict**

Where anything in either Rate Schedule 7LC or the General Terms and Conditions of FortisBC Energy conflicts with any of the rates, terms and conditions set out in this Service Agreement, this Service Agreement governs. Where anything in Rate Schedule 7LC conflicts with any of the rates, terms and conditions set out in the General Terms and Conditions of FortisBC Energy, Rate Schedule 7LC governs.

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2.4 **Acknowledgment**

The Customer acknowledges receiving and reading a copy of Rate Schedule 7LC and the General Terms and Conditions of FortisBC Energy and agrees to comply with and be bound by all terms and conditions set out therein. Without limiting the generality of the foregoing, the Customer acknowledges that it is able to accommodate interruption or curtailment of Gas service and releases FortisBC Energy from any liability for the Customer's inability to accommodate an interruption or curtailment of Gas Service.

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IN WITNESS WHEREOF the parties hereto have executed this Service Agreement.

FORTISBC ENERGY INC.

BY: _____
(Signature)

_____
(Title)

_____
(Name – Please Print)

DATE: _____

_____
(here insert name of Customer)

BY: _____
(Signature)

_____
(Title)

_____
(Name – Please Print)

DATE: _____

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FORTISBC ENERGY INC.

RATE SCHEDULE 11LC

LOW CARBON GAS LARGE VOLUME INTERRUPTIBLE SALES

Effective November 1, 2018

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LOW CARBON GAS LARGE VOLUME INTERRUPTIBLE SALES AGREEMENT ... SA-11LC.1

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1. Definitions

1.1 Definitions

Except where the context requires otherwise, or except as otherwise expressly provided in the Rate Schedule under which the Customer receives transportation Service, all words and phrases defined below or in the General Terms and Conditions of FortisBC Energy and used in this Rate Schedule or in a Transportation Agreement have the meanings set out below or in the General Terms and Conditions of FortisBC Energy. Where any of the definitions set out below conflict with the definitions in the General Terms and Conditions of FortisBC Energy, the definitions set out below govern.

(a) **Commencement Date** - means the day specified as the Commencement Date in the Sales Agreement.

(b) **Customer** - means a Shipper or Shipper Agent who enters into a Sales Agreement with FortisBC.

(c) **Day** – means, subject to Section 1.2 (Change in Definition of "Day"), any period of twenty-four consecutive hours beginning and ending at 7:00 a.m. Pacific Standard Time.

(d) **Group** - means a group of Shippers who each transport Gas under a transportation Rate Schedule, have a common Shipper Agent, and who have each entered into a Transportation Agreement.

(e) **Point of Sale** - the point of sale will be the point on the FortisBC Energy distribution system where the Low Carbon Gas purchased or produced by FortisBC Energy is delivered to the FortisBC Energy distribution system.

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(f) **Sales Agreement** - means an agreement between FortisBC Energy and a Customer for the sale of Low Carbon Gas pursuant to this Rate Schedule.

(g) **Shipper** - means a person who enters into a Transportation Agreement with FortisBC Energy and who is also the consumer of the Gas transported.

(h) **Shipper Agent** - means a person who enters into a Shipper Agent Agreement with FortisBC Energy.

(i) **Transportation Agreement** - means an agreement between FortisBC Energy and a Shipper to provide Service pursuant to a transportation Rate Schedule.

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1.2 **Change in Definition of "Day"**

FortisBC Energy may amend the definition of "Day" from time to time to suitably align its operations with those of its Transporters. If FortisBC Energy amends the definition of "Day", a pro-rata adjustment of quantities of Gas and charges to account for any Day of more or less than 24 hours will be made and the terms of the Sales Agreement will be similarly adjusted.

2. Applicability, Availability and Amendment

2.1 **Description of Applicability**

This Rate Schedule applies to the sale of interruptible Low Carbon Gas, at the Point of Sale, no portion of which may be resold, except for the case where the Customer is a Shipper Agent, in which case the Low Carbon Gas must be resold to one or more members of its Groups.

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2.2 **Availability**

This Rate Schedule is available in all Service Areas served by FortisBC Energy, except for the Municipality of Revelstoke and Fort Nelson.

2.3 **British Columbia Utilities Commission**

This Rate Schedule may be amended from time to time with the consent of the British Columbia Utilities Commission.

3. Conditions of Sales

3.1 **Conditions**

FortisBC Energy will only sell Low Carbon Gas to a Customer under this Rate Schedule in the applicable territory served by FortisBC Energy under the FortisBC Energy tariff of which this Rate Schedule is a part and if:

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(a) the Customer has entered into a Low Carbon Gas Large Volume Interruptible Sales Agreement ("Sales Agreement");

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(b) the Customer has entered into a Transportation Agreement pursuant to Rate Schedule 22, 22A, 22B, 23, 25, 26 or 27; or all members of the Group which the Customer represents, if the Customer is a Shipper Agent, have entered into a Transportation Agreement under the applicable Rate Schedule; and

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(c) adequate Low Carbon Gas volumes are available for sale by FortisBC Energy to the Customer for the facilities specified in the Sales Agreement.

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3.2 **Security**

In order to secure the prompt and orderly payment of the charges to be paid by the Customer to FortisBC Energy under the Sales Agreement, FortisBC Energy may require the Customer to provide, and at all times maintain, an irrevocable letter of credit in favour of FortisBC Energy issued by a financial institution acceptable to FortisBC Energy in an amount equal to the estimated maximum amount payable by the Customer under this Rate Schedule and the Sales Agreement for a period of 90 Days. Where FortisBC Energy requires a Customer to provide a letter of credit and the Customer is able to provide alternative security acceptable to FortisBC Energy, FortisBC Energy may accept such security in lieu of a letter of credit.

4. Terms of Sale

4.1 **Sale of Low Carbon Gas**

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Subject to all of the terms and conditions set out in this Rate Schedule and the Sales Agreement, FortisBC Energy will sell to the Customer and the Customer will buy from FortisBC Energy on each Day the quantity of Low Carbon Gas authorized by FortisBC Energy in accordance with Section 6 (Nomination).

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4.2 **Curtailment**

FortisBC Energy may at any time, for any reason and for any length of time, interrupt or curtail Low Carbon Gas sales under this Rate Schedule.

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4.3 **Notice of Curtailment**

Each notice from FortisBC Energy to the Customer with respect to the interruption or curtailment by FortisBC Energy of deliveries of Low Carbon Gas will be by telephone, by facsimile ("fax") and/or by other electronic means, and will specify the quantity of Low Carbon Gas to which the Customer is curtailed and the time at which such curtailment is to be made. FortisBC Energy will make reasonable efforts to give the Customer as much notice as possible with respect to such curtailment, not to be less than 2 hours prior notice unless prevented by Force Majeure.

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5. Table of Charges

5.1 **Charges**

In respect of all quantities of Low Carbon Gas sold to the Customer under this Rate Schedule, the Customer will pay to FortisBC Energy all of the charges set out in the Table of Charges.

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5.2 **Transportation Charges**

Customers will be responsible for paying the FortisBC Energy delivery charges as set out in a Customer's applicable transportation contract.

6. Nomination

6.1 **Requested Quantity**

The Customer will provide notice to FortisBC Energy on the Web Information and Nomination System ("WINS"), or other method approved by FortisBC Energy, prior to 7:30 a.m. Pacific Standard Time on each Day (or such other time as may be specified from time to time by FortisBC Energy) the Customer's Requested Quantity for the Day commencing in approximately 24 hours.

6.2 **Authorized Quantity**

FortisBC Energy will notify the Customer on WINS or other method approved by FortisBC Energy if the Authorized Quantity is less than the Requested Quantity.

7. Group Nominations

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7.1 **Notices To and From Shipper Agents**

If the Customer is a member of a Group then:

(a) communications regarding curtailments, interruptions, quantities of Low Carbon Gas requested or quantities of Low Carbon Gas authorized will be between the Shipper Agent for the Group and FortisBC Energy;

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(b) notices from FortisBC Energy with respect to interruption or curtailment pursuant to Section 4.3 (Notice of Curtailment) will be to the Shipper Agent for the Group and will specify the quantity of Low Carbon Gas to which the Group is curtailed and the time at which such curtailment is to be made; it will be the responsibility of the Shipper Agent to notify Customers which are members of the Group of interruptions or curtailments;

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(c) the Shipper Agent will provide to FortisBC Energy the Requested Quantity for the Group pursuant to Section 6.1 (Requested Quantity) and if the Shipper Agent does not so notify FortisBC Energy, then the Group's Requested Quantity for the Day commencing in approximately 24 hours will be deemed to be the Group's quantity pursuant to Section 6.2 (Authorized Quantity) for the Day just commencing; and

(d) FortisBC Energy will each Day determine the Authorized Quantity to be made available to the Group under this Rate Schedule and will advise the Shipper Agent if such Authorized Quantity is less than the Group's Requested Quantity.

8. Term of Sales Agreement

8.1 **Term**

The initial term of the Sales Agreement will begin on the Commencement Date and will expire at 7:00 a.m. Pacific Standard Time on the next November 1st.

8.2 **Automatic Renewal**

Except as specified in the Sales Agreement, the term of the Sales Agreement will continue from Year to Year after the expiry of the initial term unless cancelled by either FortisBC Energy or the Customer upon not less than 10 Days notice prior to the end of the Contract Year then in effect.

8.3 **Early Termination**

The term of the Sales Agreement is subject to early termination in accordance with Section 11 (Default or Bankruptcy).

8.4 **Survival of Covenants**

Upon the termination of the Sales Agreement, whether pursuant to Section 11 (Default or Bankruptcy) or otherwise,

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(a) all claims, causes of action or other outstanding obligations remaining or being unfulfilled as at the date of termination; and

all of the provisions in this Rate Schedule and in the Sales Agreement relating to the obligation of any of the parties to account to or indemnify the other and to pay to the other any monies owing as at the date of termination in connection with the Sales Agreement,

will survive such termination

9. Statements and Payments

9.1 Statements to be Provided

FortisBC Energy will, on or about the 15th day of each Month, deliver to the Customer a statement for the preceding Month showing the Gas quantities delivered to the Customer and the amount due. If the Customer is a member of a Group then the statement and the calculation of the amount due from the Customer will be based on information supplied by the Shipper Agent, or based on other information available to FortisBC Energy, as set out in the Shipper Agent Agreement. FortisBC Energy will, on or about the 45th day after the end of a Contract Year, deliver to the Customer a separate statement for the preceding Contract Year showing the amount required from the Customer in respect of any indemnity due under this Rate Schedule or a Sales Agreement. Any errors in any statement will be promptly reported to the other party as provided hereunder, and statements will be final and binding unless questioned within one Year after the date of the statement.

9.2 Payment and Interest

Payment for the full amount of the statement, including federal, provincial and municipal taxes or fees applicable thereon, will be made to FortisBC Energy at its Vancouver, British Columbia office, or such other place in Canada as it will designate, on or before the 1st Business Day after the 10th calendar day following the billing date. If the Customer fails or neglects to make any payment required under this Rate Schedule, or any portion thereof, to FortisBC Energy when due, interest on the outstanding amount will accrue, at the rate of interest declared by the chartered bank in Canada principally used by FortisBC Energy, for loans in Canadian dollars to its most creditworthy commercial borrowers payable on demand and commonly referred to as its "prime rate", plus:

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(a) 2% from the date when such payment was due for the first 30 days that such payment remains unpaid and 5% thereafter until the same is paid where the Customer has not, during the immediately preceding 6-month period, failed to make any payment when due hereunder; or

5% from the date when such payment was due to and including the date the same is paid where the Customer has, during the immediately preceding 6-month period, failed to make any payment when due hereunder.

9.3 **Examination of Records**

Each of FortisBC Energy and the Customer will have the right to examine at reasonable times the books, records and charts of the other to the extent necessary to verify the accuracy of any statement, charge, computation or demand made pursuant to any provisions of this Rate Schedule or the Sales Agreement.

10. Representations, Warranties and Covenants

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<#>Unit of Volume¶
<#>The unit of volume of Gas for all purposes hereunder will be 1 cubic metre at a temperature of 15° Celsius and an absolute pressure of 101.325 kilopascals. ¶
<#>Determination of Volume¶
<#>Gas delivered hereunder will be metered using metering apparatus approved by Measurement Canada and the determination of standard volumes delivered hereunder will be in accordance with terms and conditions pursuant to the *Electricity and Gas Inspection Act* of Canada. ¶
<#>Conversion to Energy Units¶
<#>In accordance with the *Electricity and Gas Inspection Act* of Canada, volumes of Gas delivered each Day will be converted to energy units by multiplying the standard volume by the Heat Content of each unit of Gas. Volumes will be specified in 10^3m^3 rounded to two decimal places and energy will be specified in Gigajoules rounded to one decimal place. ¶

10.1 **Representation and Warranty**

FortisBC Energy represents and warrants the title to all Low Carbon Gas delivered to the Customer at the Point of Sale under this Rate Schedule and the right of FortisBC Energy to sell such Low Carbon Gas, and represents and warrants that such Low Carbon Gas will be free and clear of all liens, encumbrances and claims.

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10.2 **Transfer of Title**

Title to Low Carbon Gas sold under this Rate Schedule will pass to the Customer at the Point of Sale.

11. Default or Bankruptcy

11.1 **Default**

If the Customer at any time fails or neglects:

(a) to make any payment due to FortisBC Energy or to any other person under this Rate Schedule or the Sales Agreement within 30 days after payment is due; or

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(b) to correct any default of any of the other terms, covenants, agreements, conditions or obligations imposed upon it under this Rate Schedule or the Sales Agreement, within 30 days after FortisBC Energy gives to the Customer notice of such default or, in the case of a default that cannot with due diligence be corrected within a period of 30 days, the Customer fails to proceed promptly after the giving of such notice with due diligence to correct the same and thereafter to prosecute the correcting of such default with all due diligence,

then FortisBC Energy may in addition to any other remedy that it has and at its option and without liability therefore:

(c) suspend further transportation Service to the Customer and may refuse to deliver Gas to the Customer until the default has been fully remedied, and no such suspension or refusal will relieve the Customer from any obligation under this Rate Schedule or the Sales Agreement; or

(d) terminate the Sales Agreement, and no such termination of the Sales Agreement pursuant hereto will exclude the right of FortisBC Energy to collect any amount due to it from the Customer for what would otherwise have been the remainder of the term of the Sales Agreement.

11.2 **Bankruptcy or Insolvency**

If the Customer becomes bankrupt or insolvent or commits or suffers an act of bankruptcy or insolvency or a receiver is appointed pursuant to a statute or under a debt instrument or the Customer seeks protection from the demands of its creditors pursuant to any legislation enacted for that purpose, FortisBC Energy will have the right, at its sole discretion, to terminate the Sales Agreement by giving notice in writing to the Customer and thereupon FortisBC Energy may cease further delivery of Gas to the Customer and the amount then outstanding for Gas provided under the Sales Agreement will immediately be due and payable by the Customer.

12. Indemnity and Limitation on Liability

12.1 **Limitation on Liability**

FortisBC Energy, its employees, contractors or agents are not responsible or liable for any loss or damages for or on account of any interruption or curtailment of Low Carbon Gas sales permitted under the General Terms and Conditions of FortisBC Energy or this Rate Schedule.

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<#>Any notice, request, statement or bill that is required to be given or that may be given under this Rate Schedule or under the Sales Agreement will, unless otherwise specified, be in writing and will be considered as fully delivered when mailed, personally delivered or sent by fax or other method approved by FortisBC Energy to the other in accordance with the following:¶
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<#>If to FortisBC Energy ...

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12.2 **Indemnity**

The Customer will indemnify and hold harmless each of FortisBC Energy, its employees, contractors and agents from and against any and all adverse claims, losses, suits, actions, judgments, demands, debts, accounts, damages, costs, penalties and expenses (including all legal fees and disbursements) arising from or out of each of the following:

(a) Municipal Operating Fees not otherwise collected by FortisBC Energy, under the Table of Charges; and

(b) all federal, provincial, municipal taxes (or payments made in lieu thereof) and royalties, whether payable on the delivery of Low Carbon Gas to the Customer by FortisBC Energy or on the delivery of Low Carbon Gas to FortisBC Energy by the Customer, or on any other service provided by FortisBC Energy to the Customer.

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12.3 **Principal Obligant**

The Customer entering into a Rate Schedule 11LC Sales Agreement will be the principal obligant.

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13. Force Majeure

13.1 **Force Majeure**

Subject to the other provisions of this Section 13 (Force Majeure), if either party is unable or fails by reason of Force Majeure to perform in whole or in part any obligation or covenant set out in this Rate Schedule under which Service is rendered or in the Sales Agreement, the obligations of both FortisBC Energy and the Customer will be suspended to the extent necessary for the period of the Force Majeure condition.

13.2 **Curtailment Notice**

If FortisBC Energy claims suspension pursuant to this Section 13 (Force Majeure), FortisBC Energy will be deemed to have issued to the Customer a notice of curtailment.

13.3 **Exceptions**

Neither party will be entitled to the benefit of the provisions of Section 13.1 (Force Majeure) under any of the following circumstances:

(a) to the extent that the failure was caused by the negligence or contributory negligence of the party claiming suspension;

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(b) to the extent that the failure was caused by the party claiming suspension having failed to diligently attempt to remedy the condition and to resume the performance of the covenants or obligations with reasonable dispatch; or

(c) unless as soon as possible after the happening of the occurrence relied on or as soon as possible after determining that the occurrence was in the nature of Force Majeure and would affect the claiming party's ability to observe or perform any of its covenants or obligations under this Rate Schedule or the Sales Agreement, the party claiming suspension will have given to the other party notice to the effect that the party is unable by reason of Force Majeure (the nature of which will be specified) to perform the particular covenants or obligations.

13.4 **Notice to Resume**

The party claiming suspension will likewise give notice, as soon as possible after the Force Majeure condition has been remedied, to the effect that it has been remedied and that the party has resumed, or is then in a position to resume, the performance of the covenants or obligations.

13.5 **Settlement of Labour Disputes**

Notwithstanding any of the provisions of this Section 13 (Force Majeure), the settlement of labour disputes or industrial disturbances will be entirely within the discretion of the particular party involved and the party may make settlement of it at the time and on terms and conditions as it may deem to be advisable and no delay in making settlement will deprive the party of the benefit of Section 13.1 (Force Majeure).

13.6 **No Exemption for Payments**

Notwithstanding any of the provisions of this Section 13 (Force Majeure), Force Majeure will not relieve or release either party from its obligations to make payments to the other.

13.7 **Periodic Repair by FortisBC Energy**

FortisBC Energy may temporarily shut off the delivery of Gas for the purpose of repairing or replacing a portion of the FortisBC Energy System or its equipment and FortisBC Energy will make reasonable efforts to give the Customer as much notice as possible with respect to such interruption, not to be less than 8 hours prior notice except when prevented by Force Majeure. FortisBC Energy will make reasonable efforts to schedule repairs or replacement to minimize interruption or curtailment of transportation Service to the Customer, and to restore Service as quickly as possible.

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13.8 **Customer's Gas**

If FortisBC Energy curtails or interrupts transportation of Gas by reason of Force Majeure the Customer will make its supply of Gas available to FortisBC Energy, to the extent required by FortisBC Energy, to maintain service priority to those customers or classes of customers which FortisBC Energy determines should be served. FortisBC Energy, in its sole discretion, will either increase the balance in the Customer's inventory account by the amount taken by FortisBC Energy and return an equivalent quantity of Gas to the Customer as soon as reasonable, or pay the Customer an amount equal to either FortisBC Energy's average Gas cost, or the Customer's average Gas cost, for the Day(s) during which such Gas was taken, whichever Gas cost the Customer, in its sole discretion, elects.

13.9 **Alteration of Facilities**

The Customer will pay to FortisBC Energy all reasonable costs associated with the alteration of facilities made at the discretion of FortisBC Energy to measure quantities reduced by reason of Force Majeure claimed by the Customer and to restore such facilities after the Force Majeure condition ends.

14. Transportation Rate Schedule

14.1 Applicable Provisions of Transportation Rate Schedule

The terms and conditions set out in the following sections of Rate Schedule 25 apply to and form part of this Rate Schedule, with necessary changes, and bind FortisBC Energy and the Customer as if set out in this Rate Schedule, except to the extent that they are contrary to the express provisions set out in this Rate Schedule:

(a) Section 16 (Measurement);

(d) Section 19 (Notice);

(e) Section 22 (Arbitration);

(f) Section 23 (Interpretation); and

(g) Section 24 (Miscellaneous).

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<#>Any dispute between the parties arising from this Rate Schedule or the Sales Agreement will be resolved by a single arbitrator pursuant to the *Arbitration Act* of British Columbia or successor legislation, save as expressly provided herein. ¶
<#>Demand for Arbitration ¶
<#>Either party may commence arbitration proceedings by sending to the other party a demand for arbitration setting out the nature of the dispute.¶
<#>Arbitrator ¶
<#>The parties will have 10 days from receipt of the demand referred to in Section 16.2 (Demand for Arbitration) of this Rate Schedule to agree upon the arbitrator, failing which either party may apply to the Supreme Court of British Columbia to select the arbitrator. The arbitrator must be sufficiently qualified by education and training to decide the particular questions in dispute. Unless otherwise agreed, the arbitrator may not be a past or present employee, officer or director of any of the parties or their respective successors or affiliates, any customer or supplier of the Shipper or FortisBC Energy.¶
<#>Commencement and Decision ¶
<#>The arbitrator will proceed immediately to hear and determine the matter in dispute and will render a written decision, signed by the arbitrator, within 45 days after the appointment, subject to any reasonable delay due to unforeseen circumstances. Notwithstanding the foregoing, if the arbitrator fails to render a decision within 60 days after the appointment then either party may elect to have a new ...

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Table of Charges

	Mainland and Vancouver Island Service Area
Cost of Low Carbon Gas[1] (Low Carbon Gas Charge) per Gigajoule	$ TBD

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Municipal Operating Fee Charge

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A Municipal Operating Fee charge is payable (in addition to the above charges), if the facilities to which the Low Carbon Gas sold under this Rate Schedule is delivered is within the boundaries of a municipality or First Nations lands (formerly, reserves within the *Indian Act*) where FortisBC Energy is required to remit such Municipal Operating Fee to the municipality and excluding any Customer from whom FortisBC Energy is not allowed to collect such Municipal Operating Fee. The Municipal Operating Fee charge will be calculated in accordance with the approved methodology.

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Notes:

1. The Cost of Low Carbon Gas (Low Carbon Gas Charge) per Gigajoule has been determined in accordance with Section 28.4 (Price Determination) in the General Terms and Conditions of FortisBC Energy).

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The British Columbia Utilities Commission approved January 1st Commodity Cost Recovery Charge per Gigajoule …

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LOW CARBON GAS LARGE VOLUME INTERRUPTIBLE SALES AGREEMENT FOR RATE SCHEDULE 11LC

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This Agreement is dated _____, 20___, between FortisBC Energy Inc. ("FortisBC Energy") and _____ (the "Customer").

WHEREAS:

A. FortisBC Energy owns and operates the FortisBC Energy System;

B. The Customer or Shipper Agent for the Customer is the owner and operator of a _____ located in or near _____, British Columbia; and

C. The Customer desires to purchase from FortisBC Energy interruptible Low Carbon Gas for such facilities in accordance with Rate Schedule 11LC and the terms set out herein.

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NOW THEREFORE THIS AGREEMENT WITNESSES THAT in consideration of the terms, conditions and limitations contained herein, the parties agree as follows:

1. Specific Information

Applicable Transportation Rate Schedule: ☐ 22 ☐ 22A ☐ 22B ☐ 23 ☐ 25 ☐ 26 ☐ 27

Commencement Date: _____

Expiry Date: _____

(only specify expiry date if term of Sales Agreement is not automatically renewed from Year to Year as set out in Section 8.2 of Rate Schedule 11LC)

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Refer to Rate Schedule 22, 22A, 22B, 23, 25, 26 or 27 Transportation Agreement for Address of Customer for receiving notices.

The information set out above is hereby approved by the parties and each reference in either this Sales Agreement or Rate Schedule 11LC to any such information is to the information set out above.

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2. Rate Schedule 11LC

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2.1 Point of Delivery

All Low Carbon Gas sales under this Sales Agreement will occur at the Point of Sale.

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2.2 Title Transfer

Title Transfer to the Customer will occur at the Point of Sale.

2.3 Additional Terms

All rates, terms and conditions set out in Rate Schedule 11LC and the General Terms and Conditions of FortisBC Energy, as any of them may be amended by FortisBC Energy and approved from time to time by the British Columbia Utilities Commission, are in addition to the terms and conditions contained in this Sales Agreement and form part of this Sales Agreement and bind FortisBC Energy and the Customer as if set out in this Sales Agreement.

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2.4 Payment of Amounts

Without limiting the generality of the foregoing, the Customer will pay to FortisBC Energy all of the amounts set out in Rate Schedule 11LC for the Services provided under that Rate Schedule and this Sales Agreement.

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2.5 Conflict

Where anything in either Rate Schedule 11LC or the General Terms and Conditions of FortisBC Energy conflicts with any of the terms and conditions set out in this Sales Agreement, this Sales Agreement governs. Where anything in Rate Schedule 11LC conflicts with any of the rates, terms and conditions set out in the General Terms and Conditions of FortisBC Energy, Rate Schedule 11LC governs.

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2.6 Acknowledgment

The Customer acknowledges receiving and reading a copy of Rate Schedule 11LC, the applicable transportation Rate Schedule and the General Terms and Conditions of FortisBC Energy and agrees to comply with and be bound by all terms and conditions set out therein. Without limiting the generality of the foregoing, the Customer acknowledges that it is able to accommodate such interruption or curtailment of Low Carbon Gas sales and releases FortisBC Energy from any liability for the Customer's inability to accommodate such interruption or curtailment of Low Carbon Gas sales.

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IN WITNESS WHEREOF the parties hereto have executed this Sales Agreement.

FORTISBC ENERGY INC.

(Name of Customer)

BY: _____
(Signature)

BY: _____
(Signature)

_____
(Title)

_____
(Title)

_____
(Name – Please Print)

_____
(Name – Please Print)

DATE: _____

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for the sole purpose of evaluation, compilation, establishment or editorial review of various gas price indices."

16. Insert the following as Section 13.12:

"Time is of the essence of this Contract and the terms and conditions thereof."

17. Insert the following as Section 13.13:

As a result of the June 1, 2015 changes with respect to the Foothills Pipeline gas management system, Foothills Pipeline ("FH") no longer offers a market trading center on the Canadian side of the US/Canada border at Kingsgate. Also a reminder for Huntingdon is included.

As Party A may intend to either trade at Kingsgate Foothills or the Huntingdon point, currently or at sometime in the future, Party A agrees to the following:

a. Kingsgate

With the elimination of the Kingsgate Foothills market center, the Kingsgate-GTN is the only market center at Kingsgate. Party A agrees that if any Transaction Confirmation specifies Kingsgate-GTN as the Delivery Point, the following shall apply:

- The Delivery Point shall be deemed to be on the Canadian side of the border and title to the Gas shall pass from the Seller to the Buyer in Canada;
- Party A shall be the exporter of the gas from Canada at Kingsgate and shall report the export to the National Energy Board and Party A shall be the importer of gas into the US and be responsible for reporting the transaction as in compliance with applicable laws including to the Department of Energy (DOE) and US Customs.

b. Huntingdon

Consistent with the location of the market centers at Huntingdon in Canada at the time of entering into the Base Contract, the Parties acknowledge that if any Transaction Confirmation specifies Huntingdon or FortisBC Huntingdon Inc. as the Delivery Point and the gas will be exported, the following applies:

- The Delivery Point shall be on the Canadian side of the border.
- To the extent that Party A exports the gas from Canada to the US, Party A shall be the exporter of the gas at Huntingdon and shall be the importer of gas into the US and shall report the transaction as an importer in compliance with all applicable laws including to the Department of Energy (DOE) and US Customs.

18. Replace the definition of "Gas" with the following in Section 2:

""Gas" shall mean any mixture of hydrocarbons and non-combustible gases in a gaseous state consisting primarily of methane, including biomethane and hydrogen."

Acknowledged and Agreed to this ___ day of _____, 20___	Acknowledged and Agreed to this ___ day of _____, 20___
	FORTISBC ENERGY INC.
_____	_____

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1 Definitions

1.1 **Definitions** - Except where the context requires otherwise, all words and phrases defined below or in the General Terms and Conditions of FortisBC Energy Inc. (FortisBC Energy) and used in this Rate Schedule have the meanings set out below or in the General Terms and Conditions of FortisBC Energy. Where any of the definitions set out below conflicts with the definitions in the General Terms and Conditions of FortisBC Energy, the definitions set out below govern.

(a) **Authorized Quantity** – means, subject to interruptions or curtailments as provided in Section 10 (Transportation Service) or due to provisions of the Transportation Agreement, the quantity of energy (in Gigajoules) for each Day approved by the Transporter for Transportation Service on the Transporter's pipeline system, based on the quantity requested pursuant to Section 12.1 (Requested Quantity), adjusted as set out in Section 12.2 (Adjustment of Requested Quantity) or the quantity of energy approved for sale by FortisBC Energy under an applicable Rate Schedule, or any component or aggregate of these quantities, as the context requires.

(b) **Available LNG Capacity** - means the total quantity of LNG available for sale to all Customers from LNG Facilities under this Rate Schedule as determined by FortisBC Energy in its sole discretion. FortisBC Energy's determination of the Available LNG Capacity may consider FortisBC Energy's assessment of its overall LNG liquefaction and storage requirements, which include providing peaking and emergency resources.

(c) **Backstopping Gas** - means Gas made available by FortisBC Energy as an interruptible backup supply if on any Day the Authorized Quantity is less than the Requested Quantity, adjusted as set out in Section 12.2 (Adjustment of Requested Quantity).

(d) **Balancing Gas** - means any Gas taken during a Day which is in excess of the Authorized Quantity, subject to Section 13.2 (Provision of Gas Balancing).

(e) **Commencement Date** - means the day specified as the Commencement Date in the Transportation Agreement.

(f) **Commodity Cost Recovery Charge** - means the commodity cost recovery charge set out in the Table of Charges for LNG Service as approved by the British Columbia Utilities Commission applicable to Customers selecting to purchase a percentage of conventional natural gas from FortisBC Energy.

(g) **Contract Demand** - means the minimum quantity of LNG, measured in Gigajoules, that FortisBC Energy agrees to supply and the Customer agrees to purchase and pay per year under the LNG Agreement, whether or not such quantity is actually consumed by the Customer.

Deleted: <#>**Biomethane Energy Recovery Charge** - means the biomethane energy recovery charge as set out in the Table of Charges for LNG Service as approved by the British Columbia Utilities Commission that is applicable to Customers selecting to purchase a percentage of Biomethane as a portion of their Gas.¶ <#>¶

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(s) **Force Majeure** - means any acts of God, strikes, lockouts, or other industrial disturbances, civil disturbances, arrests and restraints of rulers or people, interruptions by government or court orders, present or future valid orders of any regulatory body having proper jurisdiction, acts of the public enemy, wars, riots, blackouts, insurrections, failure or inability to secure materials or labour by reason or regulations or orders of government, serious epidemics, landslides, lightning, earthquakes, fires, storms, floods, washouts, explosions, breakage or accident to machinery, liquefaction, storage, and dispensing equipment, or lines of pipes, or freezing of wells or pipelines, or the failure of Gas supply, temporary or otherwise, from a Supplier of Gas, or a declaration of Force Majeure by a gas Transporter that results in Gas being unavailable for delivery at the Interconnection Point, or any major disabling event or circumstance in relation to the normal operations of the party concerned as a whole which is beyond the reasonable control of the party directly affected and results in a material delay, interruption or failure by such party in carrying out its obligations under the Rate Schedule. Force Majeure events cannot be due to negligence of the party claiming Force Majeure.

(t) **Gas** - means natural gas (including odorant added by FortisBC Energy), or Low Carbon Gas, or a mixture of any or all of the above.

(u) **Group** - means a group of Shippers who each transport Gas under a transportation Rate Schedule, have a common Shipper Agent, and who have each entered into a Transportation Agreement.

(v) **Interconnection Point** – means a point where the FortisBC Energy System interconnects with the facilities of one of the Transporters of FortisBC Energy, as specified in a Transportation Agreement.

(w) **LNG** - means liquefied natural gas.

(x) **LNG Facilities** – means the current or future LNG production and storage plants and equipment that are owned or operated by FortisBC Energy or are under contract with FortisBC Energy to provide LNG to FortisBC Energy, but excludes any marine loading facilities.

(y) **LNG Agreement** - means the Liquefied Natural Gas Sales and Dispensing Service Agreement between FortisBC Energy and the Customer for the provision of LNG Service, a form of which is attached to this Rate Schedule.

(z) **LNG Output** - means the total quantities of Gas delivered from the LNG Facilities either by vaporization of LNG or Dispensing of LNG.

(aa) **LNG Service** - means the service of the liquefaction, storage and Dispensing of LNG from the LNG Facilities, and includes Long-Term LNG Service, Short-Term LNG Service and Spot LNG Service. LNG Service does not include LNG Transportation Service, Transportation Service or marine loading service.

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(bb) **LNG Spot Charge** - means the LNG spot charge per Gigajoule of LNG as set out in the Table of Charges for LNG Service and the Table of Charges for Transportation Service.

(cc) **LNG Transportation Service** – means the optional service provided by FortisBC Energy as further specified in Section 7 (Transportation of LNG) of this Rate Schedule that consists of:

(i) use of a Tanker owned or provided by FortisBC Energy;

(ii) hauling via land of the Tanker loaded with LNG from the LNG Facilities to a Customer designated location;

(iii) unloading of LNG from the Tanker; and,

(iv) hauling of the empty Tanker from the Customer designated location to the LNG Facilities.

(dd) **LNG Transportation Service Agreement** – means the LNG Transportation Service Agreement for LNG Transportation Service between FortisBC Energy and the Customer, a form of which is attached to this Rate Schedule.

(ee) **Long-Term LNG Service** – means LNG Service under this Rate Schedule with a minimum Contract Term of five (5) years or more and a specified Contract Demand for the duration of the Contract Term.

(ff) **Low Carbon Gas Charge** - means the low carbon gas charge as set out in the Table of Charges for LNG Service as approved by the British Columbia Utilities Commission.

(gg) **Minimum Monthly Charge** – means a minimum Monthly charge, applicable to Long-Term LNG Service and Short-Term LNG Service only, calculated by multiplying one-twelfth of the annual Contract Demand by the Delivery Charge.

(hh) **Month** – means, subject to any changes from time to time required by FortisBC Energy, the period beginning at 12:00 a.m. Pacific Standard Time on the first day of the calendar month and ending at 12:00 a.m. Pacific Standard Time on the first day of the next succeeding calendar month.

(ii) **Non-Bypass Shipper** – means a Shipper that receives Service under Rate Schedule 23, 25 or 22A and pays rates as set out in the standard table of charges for the applicable Rate Schedule.

(jj) **Peak Day Demand** – means the quantity of energy used for the purposes of determining the Peaking Gas and EKE Receipt Service available to a firm Non-Bypass Shipper or Rate Schedule 46 Shipper, as calculated pursuant to Section 15.3 (Peak Day Demand).

(kk) **Peaking Gas** - means Gas which is provided to the Shipper by FortisBC Energy in accordance with the provisions of Section 15 (Peaking Gas Service).

(ll) **Peaking Gas Quantity** - means the Peaking Gas available to a Non-Bypass Shipper or Rate Schedule 46 Shipper on a Day, determined pursuant to the provisions of Section 15.4 (Peaking Gas Quantity).

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9 Terms of Payment

9.1 **LNG Service Charges** - The Customer will pay to FortisBC Energy all of the applicable charges, including the following charges for LNG Service, as set out in the Table of Charges for LNG Service: C/N/O

(i) For Long-Term LNG Service and Short-Term LNG Service, the Customer will pay to FortisBC Energy all of the following charges:

(A) A charge calculated as the greater of

i. the Delivery Charge, multiplied by the quantity of LNG, measured in Gigajoules, Dispensed to the Customer;

or

ii. the Minimum Monthly Charge; plus

(B) The commodity related charges, calculated by multiplying:

i. the quantity of LNG, measured in Gigajoules, Dispensed to the Customer plus Process Fuel Gas;

by

ii. the sum of the Storage and Transport Charge and Rider 6; plus

iii. the Commodity Cost Recovery Charge, multiplied by

iv. the Customer's selected percentage of LNG supplied from conventional natural gas; plus

(C) When applicable, the Low Carbon Gas related charges, calculated by multiplying:

i. the quantity of LNG, measured in Gigajoules, Dispensed to the Customer plus Process Fuel Gas;

by

ii. the sum of the Storage and Transport Charge and Rider 6; plus

iii. the Low Carbon Gas Charge, multiplied by

iv. the Customer's selected percentage or quantity of LNG supplied from Low Carbon Gas.

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Table of Charges for LNG Service

All sales and service taxes, carbon tax and any future new taxes, are extra and shall be applied as applicable.

LNG Facility Charge	$ TBD/GJ
Electricity Surcharge	$ TBD/GJ
Commodity Related Charges per Gigajoule	
Storage and Transport Charge	$ TBD/GJ
Rider 6	$ TBD/GJ
Subtotal of **Storage and Transport** Related Charges	**$ TBD/GJ**
Cost of Gas (Commodity Cost Recovery Charge)[1,2]	$ TBD/GJ
Cost of Low Carbon Gas (Low Carbon Gas Charge)[2,3]	$ TBD/GJ
LNG Spot Charge	$ TBD/GJ

Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

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Notes:

1. The Cost of Gas is based on the calculation of 100% of a Customer's consumption in Gigajoules, minus the percentage of a Customer's selection of Low Carbon Gas measured in Gigajoules, multiplied by the Cost of Gas (Commodity Cost Recovery Charge) per Gigajoule. For example, if a Customer selects 30% Low Carbon Gas, the Cost of Gas will be calculated based on 70% (100% - 30%) of a Customer's consumption.
2. The percentage of Low Carbon Gas of a Customer's Gas usage available to Customers is set by FortisBC Energy and includes a range between 5% of Low Carbon Gas and 100% of Low Carbon Gas, increasing by increments of 5%.
3. The Cost of Low Carbon Gas is based on the calculation of a Customer's selection of the percentage of Low Carbon Gas measured in Gigajoules, multiplied by the Low Carbon Gas Charge per Gigajoule. The Low Carbon Gas Charge per Gigajoule has been determined in accordance with Section 28.4 (Price Determination) in the General Terms and Conditions of FortisBC Energy.
4. The LNG Facility Charge, Electricity Surcharge, and LNG Spot Charge will be adjusted annually in accordance with (a), (b) and (c) below:

   (a) The LNG Facility Charge shall be escalated annually at the greater of 2% or the British Columbia Consumer Price Index.

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LIQUEFIED NATURAL GAS SALES AND DISPENSING SERVICE AGREEMENT

This Agreement (LNG Natural Gas Sales and Dispensing Agreement or LNG Agreement) is dated _____, 20___ (Effective Date) between FortisBC Energy Inc. (FortisBC Energy) and _____ (Customer).

WHEREAS:

A. FortisBC Energy owns and operates the FortisBC Energy System in British Columbia.

B. The Customer has requested that FortisBC Energy provide services for liquefaction of natural Gas and Dispensing of LNG from the LNG Facilities.

NOW THEREFORE THIS LNG AGREEMENT WITNESSES THAT in consideration of the terms, conditions and limitations contained herein, the parties agree as follows:

1. Specific Information

Applicable Rate Schedule:	46
Type of Service:	☐ Long Term ☐ Short Term ☐ Spot
Dispensing Point Preferred by Customer:	☐ Tilbury ☐ Mt. Hayes ☐ Other
Contract Demand:	_____Gigajoules per Year
Low Carbon Gas Selection	☐ Gigajoules per Year *Or:* ☐ Percentage
Commencement Date:	_____
Expiry Date:	_____
Service Address:	_____
Account Number:	_____

Deleted: ¶
Deleted: ¶
Deleted: G-225-19
Deleted: Doug Slater, Director
Deleted: May 1, 2019
Deleted: November 4, 2019
Deleted: *Original signed by Patrick Wruck* . Second

FORTISBC ENERGY INC.

RATE SCHEDULE 1PLC

RESIDENTIAL PERMANENT CONNECTION LOW CARBON GAS SERVICE

Rate Schedule 1PLC: Residential Permanent Connection Low Carbon Gas Service

Available

This Rate Schedule is available in all territory served by FortisBC Energy, with the exception of the Municipality of Revelstoke and the Fort Nelson Service Area, provided adequate capacity exists on the FortisBC Energy System.

Applicable

This Rate Schedule is only available to and is mandatory for Permanent Connection Low Carbon Gas Service Customers for firm Gas supplied at one Residential Premises for use in approved appliances for all residential applications in single-family residences, separately metered single-family townhouses, rowhouses, condominiums, duplexes and apartments and single metered apartment blocks with four or less apartments. Customers who are currently disconnected are not eligible to enrol.

Table of Charges

	Mainland and Vancouver Island Service Area
Delivery Margin Related Charges	
1. **Basic Charge** per Day	**$ TBD**
2. Rider 2 per Day	$ TBD
Subtotal of per Day **Delivery** Margin Related Charges	**$ TBD**
3. Delivery Charge per Gigajoule	$ TBD
4. Rider 3 per Gigajoule	$ TBD
5. Rider 5 per Gigajoule	$ TBD
Subtotal of per Gigajoule **Delivery** Margin Related Charges	**$ TBD**
Commodity Related Charges	
6. Storage and Transport Charge per Gigajoule	$ TBD
7. Rider 6 per Gigajoule	$ TBD
Subtotal of per Gigajoule **Storage and Transport** Related Charges	**$ TBD**
Cost of Low Carbon Gas (Low Carbon Gas Charge) per Gigajoule	**$ TBD**[1,2]

Delivery Margin Related Riders

Rider 2 **Clean Growth Innovation Fund Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Rider 3 **Biomethane Variance Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Rider 4 (Reserved for future use.)

Rider 5 **Revenue Stabilization Adjustment Charge** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Rider 8 (Reserved for future use.)

Municipal Operating Fee Charge

A Municipal Operating Fee charge is payable (in addition to the above charges), if the Premises to which Gas is delivered under this Rate Schedule is located within the boundaries of a municipality or First Nations lands (formerly, reserves within the *Indian Act*) where FortisBC Energy is required to remit such Municipal Operating Fee to the municipality and excluding any Customer from whom FortisBC Energy is not allowed to collect such Municipal Operating Fee. The Municipal Operating Fee charge will be calculated in accordance with the approved methodology.

Minimum Charge per Month

The minimum charge per Month will be the aggregate of the Basic Charge and the Municipal Operating Fee charge (where applicable and calculated in accordance with the approved methodology).

Notes:

1. Permanent Connection Low Carbon Gas Service Customers are connected to the FortisBC Energy System by a service line installed on or after the effective date of this rate schedule and must take 100% Low Carbon Gas for their Gas commodity.
2. The Cost of Low Carbon Gas (Low Carbon Gas Charge) per Gigajoule has been determined in accordance with Section 28.4 (Price Determination) in the General Terms and Conditions of FortisBC Energy.

FORTISBC ENERGY INC.

RATE SCHEDULE 2PLC

SMALL COMMERCIAL PERMANENT CONNECTION LOW CARBON GAS SERVICE

Rate Schedule 2PLC: Small Commercial Permanent Connection Low Carbon Gas Service

Available

This Rate Schedule is available in all territory served by FortisBC Energy, with the exception of the Municipality of Revelstoke and the Fort Nelson Service Area, provided adequate capacity exists on the FortisBC Energy System.

Applicable

This Rate Schedule is only available to and is mandatory for Permanent Connection Low Carbon Gas Service Customers with a normalized annual consumption at one Eligible Commercial Premises of less than 2,000 Gigajoules of firm Gas, for use in approved appliances in commercial, institutional or small industrial operations. Customers who are currently disconnected are not eligible to enrol.

Table of Charges

	Mainland and Vancouver Island Service Area
Delivery Margin Related Charges	
1. **Basic Charge** per Day	**$ TBD**
2. Rider 2 per Day	$ TBD
Subtotal of per Day **Delivery** Margin Related Charges	**$ TBD**
3. Delivery Charge per Gigajoule	$ TBD
4. Rider 3 per Gigajoule	$ TBD
5. Rider 5 per Gigajoule	$ TBD
Subtotal of per Gigajoule **Delivery** Margin Related Charges	**$ TBD**
Commodity Related Charges	
6. Storage and Transport Charge per Gigajoule	$ TBD
7. Rider 6 per Gigajoule	$ TBD
Subtotal of per Gigajoule **Storage and Transport** Related Charges	**$ TBD**
Cost of Low Carbon Gas (Low Carbon Gas Charge) per Gigajoule	**$ TBD**[1,2]

Delivery Margin Related Riders

Rider 2 **Clean Growth Innovation Fund Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Rider 3 **Biomethane Variance Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Rider 4 (Reserved for future use.)

Rider 5 **Revenue Stabilization Adjustment Charge** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Rider 8 (Reserved for future use.)

Municipal Operating Fee Charge

A Municipal Operating Fee charge is payable (in addition to the above charges), if the Premises to which Gas is delivered under this Rate Schedule is located within the boundaries of a municipality or First Nations lands (formerly, reserves within the *Indian Act*) where FortisBC Energy is required to remit such Municipal Operating Fee to the municipality and excluding any Customer from whom FortisBC Energy is not allowed to collect such Municipal Operating Fee. The Municipal Operating Fee charge will be calculated in accordance with the approved methodology.

Minimum Charge per Month

The minimum charge per Month will be the aggregate of the Basic Charge and the Municipal Operating Fee charge (where applicable and calculated in accordance with the approved methodology).

Notes:

1. Permanent Connection Low Carbon Gas Service Customers are connected to the FortisBC Energy System by a service line installed on or after the effective date of this rate schedule and must take 100% Low Carbon Gas for their Gas commodity.
2. The Cost of Low Carbon Gas (Low Carbon Gas Charge) per Gigajoule has been determined in accordance with Section 28.4 (Price Determination) in the General Terms and Conditions of FortisBC Energy.

FORTISBC ENERGY INC.

RATE SCHEDULE 3PLC

LARGE COMMERCIAL PERMANENT CONNECTION LOW CARBON GAS SERVICE

Rate Schedule 3PLC: Large Commercial Permanent Connection Low Carbon Gas Service

Available

This Rate Schedule is available in all territory served by FortisBC Energy, with the exception of the Municipality of Revelstoke and the Fort Nelson Service Area, provided adequate capacity exists on the FortisBC Energy System.

Applicable

This Rate Schedule is only available to and is mandatory for Permanent Connection Low Carbon Gas Service Customers with a normalized annual consumption at one Eligible Commercial Premises of greater than 2,000 Gigajoules of firm Gas, for use in approved appliances in commercial, institutional or small industrial operations. Customers who are currently disconnected are not eligible to enrol.

Table of Charges

	Mainland and Vancouver Island Service Area
Delivery Margin Related Charges	
1. **Basic Charge** per Day	**$ TBD**
2. Rider 2 per Day	$ TBD
Subtotal of per Day **Delivery** Margin Related Charges	**$ TBD**
3. Delivery Charge per Gigajoule	$ TBD
4. Rider 3 per Gigajoule	$ TBD
5. Rider 5 per Gigajoule	$ TBD
Subtotal of per Gigajoule **Delivery** Margin Related Charges	**$ TBD**
Commodity Related Charges	
6. Storage and Transport Charge per Gigajoule	$ TBD
7. Rider 6 per Gigajoule	$ TBD
Subtotal of per Gigajoule **Storage and Transport** Related Charges	**$ TBD**
Cost of Low Carbon Gas (Low Carbon Gas Charge) per Gigajoule	**$ TBD**[1,2]

Delivery Margin Related Riders

Rider 2 **Clean Growth Innovation Fund Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Rider 3 **Biomethane Variance Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Rider 4 (Reserved for future use.)

Rider 5 **Revenue Stabilization Adjustment Charge** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Rider 8 (Reserved for future use.)

Municipal Operating Fee Charge

A Municipal Operating Fee charge is payable (in addition to the above charges), if the Premises to which Gas is delivered under this Rate Schedule is located within the boundaries of a municipality or First Nations lands (formerly, reserves within the *Indian Act*) where FortisBC Energy is required to remit such Municipal Operating Fee to the municipality and excluding any Customer from whom FortisBC Energy is not allowed to collect such Municipal Operating Fee. The Municipal Operating Fee charge will be calculated in accordance with the approved methodology.

Minimum Charge per Month

The minimum charge per Month will be the aggregate of the Basic Charge and the Municipal Operating Fee charge (where applicable and calculated in accordance with the approved methodology).

Notes:

1. Permanent Connection Low Carbon Gas Service Customers are connected to the FortisBC Energy System by a service line installed on or after the effective date of this rate schedule and must take 100% Low Carbon Gas for their Gas commodity.
2. The Cost of Low Carbon Gas (Low Carbon Gas Charge) per Gigajoule has been determined in accordance with Section 28.4 (Price Determination) in the General Terms and Conditions of FortisBC Energy.

FORTISBC ENERGY INC.

RATE SCHEDULE 3VLC

LARGE COMMERCIAL LOW CARBON GAS VEHICLE SERVICE

Rate Schedule 3VLC: Large Commercial Low Carbon Gas Vehicle Service

Available

This Rate Schedule is available in all territory served by FortisBC Energy, with the exception of the Municipality of Revelstoke and the Fort Nelson Service Area, provided adequate capacity exists on the FortisBC Energy System.

Applicable

This Rate Schedule is applicable only to Natural Gas Vehicle Customers with a normalized annual consumption at one Premises of greater than 2,000 Gigajoules of firm Gas, for use in vehicles, including marine vehicles, who have elected to take all or a portion of their Gas as Low Carbon Gas. Customers who are currently disconnected are not eligible to enrol. Customers who are currently enrolled in Commodity Unbundling Service under Rate Schedule 3U are ineligible to enrol until their existing contract term with their Marketer expires.

Table of Charges

	Mainland and Vancouver Island Service Area
Delivery Margin Related Charges	
1. **Basic Charge** per Day	**$ TBD**
2. Rider 2 per Day	$ TBD
Subtotal of per Day **Delivery** Margin Related Charges	**$ TBD**
3. Delivery Charge per Gigajoule	$ TBD
4. Rider 3 per Gigajoule	$ TBD
5. Rider 5 per Gigajoule	$ TBD
Subtotal of per Gigajoule **Delivery** Margin Related Charges	**$ TBD**
Commodity Related Charges	
6. **Storage and Transport Charge** per Gigajoule	$ TBD
7. **Rider 6** per Gigajoule	$ TBD
Subtotal of per Gigajoule **Storage and Transport** Related Charges	**$ TBD**
8. **Cost of Gas** (Commodity Cost Recovery Charge) per Gigajoule	$ TBD[1,2]
9. **Cost of Low Carbon Gas** (Low Carbon Gas Charge) per Gigajoule	$ TBD[2,3]

Delivery Margin Related Riders

Rider 2 **Clean Growth Innovation Fund Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023. C

Rider 3 **Biomethane Variance Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Rider 4 (Reserved for future use.)

Rider 5 **Revenue Stabilization Adjustment Charge** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Rider 8 (Reserved for future use.)

Municipal Operating Fee Charge

A Municipal Operating Fee charge is payable (in addition to the above charges), if the Premises to which Gas is delivered under this Rate Schedule is located within the boundaries of a municipality or First Nations lands (formerly, reserves within the *Indian Act*) where FortisBC Energy is required to remit such Municipal Operating Fee to the municipality and excluding any Customer from whom FortisBC Energy is not allowed to collect such Municipal Operating Fee. The Municipal Operating Fee charge will be calculated in accordance with the approved methodology.

Minimum Charge per Month

The minimum charge per Month will be the aggregate of the Basic Charge and the Municipal Operating Fee charge (where applicable and calculated in accordance with the approved methodology).

Notes:

1. The Cost of Gas is based on the calculation of 100% of a Customer's consumption in Gigajoules, minus the percentage of a Customer's selection of Low Carbon Gas measured in Gigajoules, multiplied by the Cost of Gas (Commodity Cost Recovery Charge) per Gigajoule. For example, if a Customer selects 30% Low Carbon Gas, the Cost of Gas will be calculated based on 70% (100% - 30%) of a Customer's consumption.
2. The percentage of Low Carbon Gas of a Customer's Gas usage available to Customers is set by FortisBC Energy and includes a range between 5% of Low Carbon Gas and 100% of Low Carbon Gas, increasing by increments of 5%.
3. The Cost of Low Carbon Gas is based on the calculation of a Customer's selection of the percentage of Low Carbon Gas measured in Gigajoules, multiplied by the Low Carbon Gas Charge per Gigajoule. The Low Carbon Gas Charge per Gigajoule has been determined in accordance with Section 28.4 (Price Determination) in the General Terms and Conditions of FortisBC Energy.

FORTISBC ENERGY INC.

RATE SCHEDULE 5PLC

GENERAL FIRM PERMANENT CONNECTION LOW CARBON GAS SERVICE

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GENERAL FIRM SERVICE AGREEMENT SA-5PLC.1

1. Definitions

1.1 Definitions

Except where the context requires otherwise, all words and phrases defined below or in the General Terms and Conditions of FortisBC Energy and used in this Rate Schedule or in a Service Agreement have the meanings set out below or in the General Terms and Conditions of FortisBC Energy. Where any of the definitions set out below conflict with the definitions in the General Terms and Conditions of FortisBC Energy, the definitions set out below govern.

(a) **Rate Schedule 5PLC or this Rate Schedule** - means this Rate Schedule, including all rates, terms and conditions, and the Table of Charges, as amended from time to time by FortisBC Energy with the consent of the British Columbia Utilities Commission.

2. Applicability

2.1 Description of Applicability

This Rate Schedule only applies to and is mandatory for the sale of firm Gas, no portion of which may be resold, through one meter station to a Permanent Connection Low Carbon Gas Customer. For greater certainty, firm Gas service under this Rate Schedule means the Gas FortisBC Energy is obligated to sell to a Customer on a firm basis subject to interruption or curtailment pursuant to Sections 10 (Default for Bankruptcy) and 13 (Force Majeure) of Rate Schedule 5 and the General Terms and Conditions of FortisBC Energy.

2.2 Service Agreement

FortisBC Energy will only provide the sale of firm Gas under this Rate Schedule, pursuant to an executed General Firm Service Agreement under Rate Schedule 5PLC.

2.3 British Columbia Utilities Commission

This Rate Schedule may be amended from time to time with the consent of the British Columbia Utilities Commission.

3. Table of Charges

3.1 **Charges**

In respect of all quantities of Gas delivered to the Delivery Point pursuant to this Rate Schedule and the Service Agreement, the Customer will pay to FortisBC Energy all of the charges set out in the Table of Charges. For greater certainty, it is expressly confirmed that the Table of Charges attached to Rate Schedule 5 does not apply to this Rate Schedule 5PLC.

4. Terms and Conditions

4.1 **Other Terms and Conditions**

The terms and conditions set out in Rate Schedule 5 apply to and form part of this Rate Schedule, with necessary changes and bind FortisBC Energy and the Customer as if set out in this Rate Schedule, except as excluded by operation of Section 4.2 (Inapplicable Terms and Conditions).

4.2 **Inapplicable Terms and Conditions**

The following terms and conditions set out in Rate Schedule 5 do not apply, and are not incorporated by reference, into this Rate Schedule and will not be construed in any way to affect the meaning or intent of any provision this Rate Schedule:

(a) Section 2 (Applicability)

(b) Section 5 (Table of Charges)

If any term or provision of this Rate Schedule is inconsistent with any term or provision of Rate Schedule 5, the term or provision of this Rate Schedule will prevail.

Table of Charges

	Mainland and Vancouver Island Service Area
Delivery Margin Related Charges	
1. **Basic Charge** per Month	$ TBD
2. **Rider 2** per Month	$ TBD
Subtotal of per Month **Delivery** Margin Related Charges	**$ TBD**
3. **Demand Charge** per Month per Gigajoule of Daily Demand	$ TBD[1]
4. **Delivery Charge** per Gigajoule	$ TBD
5. **Rider 3** per Gigajoule	$ TBD
Commodity Related Charges	
6. **Storage and Transport Charge** per Gigajoule	$ TBD
7. **Rider 6** per Gigajoule	$ TBD
Subtotal of per Gigajoule **Storage and Transport** Related Charges	**$ TBD**
8. **Cost of Low Carbon Gas** (Low Carbon Gas Charge) per Gigajoule	$ TBD[2,3]

Delivery Margin Related Riders

Rider 2 **Clean Growth Innovation Fund Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Rider 3 **Biomethane Variance Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Rider 4 (Reserved for future use.)

Rider 5 **Revenue Stabilization Adjustment Charge** - Not applicable.

Commodity Cost Recovery Related Riders

Rider 1 (Reserved for future use.)

Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Municipal Operating Fee Charge

A Municipal Operating Fee charge is payable (in addition to the above charges) if the facilities to which Gas is delivered under this Rate Schedule are located within the boundaries of a municipality or First Nations lands (formerly, reserves within the *Indian Act*) where FortisBC Energy is required to remit such Municipal Operating Fee to the municipality and excluding any Customer from whom FortisBC Energy is not allowed to collect such Municipal Operating Fee. The Municipal Operating Fee charge will be calculated in accordance with the approved methodology.

Minimum Charge per Month

The minimum charge per Month will be the aggregate of the Basic Charge, Demand Charges and the Municipal Operating Fee charge (where applicable and calculated in accordance with the approved methodology).

Notes:

1. Daily Demand is equal to 1.10 multiplied by the greater of:

   (a) the Customer's highest average daily consumption of any month during the winter period (November 1 to March 31); or

   (b) one half of the Customer's highest average daily consumption of any month during the summer period (April 1 to October 31).

   The calculation of Daily Demand will be based on the Customer's actual gas use during the preceding Contract Year.

2. Permanent Connection Low Carbon Gas Service Customers are connected to the FortisBC Energy System by a service line installed on or after the effective date of this rate schedule and must take 100% Low Carbon Gas for their Gas commodity.
3. The Cost of Low Carbon Gas (Low Carbon Gas Charge) per Gigajoule has been determined in accordance with Section 28.4 (Price Determination) in the General Terms and Conditions of FortisBC Energy.

GENERAL FIRM SERVICE AGREEMENT FOR RATE SCHEDULE 5PLC

This Agreement is dated _____, 20___, between FortisBC Energy Inc. ("FortisBC Energy ") and _____ (the "Customer").

WHEREAS:

A. FortisBC Energy owns and operates the FortisBC Energy System;

B. The Customer is the owner and operator of a _____ located in or near _____, British Columbia; and

C. The Customer desires to purchase from FortisBC Energy firm Gas for such facilities in accordance with Rate Schedule 5PLC and the terms set out herein.

NOW THEREFORE THIS AGREEMENT WITNESSES THAT in consideration of the terms, conditions and limitations contained herein, the parties agree as follows:

1. Specific Information

Estimated Maximum Quantity _____ Gigajoules per day

Commencement Date: _____

Expiry Date: _____
(only specify an expiry date if term of Service Agreement is not automatically continue from Year to Year as set out in Section 6.2 of Rate Schedule 5)

Low Carbon Gas Selection ☐ Gigajoules per Year

_____

Or:
☐ Percentage

_____

Delivery Point: _____

_____

_____

Pressure at the Delivery Point: _____
(only specify where applicable as set out in Section 4.3 of Rate Schedule 5)

Service Address: _____

Account Number: _____

Address of Customer for receiving notices:

_____ Attention: _____
(name of Customer)

_____ Telephone: _____
(address of Customer)

_____ Fax: _____

_____ Email: _____

_____

The information set out above is hereby approved by the parties and each reference in either this agreement or Rate Schedule 5PLC to any such information is to the information set out above.

2. Rate Schedule 5PLC

2.1 Additional Terms

All rates, terms and conditions set out in Rate Schedule 5PLC and the General Terms and Conditions of FortisBC Energy, as any of them may be amended by FortisBC Energy and approved from time to time by the British Columbia Utilities Commission, are in addition to the terms and conditions contained in this Service Agreement and form part of this Service Agreement and bind FortisBC Energy and the Customer as if set out in this Service Agreement.

2.2 Payment of Amounts

Without limiting the generality of the foregoing, the Customer will pay to FortisBC Energy all of the amounts set out in Rate Schedule 5PLC for the Services provided under Rate Schedule 5PLC and this Service Agreement.

2.3 **Conflict**

Where anything in either Rate Schedule 5PLC or the General Terms and Conditions of FortisBC Energy conflicts with any of the rates, terms and conditions set out in this Service Agreement, this Service Agreement governs. Where anything in Rate Schedule 5PLC conflicts with any of the rates, terms and conditions set out in the General Terms and Conditions of FortisBC Energy, Rate Schedule 5PLC governs.

2.4 **Acknowledgement**

The Customer acknowledges receiving and reading a copy of Rate Schedule 5PLC and the General Terms and Conditions of FortisBC Energy and agrees to comply with and be bound by all terms and conditions set out therein.

IN WITNESS WHEREOF the parties hereto have executed this Service Agreement.

FORTISBC ENERGY INC.

BY: _____
(Signature)

_____
(Title)

_____
(Name – Please Print)

DATE: _____

_____
(here insert name of Customer)

BY: _____
(Signature)

_____
(Title)

_____
(Name – Please Print)

DATE: _____

FORTISBC ENERGY INC.

RATE SCHEDULE 5VLC

GENERAL FIRM LOW CARBON GAS VEHICLE SERVICE

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4. TERMS AND CONDITIONS R-5VLC.2
4.1 Other Terms and Conditions R-5VLC.2
4.2 Inapplicable Terms and Conditions R-5VLC.2

TABLE OF CHARGES R-5VLC.3

GENERAL FIRM SERVICE AGREEMENT SA-5VLC.1

1. Definitions

1.1 Definitions

Except where the context requires otherwise, all words and phrases defined below or in the General Terms and Conditions of FortisBC Energy and used in this Rate Schedule or in a Service Agreement have the meanings set out below or in the General Terms and Conditions of FortisBC Energy. Where any of the definitions set out below conflict with the definitions in the General Terms and Conditions of FortisBC Energy, the definitions set out below govern.

(a) **Rate Schedule 5VLC or this Rate Schedule** - means this Rate Schedule, including all rates, terms and conditions, and the Table of Charges, as amended from time to time by FortisBC Energy with the consent of the British Columbia Utilities Commission.

2. Applicability

2.1 Description of Applicability

This Rate Schedule applies to the sale of firm Gas, no portion of which may be resold, through one meter station to a Natural Gas Vehicle Customer who has elected to receive all or a portion of their Gas as Low Carbon Gas. For greater certainty, firm Gas service under this Rate Schedule means the Gas FortisBC Energy is obligated to sell to a Customer on a firm basis subject to interruption or curtailment pursuant to Sections 10 (Default for Bankruptcy) and 13 (Force Majeure) of Rate Schedule 5 and the General Terms and Conditions of FortisBC Energy.

2.2 Service Agreement

FortisBC Energy will only provide the sale of firm Gas under this Rate Schedule, pursuant to an executed General Interruptible Service Agreement under Rate Schedule 5VLC.

2.3 British Columbia Utilities Commission

This Rate Schedule may be amended from time to time with the consent of the British Columbia Utilities Commission.

3. Table of Charges

3.1 Charges

In respect of all quantities of Gas delivered to the Delivery Point pursuant to this Rate Schedule and the Service Agreement, the Customer will pay to FortisBC Energy all of the charges set out in the Table of Charges. For greater certainty, it is expressly confirmed that the Table of Charges attached to Rate Schedule 5 does not apply to this Rate Schedule 5VLC.

4. Terms and Conditions

4.1 Other Terms and Conditions

The terms and conditions set out in Rate Schedule 5 apply to and form part of this Rate Schedule, with necessary changes and bind FortisBC Energy and the Customer as if set out in this Rate Schedule, except as excluded by operation of Section 4.2 (Inapplicable Terms and Conditions).

4.2 Inapplicable Terms and Conditions

The following terms and conditions set out in Rate Schedule 5 do not apply, and are not incorporated by reference, into this Rate Schedule and will not be construed in any way to affect the meaning or intent of any provision this Rate Schedule:

(a) Section 2 (Applicability)

(b) Section 5 (Table of Charges)

If any term or provision of this Rate Schedule is inconsistent with any term or provision of Rate Schedule 5, the term or provision of this Rate Schedule will prevail.

Table of Charges

	Mainland and Vancouver Island Service Area
Delivery Margin Related Charges	
1. **Basic Charge** per Month	$ TBD
2. **Rider 2** per Month	$ TBD
Subtotal of per Month **Delivery** Margin Related Charges	**$ TBD**
3. **Demand Charge** per Month per Gigajoule of Daily Demand	$ TBD[1]
4. **Delivery Charge** per Gigajoule	$ TBD
5. **Rider 3** per Gigajoule	$ TBD
Commodity Related Charges	
6. **Storage and Transport Charge** per Gigajoule	$ TBD
7. **Rider 6** per Gigajoule	$ TBD
Subtotal of per Gigajoule **Storage and Transport** Related Charges	**$ TBD**
8. **Cost of Gas** (Commodity Cost Recovery Charge) per Gigajoule	$ TBD[2,3]
9. **Cost of Low Carbon Gas** (Low Carbon Gas Charge) per Gigajoule	$ TBD[3,4]

Delivery Margin Related Riders

Rider 2 **Clean Growth Innovation Fund Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Rider 3 **Biomethane Variance Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Rider 4 (Reserved for future use.)

Rider 5 **Revenue Stabilization Adjustment Charge** - Not applicable.

Commodity Cost Recovery Related Riders

Rider 1 (Reserved for future use.)

Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland and Vancouver Island Service Area Customers for the Year ending December 31, 2023.

Municipal Operating Fee Charge

A Municipal Operating Fee charge is payable (in addition to the above charges) if the facilities to which Gas is delivered under this Rate Schedule are located within the boundaries of a municipality or First Nations lands (formerly, reserves within the *Indian Act*) where FortisBC Energy is required to remit such Municipal Operating Fee to the municipality and excluding any Customer from whom FortisBC Energy is not allowed to collect such Municipal Operating Fee. The Municipal Operating Fee charge will be calculated in accordance with the approved methodology.

Minimum Charge per Month

The minimum charge per Month will be the aggregate of the Basic Charge, Demand Charges and the Municipal Operating Fee charge (where applicable and calculated in accordance with the approved methodology).

Notes:

1. Daily Demand is equal to 1.10 multiplied by the greater of:

   (a) the Customer's highest average daily consumption of any month during the winter period (November 1 to March 31); or

   (b) one half of the Customer's highest average daily consumption of any month during the summer period (April 1 to October 31).

   The calculation of Daily Demand will be based on the Customer's actual gas use during the preceding Contract Year.

2. The Cost of Gas is based on the calculation of 100% of a Customer's consumption in Gigajoules, minus the percentage of a Customer's selection of Low Carbon Gas measured in Gigajoules, multiplied by the Cost of Gas (Commodity Cost Recovery Charge) per Gigajoule. For example, if a Customer selects 30% Low Carbon Gas, the Cost of Gas will be calculated based on 70% (100% - 30%) of a Customer's consumption.
3. The percentage of Low Carbon Gas of a Customer's Gas usage available to Customers is set by FortisBC Energy and includes a range between 5% of Low Carbon Gas and 100% of Low Carbon Gas, increasing by increments of 5%.
4. The Cost of Low Carbon Gas is based on the calculation of a Customer's selection of the percentage of Low Carbon Gas measured in Gigajoules, multiplied by the Low Carbon Gas Charge per Gigajoule. The Low Carbon Gas Charge per Gigajoule has been determined in accordance with Section 28.4 (Price Determination) in the General Terms and Conditions of FortisBC Energy.

GENERAL FIRM SERVICE AGREEMENT FOR RATE SCHEDULE 5VLC

This Agreement is dated _____, 20___, between FortisBC Energy Inc. ("FortisBC Energy ") and _____ (the "Customer").

WHEREAS:

A. FortisBC Energy owns and operates the FortisBC Energy System;

B. The Customer is the owner and operator of a _____ located in or near _____, British Columbia; and

C. The Customer desires to purchase from FortisBC Energy firm Gas for such facilities in accordance with Rate Schedule 5VLC and the terms set out herein.

NOW THEREFORE THIS AGREEMENT WITNESSES THAT in consideration of the terms, conditions and limitations contained herein, the parties agree as follows:

1. Specific Information

Estimated Maximum Quantity _____ Gigajoules per day

Commencement Date: _____

Expiry Date: _____
(only specify an expiry date if term of Service Agreement is not automatically continue from Year to Year as set out in Section 6.2 of Rate Schedule 5)

Low Carbon Gas Selection ☐ Gigajoules per Year

_____

Or:
☐ Percentage

_____

Delivery Point: _____

_____

_____

Pressure at the Delivery Point: _____
(only specify where applicable as set out in Section 4.3 of Rate Schedule 5)

Service Address: _____

Account Number: _____

Address of Customer for receiving notices:

_____ Attention: _____
(name of Customer)

_____ Telephone: _____
(address of Customer)

_____ Fax: _____

_____ Email: _____

_____

The information set out above is hereby approved by the parties and each reference in either this agreement or Rate Schedule 5VLC to any such information is to the information set out above.

2. Rate Schedule 5VLC

2.1 Additional Terms

All rates, terms and conditions set out in Rate Schedule 5VLC and the General Terms and Conditions of FortisBC Energy, as any of them may be amended by FortisBC Energy and approved from time to time by the British Columbia Utilities Commission, are in addition to the terms and conditions contained in this Service Agreement and form part of this Service Agreement and bind FortisBC Energy and the Customer as if set out in this Service Agreement.

2.2 Payment of Amounts

Without limiting the generality of the foregoing, the Customer will pay to FortisBC Energy all of the amounts set out in Rate Schedule 5VLC for the Services provided under Rate Schedule 5VLC and this Service Agreement.

2.3 **Conflict**

Where anything in either Rate Schedule 5VLC or the General Terms and Conditions of FortisBC Energy conflicts with any of the rates, terms and conditions set out in this Service Agreement, this Service Agreement governs. Where anything in Rate Schedule 5VLC conflicts with any of the rates, terms and conditions set out in the General Terms and Conditions of FortisBC Energy, Rate Schedule 5VLC governs.

2.4 **Acknowledgement**

The Customer acknowledges receiving and reading a copy of Rate Schedule 5VLC and the General Terms and Conditions of FortisBC Energy and agrees to comply with and be bound by all terms and conditions set out therein.

IN WITNESS WHEREOF the parties hereto have executed this Service Agreement.

FORTISBC ENERGY INC.

BY: _____
(Signature)

_____
(Title)

_____
(Name – Please Print)

DATE: _____

_____
(here insert name of Customer)

BY: _____
(Signature)

_____
(Title)

_____
(Name – Please Print)

DATE: _____

Appendix E
LTGRP ADVISORY GROUP PRESENTATION

Renewable Gas – Comprehensive Review Filing

Energy at work FORTIS BC™

Background and History of Program and Framework

Characteristics	Phase 1 Pilot Program 2010-2013	Phase 2 Permanent Program 2013	Phase 3 New RG Rate (BERC) 2016	Phase 4 GGRR amended to include RG Supply 2017	Phase 5 GGRR amended and BERC review 2021
Volumes and Cost	0.25 PJ/Yr @ $15.28/GJ	1.5 PJ/Yr @ $15.28/GJ	1.5 PJ/Yr @$15.28/GJ	8.9 PJ/Yr @$30/GJ	>31 PJ/Yr @ $31/GJ
Supply Projects	First two projects	Added projects	Continued to add projects	First Out-of-province Supply	Acquisition includes project ownership
Offerings	Customer Program initiated	Expanded Customer Offering	Long Term Contracts Available	No Change	New Proposal
Pricing	BERC = Program costs	BERC = Program costs	BERC = Market Price	No Change	New Proposal

Scope of Application Review

Customer Programs

Cost Recovery

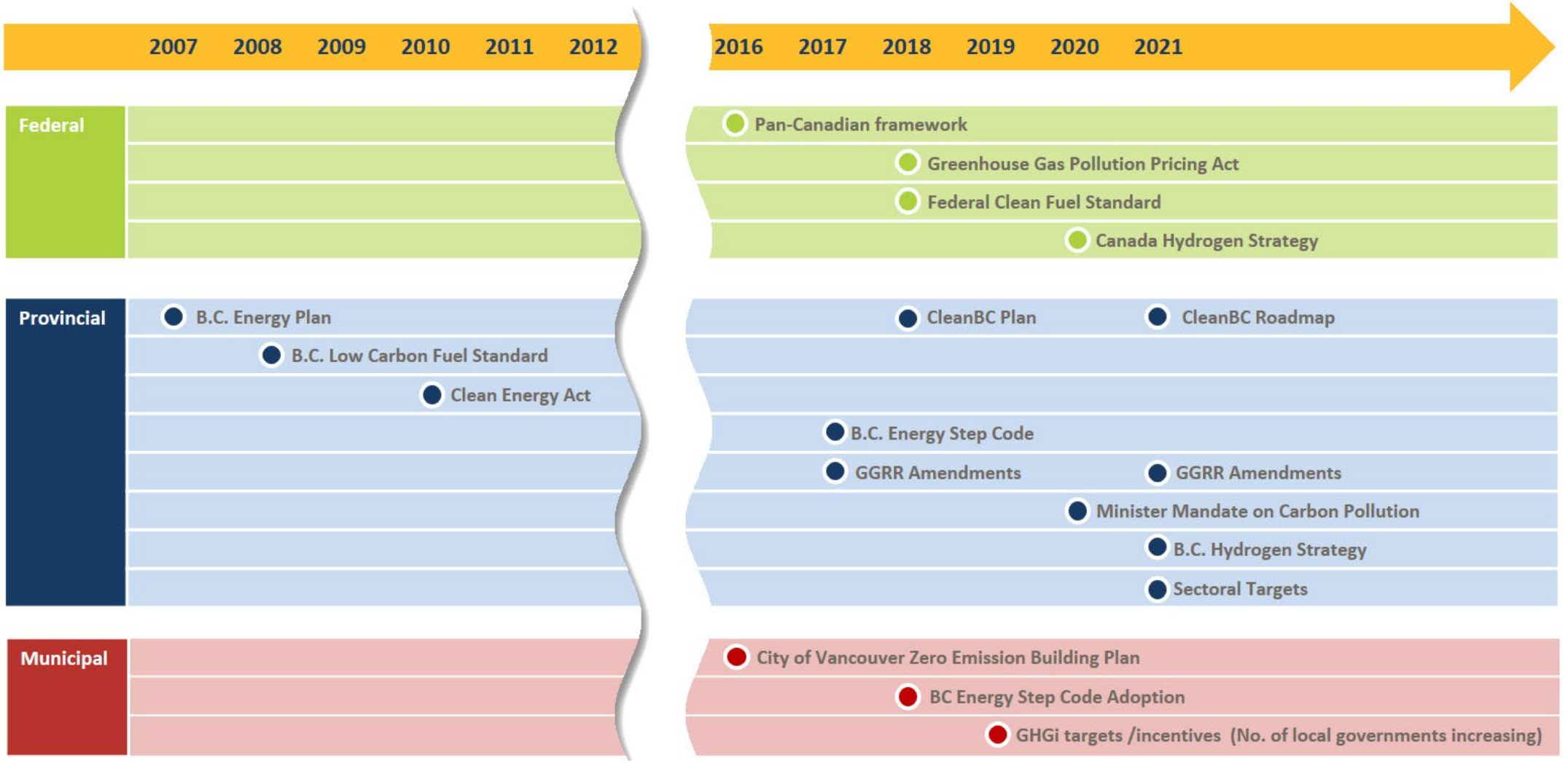
Supply and Demand

Policy Environment

Operating Environment has Evolved Rapidly

- Operating environment has rapidly evolved since last BERC Rate filing
- Regulations enacted at the Federal, Provincial and Municipal government levels focus on reducing emissions
- Customers are wanting energy choice
- Customer segments have different needs and regulations
- Diversified pathway where utilize both the gas and electric infrastructure is the optimal solutions for BC

All Levels of Government Adopted Policies for Decarbonization



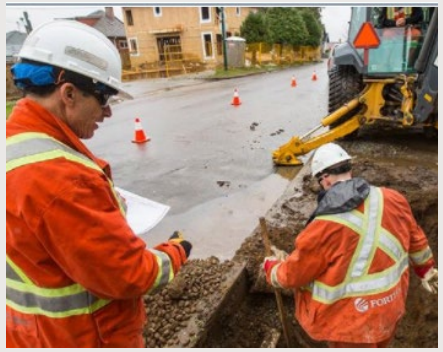
Energy at work FORTIS BC™

Local Governments Adopted Emissions Reduction Targets in Buildings

Local Governments with GHGi Targets for New Construction

- City of Vancouver
- District of North Vancouver
- City of Burnaby
- City of Richmond
- City of Surrey

Local Governments Providing Incentives for New Construction

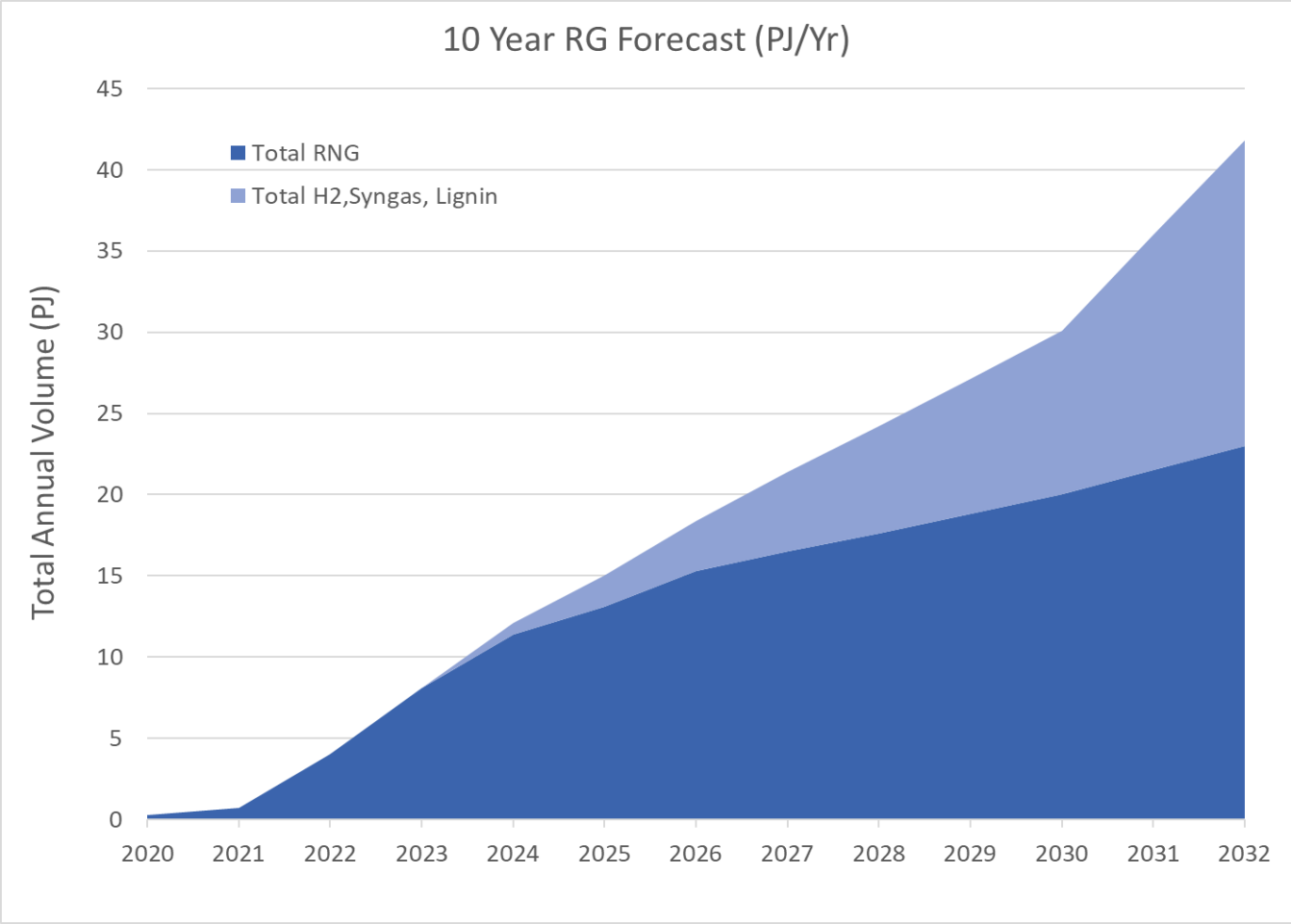


- City of Surrey
- District of Squamish

- Municipalities' decarbonization polices are making it difficult for customers to choose gas in their new development
- Local governments:
  - Adopting greenhouse gas emissions (GHGi) targets in their bylaws/zonings
  - Providing incentives to builders for no gas connection
  - Looking for permanent emissions reduction for the life of the building
- Customers opting for electricity as the easiest path to meet the GHGi targets

10 Year Renewable Gas Supply Forecast

Developed pre-2021 CleanBC Roadmap



- Experience in developing RG projects
- Scale and diversity of supply projects has grown since the program's inception
- Working collaboratively with suppliers in and outside of BC

Energy at work FORTIS BC™

Proposed RG Service Offerings

New

Decarbonizing existing and new customers' gas supply

All existing sales customers to receive a specified blend of RG targeting 1% in 2024 and increasing over time

New residential gas connection customers to receive 100% RG for the life of their building

Ongoing

Voluntary Program

Modifications to existing offering
Various blend options still available
NGV, T-Service and Long Term Contracts pricing modifications

Renewable Gas Program Benefits

- Encourage the efficient use of existing assets for the benefit of all customers
- Responsive to Customer Needs or Requirements
- Responsive to Government Policies
- Price to support uptake in RG offerings to maximize revenue
- Match Supply to Demand

Consultation on Tariff and program design

- **Two Phases:**

  - **First Phase scope:** general awareness and current status of the RG program, RG supply outlook, the development and overarching scope of the Application

  - **Second Phase**: in progress

- **Stakeholders:**

  - Interveners, Customers, Provincial and Local governments, Building Sector – builders/ developers /associations, trades and manufacturers

- **Letters of Support:**

  - To date received 76 letters of support for the Application from a municipality, manufacturers, builders/developers, associations and consultants.

Next Steps: Regulatory Process

Appendix F
LETTERS OF SUPPORT

Appendix F-1
LETTERS OF SUPPORT

INDUSTRY PARTNERSHIPS

1030 – 625 Howe St.
Vancouver, British Columbia
Canada V6C 2T6
www.andionglobal.com

November 15, 2021

Ranvir Khosla
Energy Solutions Manager
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

Letter of Support

RE: Andion supports the renewable natural gas tariff for new residential buildings

Andion's team of professionals have over 20 years experience in providing waste management solutions, through the design and delivery of more than 180 wastewater treatment and waste to energy plants globally. In the waste-to-energy sector, Andion is a provider of turnkey anerobic digestion solutions. Andion's commercially proven proprietary technology offers a fully integrated process that addresses the critical flaws of other anaerobic digestion facilities and provides a competitive advantage over other organic waste disposal methods, such as composting and municipal solid waste incineration. The technology offered by Andion is unique with regards to the comprehensive approach, and, most importantly, to the unique solution for treating difficult substrates such as food waste, organic waste, commercial waste, farm waste, and slaughterhouse waste.

Currently Andion North America is developing waste-to-energy projects in British Columbia that will provide energy to underserved communities, including Indigenous communities. These communities are looking at renewable gas as an economic development opportunity, and an energy source that can assist them in escaping energy poverty.

One opportunity, in the advanced stages of development, is a food waste to energy facility in partnership with Semiahmoo First Nation. The facility will address a short fall in organics waste processing in the region and is expected to provide significant financial returns to the Nation and its members. In addition, the project will enable the construction of a natural gas supply line to the Semiahmoo reserve lands, bringing a stable and reliable source of energy to existing and future residential homes on the reserve lands without requiring additional capital investment on the part of the Nation. The project will also enable the construction of roads and utility infrastructure on undeveloped portions of the reserve, facilitating future industrial/commercial development opportunities for the Nation. Semiahmoo's long term aspiration is that the availability of energy and economic opportunity will allow more of the Nation's members to return to their traditional lands.

We believe that FortisBC's renewable gas is an important energy option for British Columbians moving forward. It allows for significant existing energy infrastructure to continue to be used while diversifying the province's energy portfolio with a low carbon option as it seeks to reduce emissions.

Sincerely,

Phillip Abrary, President & CEO
Andion North America Limited

Appendix F-2
LETTERS OF SUPPORT

INDUSTRY, ASSOCIATION AND ENVIRONMENTAL NON-GOVERNMENT ORGANIZATION

3RD GENERATION
HOMES

#202 474 West Avenue
Kelowna, BC V1Y 4Z2
Office Cell: (250) 300-5262
Office@3rdgenhomes.com

November 15, 2021

FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8

Attention: Wade Benner, Energy Solutions Manager, FortisBC
Re: FortisBC Proposed Renewable Gas Tariff

Dear Mr. Wade Benner,

We are writing in support of the Renewable Gas tariff that FortisBC is proposing that would see new residential customers receiving 100% Renewable Gas that would remain permanent for the life of the building. This approach addresses climate concerns while maintaining affordability and choice for builders and homeowners.

As a home builder, we deal directly with new home owners and they are all for energy conservation as it relates to the climate, but they also want an affordable choice. They feel that FortisBC's Renewable Gas program provides new home owners the choices of what they can utilize in their new home. The majority of new homeowners want the ability to cook with natural gas and cozy up to a gas fireplace.

To implement an "Electric only" home would not allow this choice and many feel that the costs will be prohibitive. With the onslaught of electric vehicles and other things, the costs will rise and the demand on infrastructure will inevitably increase. The costs for trades and equipment will also increase due to reduced options and demand for these items.

In summary, we feel that ignoring the benefits of the Renewable Gas option is shortsighted and not in the best interest of people building new homes.

Respectfully yours,

Cassidy DeVeer, President
3rd Generation Homes Ltd.

PRP HOLDINGS LTD. ADOR PROPERTIES GROUP

26063 26 AVENUE,

LANGLEY, BC, V4W2W1

TO: FortisBC Energy Inc.

16705 Fraser Highway, Surrey, BC, V4N 0E8

RE: RNG letter of support

To whom it concerns,

I believe consumers and developers should have a choice. If the intent is to achieve environmental sustainability, then it is important to note this product is superior. Being carbon neutral is what we all should strive to achieve.

As a builder we are well aware of our carbon footprint since building is a major contributor of carbon emissions. Both construction and building operations contribute to 11% of global carbon emissions. The BC step codes being implemented here in BC are an attempt to reign in carbon emissions. The elimination of natural gas or even Renewable Natural Gas makes little sense since the STEP codes program is already quite far reaching. To suggest more needs to be done is difficult without the advent of new or better technology.

Currently my group is constructing a multi family project in the northern part of BC. This project was not viable with only hydro. BC Hydro was not able to supply the project enough power to support the parkade and thirty-six condominiums. The only viable solution was to have heat supplied by Fortis. This project was located in the heart of a major metropolitan center and hydro was unable to fully support it. There were two options; spend considerable money to upgrade hydro or to supplement with Fortis gas. The viable option was to build out a project that offers both hydro and gas. My point is simply that hydro is not always the best nor should it be the only option.

We need to have energy options to maintain viable communities and this includes Renewable natural gas.

Sincerely,

Peter Wise

President

ALIGNWEST
Custom • Design HOMES

FortisBC Energy Inc.

16705 Fraser Highway

Surrey BC V4N 0E8

October 25, 2021

Attention: Wade Benner, Energy Solutions Manager, FortisBC

Re: FortisBC Proposed Renewable Gas Tariff

Dear Mr. Wade Benner,

We are writing in support of the Renewable Gas tariff that FortisBC is proposing that would see new residential customers receiving 100% Renewable Gas that would remain permanent for the life of the building.

This approach addresses climate concerns while maintaining affordability and choice for builders and homeowners.

Choice and affordability being the key words. Mandating electricity only, is short sided and limiting to the quality of life for most BC residents. Our ever-increasing demand on our electrical grid with larger homes, working from home and fast charging vehicles etc, will certainly challenge our infrastructure and affordability for our new homes and old homes alike.

Thanks for your listening ear and the ability to support a better option for our new homes across the province.

Best Regards,

David Pfuetzner CHP

Owner – Align West Homes Ltd

Kelowna, BC

FortisBC Energy Inc.

16705 Fraser Highway

Surrey BC V4N 0E8

October 18, 2021

Attention: Gerald Hohl Energy Solutions Manager, FortisBC

Re: FortisBC Proposed Renewable Gas Tariff

Dear Mr. Gerald Hohl

We are writing in support of the Renewable Gas tariff that FortisBC is proposing that would see new residential customers receiving 100% Renewable Gas that would remain permanent for the life of the building.

This approach addresses climate concerns while maintaining affordability and choice for builders and homeowners.

It is our position that we cannot all lead towards electricity as the only clean source of energy, Natural Gas has come a long ways over the years and is extremely efficient, environmentally sustainable and affordable.

Many of our customers have made the switch from electricity to gas over the years and having to make another switch back would not be financially feasible for many.

Regards,

Robert Davidson,

Project Manager

Archie Johnstone Plumbing & Heating Ltd.

BCRFA
BRITISH COLUMBIA
RESTAURANT &
FOODSERVICES
ASSOCIATION

November 25, 2021

Jason Wolfe
Director, Energy Solutions
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

Dear Mr. Wolfe

RE: British Columbia Restaurant and Foodservices Association (BCRFA) letter of support for the renewable natural gas application.

The BCRFA is comprised of a volunteer board of directors of industry leaders representing various segments of BC's restaurant and foodservice industry that govern the BCRFA. We are one of the most respected business organizations in the province, a voice to the government, and a source for real-time information about critical issues facing local businesses. In addition I am the the director of the Premier's Permanent Small Business Roundtable and an appointed member of BC's Climate Team to chart out BC's carbon future.

Restaurants have significant opportunities to become environmentally sustainable. For example, upgrading to high-efficiency gas heating and cooling equipment helps reduce greenhouse gasses, lowers energy usage, and takes advantage of the province's resilient gas infrastructure. Done correctly, we believe sustainability can work hand in hand with supporting the restaurant industry's economic contributions to the province. Specifically, renewable gas allows the restaurant industry to meet its customer and business needs but at the same time reduce its carbon footprint.

There are natural symmetries with renewable gas (capturing methane from sources that would otherwise escape to atmosphere) and the restaurant industry. The BCRFA has created a cost-effective organic waste program that benefits the environment, a driving force behind the industry. Instead of filling up the landfills, proper waste reduction and composting are critical in providing numerous renewal gas suppliers feedstock. Emissions reduction alignment with Renewable Gas in this fashion allows for job growth and prosperity for our members' businesses.

Our members have expressed concerns that cooking would not be the same without gas stoves and that switching to an electrified option would increase cost, time, and likely loss of consumer demand at our restaurants. Furthermore, many restaurants in Vancouver (and around British Columbia) use high-

temperature cooking for flavour, convenience and quality, and unfortunately, there is nothing that meets these same technical requirements as gas appliances. Our industry is approaching close to 45% of ethnic insoired foods which requires the efficiency of natural gas.

Allowing restaurants to include and upgrade to efficient gas appliances using renewable gas created by the organic waste program makes sense; therefore, the BCRFA fully supports FortisBC's renewable gas application.

Finally, in addition to the critical importance of gas, Fortis has been a substantial partner to our industry throughout the pandemic and to our future long road to recovery.

Please feel free to reach me personally at 604-986-1429 if we can provide further insight.

Thank you,

Sincerely

Ian Tostenson
President/CEO

Beedie

November 17, 2021

Brad Ricketts
Energy Solutions Manager
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, B.C.
V4N 0E8

RE: Beedie Letter of Support for Tariff on New Home Renewable Natural Gas

Beedie is a private real estate development, investment and property management company that has operated in BC for over 65 years.

We support Fortis's proposal of the tariff on renewable natural gas given the carbon neutral benefits it provides along with application for use in supporting industry and sustainable growth.

Regards,

Jason Tonin

Vice President, Land Development

3030 Gilmore Diversion, Burnaby, BC V5G 3B4 T604 435 3321 F604 432 7349
www.beedie.ca

BELLEDUNE
HOMES LTD

9258 Sykes Rd W, Prince George, BC V2N 6N4
Dave 250-617-4637 or Jody 250-640-5008
accounting@belledunehomes.ca

August 28, 2021

FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8
October 18, 2021

Attention: Peter Hill, Energy Solutions Manager, FortisBC
Re: FortisBC Proposed Renewable Gas Tariff

Dear Mr. Hill

We are writing in support of the Renewable Gas tariff that FortisBC is proposing that would see new residential customers receiving 100% Renewable Gas that would remain permanent for the life of the building.

We recognize that this approach addresses climate concerns while maintaining affordability and choice for builders and homeowners.

We have been a leader in our community in terms of adding efficiencies in our builds and we were the first Energy Star builder in Northern BC. We build all of our homes to at least step 3 of the energy code and our own home is step 4. One thing that is not feasible for at least 98% of new home clients in our climate at the moment is a true net zero home or one that is fully electrified. Most of our projects are rural and of course we have a true winter in the north. From our colleagues that have been attempting to build electrified homes in areas that do not have gas, they have told us that it is impossible/impractical to get to net zero. The service requirement for bc hydro is 400 amp on a typical sized home that is fully electrified. At this point the cost to get 400 amp service and the capacity available with existing infrastructure is a limiting factor. For our clients that are trying to get powerups, it takes months to get the information needed out of BC Hydro to even make a decision. The organization is not at all prepared for the current workload, there is no way that we would be keen to partner with BC Hydro on new initiatives such as full electrification.

Solar capacity to make up for the full electrification requires so much roof area optimized just right that, again, its just not feasible or anywhere close to affordable at the moment with the technology available. We have a massive roof oriented well and there was no way for us to get the number of panels that we needed on our roof and it was going to cost $100k if we could. We have a well, septic pumps, a suite, our office and a shop for our business. All of these things take power. We also have to heat all of these areas in the winter. There is no way that it makes sense to spend over $100k to save a few hundred a month. Our living situation is typical to many of our clients.

Our experience with Fortis is that you offer terrific customer service. I know that our clients are less interested in their own carbon footprint than they are about the astronomical costs that building already comes with. Our industry does not need any additional hits to our ability to build homes. A cost sensitive approach going forward we support, gas is much more cost effective on all fronts than electrification for heat and hot water so please keep working hard to get to a cleaner option for this fuel source.

Thank you,

Jody Tindill
Owner/Business Manager
250-640-5008
jody@belledunehomes.ca

Dave Eddy
Operations Manager
250-617-4637
daveeddy@telus.net

Boehm Construction Ltd
1020 Nelson St
Nanaimo, BC
V9S 2K2
250-751-4030
jeff@boehmconstruction.ca

Attention: FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8

I would like to express my support of the Renewable Gas tariff that FortisBC is proposing that would see new residential customers receiving 100% Renewable Gas that would stay in place for the life of the building.

I believe that in order to defeat climate change we will still need to use fossil fuels for a time and natural gas can be a part of that strategy for several years yet. I hear about municipalities like Vancouver outlawing natural gas and I disagree with it. I think there will be a time to do this but it is still at least a decade away in my opinion and that as a cleaner burning fuel than some alternatives, natural gas can be a great affordable stop gap measure for all of us, a lot like hybrid cars were a stop gap measure while electrics were being developed.

Sincerely,

Jeff Boehm
Boehm Construction ltd

BOSA
DEVELOPMENT

Bosa Development
Head Office
1300 – 2025 Willingdon Ave
Burnaby BC V5C 0J3

tel 604 294 0666
fax 604 291 9120
toll free 1 877 294 2672
thinkbosa.com

November 19, 2021

Wayne Cankovic
Energy Solutions Manager
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, B.C.
V4N 0E8

Letter of Support

RE: Bosa Development Support of Renewable Gas Tariff

Bosa Development has been an industry leader for decades, providing thousands of homes and jobs to British Columbians.

We pride ourselves on creating positive change in the communities we build and have been ahead of the curve on enacting green technologies, like our current Dockside Green project in Victoria.

FortisBC's renewable gas initiative will help meet green iniatives while providing options to our buyers.

We support the FortisBC tariff application as it will provide another green alternative to achieve our provinces goals of becoming carbon neutral.

Sincerely,

BOSA DEVELOPMENT

Ryan Bosa
President

BRYANS MECHANICAL LTD.
CANADA'S LEADING HOME COMFORT SPECIALISTS

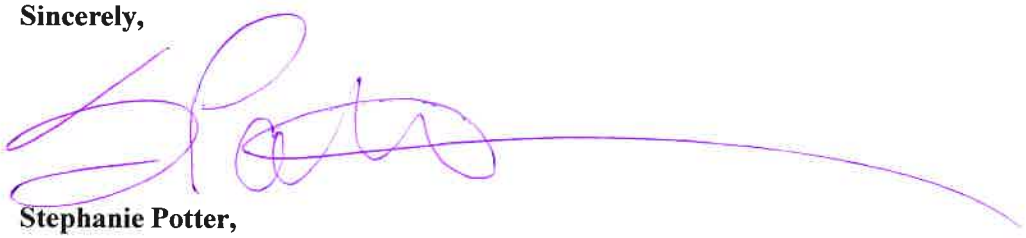
bryansmechanical@gmail.com
www.bryansmechanical.com
2122 Northfield Road, Nanaimo, BC V9S 3B9
Office (250)758-0738

DATE: 22 NOVEMBER 2021

TO: FORTISBC ENERGY INC.
16705 FRASER HIGHWAY,
SURRY BC V4N 0E3

This letter is to show our support of the Renewable Natural Gas Tariff on new residential connection projects. We feel that the carbon neutral product sourced by Fortis BC will go a long way to helping our environment while keeping costs low to our clients.

Sincerely,



Stephanie Potter,
Secretary/Treasurer and Partner of Bryans Mechanical Ltd.

CANADIAN
HOME BUILDERS' ASSOCIATION
CENTRAL INTERIOR

The Voice of the Residential Construction Industry in the Central Interior of BC

October 22, 2021

FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8

Attention: John Drazic, Regional Energy Solutions Manager, FortisBC

Re: FortisBC Proposed Renewable Gas Tariff

Dear Mr. Drazic,

We are writing to support the Renewable Gas tariff that FortisBC is proposing for. We believe that builders and consumers deserve competition in the energy sector and are thrilled that FortisBC has come up with a carbon neutral option through your 100% Renewable Gas program.

It is imperative in our climate zone, where we often get annual temperature fluctuations of 80 degrees C, for our Builders and Energy Advisors to have options when designing mechanical systems. These options will ensure that our builders are successful in operating within the new Provincial Step Code and GHG requirements while maintaining affordability.

Please do not hesitate to contact our association should you need anything to ensure the success of this initiative.

Sincerely,

Jere Lorenz, President
CHBA Central Interior

CANADIAN
HOME BUILDERS' ASSOCIATION
CENTRAL OKANAGAN

OHAE

November 15, 2021

FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8
October 18, 2021

Re: FortisBC Proposed Renewable Gas Tariff

Dear Mr. Drazic,

Please accept this letter of support in response to the Renewable Gas Tariff that is being proposed by FortisBC. We are supportive that this approach will address climate concerns while maintaining choice in the market and ensuring a robust market as it pertains to energy sources to power our homes.

At our core, the Canadian Home Builders' Association – Central Okanagan supports housing affordability for all Canadians. One way to ensure we achieve this is to support a competitive marketplace through consumer choice. The removal of choice for industry and consumers can directly impact affordability and may have a ripple effect, creating further issues down the road.

The innovation under this proposal is encouraging and will ensure that builders will continue to be successful building under the BC Energy Step code with GHG requirements. Please reach out to our Association should you have any questions.

Sincerely,

Daniel Winer
Executive Officer
Canadian Home Builders' Association – Central Okanagan

#216 1884 Spall Road
Kelowna, BC V1Y 4R1

T: 250.861.3988
info@chbaco.com

www.chbaco.com

CANADIAN
HOME BUILDERS' ASSOCIATION
FRASER VALLEY

The Voice of the Residential Construction Industry in the Fraser Valley

November 21, 2021

Mr. Ben Nishi – Regional Energy Solutions Manager, FortisBC
16705 Fraser Hwy
Surrey, BC
V4N 0E8

Re: FortisBC Renewable Natural Gas Initiative

Mr. Nishi,

The Canadian Home Builders' Association of the Fraser Valley (CHBA FV) is the representative voice of the residential construction industry in the Fraser Valley region of British Columbia. The mission of the Canadian Home Builders Association of the Fraser Valley is to encourage professionalism and integrity in all aspects of the home building industry and to have a voice in government and community affairs where it affects our industry.

The building community has seen an increase of green building policies, ranging from the raw construction materials (embodied carbon) down to the end energy consumption of the home. In addition, members advocate the importance of being economically and socially responsible – while at the same time maintaining affordability. We believe FortisBC has proposed a solution that can help members affordably meet specific climate targets.

The policies at various municipalities increasingly discussed by the province shrink number of construction options and trades will increase construction costs. RNG has the lowest emission factor as published by the provincial government. Therefore, the CHBA FV would support the proposed tariff on permanence to residential homes and strata, allowing the buildings to receive RNG for life, giving builders another option in their construction process.

Please let us know if you need anything further.

Best Regards,

Jennifer Cotton
Executive Officer, CHBA Fraser Valley

CANADIAN
HOME BUILDERS' ASSOCIATION
NORTHERN BC

November 23, 2021

FortisBC Energy Inc.
C/o John Drazic,
Regional Energy Solutions Manager
16705 Fraser Highway
Surrey BC V4N 0E8

VIA EMAIL: John.Drazic@fortisbc.com

Dear Mr. Drazic

Re: FortisBC Proposed Renewable Gas Tariff

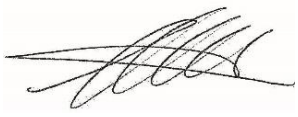
On behalf of the Canadian Home Builders' Association Northern BC, I am writing in support of the Renewable Gas tariff that FortisBC is proposing that would see new residential customers receiving 100% Renewable Gas that would remain permanent for the life of the building.

Maintaining multiple and competing energy providers for the future of Northern BC, when considering our long and cold winters, is paramount to sustaining home operating affordability. Furthermore, due to the larger required heating loads in the north, fitting all required loads within the available amperage of a standard electrical connection, can be a substantial challenge. This challenge is amplified by the rise of the electric vehicle, and it's required EV charger. Maintaining or bolstering an alternative energy option to the all-electric energy pathway, can prevent costly upgrades to an aging grid that will be passed on to a new home builder when they go to connect.

Gas for residential construction is especially valid, given the data that supports RNG as a renewable carbon neutral source. The opportunity to mitigate the release of methane, a gas far more harmful to the environment, while at the same time extracting energy during this offset, is a valid environmentally positive concept. Continuing to support the existing gas infrastructure, in turn, supports energy resilience in the north and the rest of the province.

Thank you for the opportunity to provide this input and I welcome further discussion at your convenience.

Sincerely,



Per:
Shay Bulmer, President
Canadian Home Builders Association of Northern BC
General Office. 250 563-3306 **Cell.** 250 567-0528
Email. shay@northernhomecraft.com

CANADIAN
HOME BUILDERS' ASSOCIATION
SOUTH OKANAGAN

#113-437 Martin Street, Penticton, BC V2A 5L1
250 493 0001
www.chbaso.org
info@chbaso.org

November 1, 2021

FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8

Re: FortisBC Proposed Renewable Gas Tariff

Attention: John Drazic, Regional Energy Solutions Manager, FortisBC

Dear Mr. Drazic,

Please accept this letter in support of the Renewable Gas tariff that FortisBC is proposing. Builders and consumers deserve options in the energy sector and are pleased that FortisBC has come up with a carbon neutral option through your 100% Renewable Gas program.

The South Okanagan climate zone can get annual temperature fluctuations of 80 degrees. That is why it is imperative for our Builders and Energy Advisors to have options when designing mechanical systems. These options will ensure that our builders are successful in operating within the new Provincial Step Code and GHG requirements while maintaining affordability.

Sincerely,

Sarah Taylor
Executive Officer
CHBA South Okanagan

CANADIAN
HOME BUILDERS' ASSOCIATION
VANCOUVER ISLAND

November 3, 2021

FortisBC Energy Inc.
16705 Fraser Highway Surrey BC V4N 0E8
Attention: John Drazic,
Regional Energy Solutions Manager, FortisBC

Re: FortisBC Proposed Renewable Gas Tariff

Dear Mr. Drazic,

Please accept this letter of support in response to the Renewable Gas Tariff that is being proposed by FortisBC. We are supportive that this approach will address climate concerns while maintaining choice in the market. The removal of choice for industry and consumers can directly impact affordability an unintended consequence that the market can't bear. The innovation under this proposal is encouraging and will ensure that builders will continue to be successful building under the BC Energy Step code with GHG requirements. Please reach out to our Association should you have any questions.

Sincerely,

Kerriann Coady
Chief Executive Officer

Canadian Home Builders' Association Vancouver Island
170 Wallace Street Nanaimo British Columbia V9S 2B4
250-755-1366

CLEARCREEK

December 2, 2021

Attention: Mr. Michael Liu
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

RE: Clear Creek's support for FortisBC's application with the BCUC for a Renewable Gas Tariff

Dear Mr. Liu,

Clear Creek has been at the forefront of multi-family development projects in British Columbia for 25 plus years. For us, a home is so much more than a blueprint; it is a place where stories begin, and where memories are created. It is with this philosophy that our team has carefully crafted and built homes since 1995. From luxury single family houses to high rise towers, we have envisioned, planned, and constructed over 500 homes across Greater Vancouver. Our collaborative approach to planning, budgeting, and execution is respected amongst stakeholders and homeowners alike. Our mission is to always build homes that enhance the neighborhoods they are built in and to improve the lives of the families who reside in them. Situated in the most desirable areas within the Lower Mainland, we aim to anticipate both current *and* future needs of the home owner. That is why our homes come with innovative and energy efficient materials, building systems, features, and appliances.

Recent townhouse projects in Vancouver and Richmond include highly efficient natural gas combination boilers for space and water heating and other convenient gas appliances, like cooktops, fast-drying clothes dryers, BBQ outlets, cozy fire-pits and patio heaters. We find that today's discerning home buyers look for and appreciate these gas appliances as they provide safe, reliable and affordable energy as well as comfort to their homes. Natural gas, when used for space and water heating is also more cost effective; operating costs are lower than electrical versions of these heating appliances.

With the Province of BC's drive towards low/no carbon energy, we feel it is imperative that we continue to leverage the multiple sources of energy we have as a province. Builders, developers and home owners alike will benefit from a diverse system that can handle emergency situations; for example, during electrical power outages, gas-fired equipment can still provide essential heating needs of a home. We support FortisBC's

application to the BC Utilities Commission for a Renewable Natural Gas Tariff. We understand that this tariff will allow new buildings to be connected to carbon-neutral energy via renewable gases captured from various sources found in organic and agricultural waste. This will allow developers (and home owners) to continue having choice to install all types of energy efficient appliances including gas-based equipment while meeting local and provincial green building requirements; ultimately reducing carbon emissions, meeting greenhouse gas intensity targets and achieving BC's climate goals.

Yours sincerely,

Jim Hsu

Project Director

Clearcreek Projects

Kerrisdale P.O. Box 18031

Vancouver, BC Canada V6M 4L3

Tel: (778) 891-0072

CRESSEY

Suite 200
555 West 8th Avenue
Vancouver, BC V5Z 1C6
Tel 604 683 1256
Fax 604 683 7690
www.cressey.com

November 23rd, 2021

Brad Ricketts
Energy Solutions Manager
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, B.C.
V4N 0E8

Letter of Support

RE: Cressey Development Corporation supports the tariff on new home renewable natural gas.

After 50 years in the business, Cressey has evolved into a company that does more than construct buildings. We create communities – the kind of desirable places that people are proud to own and proud to call home. We have worked in all major municipalities of the lower mainland over the last 50 years, and we maintain full in house construction services to build our projects.

We are currently in pre development or under construction on several purpose build rental projects, strata market condo projects, retail/office buildings, larger mixed use retail residential projects and greenfield land development. We will continue to provide various forms of new housing and employment space for all types of consumers in the metro Vancouver area.

From conception to completion, every Cressey-built space results from extensive collaboration by a team of leading industry professionals and highly experienced development and construction personnel. This collaborative process leads to thoughtful attention to detail, numerous landmark buildings, as well as industry awards.

We are building to various levels of the BC Energy Step code, including Step 3 for larger Part 3 buildings. Additionally, building to City of Vancouver's zero emissions plan including Green Buildings Policy for Rezoning's which dictate a low Greenhouse Gas Intensity in new construction. In various municipalities we are connecting to Neighbourhood Energy Utilities or Low Carbon Energy Systems as availability and location dictate.

Our customers and home owners understand the importance of building more energy efficient buildings and they expect us to be at the forefront of new energy technologies. There should be an opportunity and choice for home owners to use renewable natural gas as part of their household and workplace energy use strategies in a manner that aligns with the need and desire to decarbonize the natural gas system. Increasing the amount of RNG in FortisBCs natural gas system will reduce Greenhouse Gas Emission in several ways and we are supportive of this tariff application.

Nathan Gurvich
Development Manager

Re: FortisBC Renewable Gas Tariff Application

FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC, V4N 0E8

To whom it may concern,

I would like to express my support for the proposed FortisBC Renewable Gas Tariff Application. As an Energy advising firm, this proposed tariff will allow us to continue to offer carbon neutral upgrade choices to homeowners, builders, developers and home buyers alike. This would allow for greater energy options while continuing to work towards our zero carbon emission targets.

Respectfully,

EnerTech Solutions Ltd

Jeffrey Robinson

Jeffrey Robinson

November 30, 2021

Mr. Michael Liu
FortisBC
16705 Fraser Highway
Surrey, BC
V4N 0E8

Dear Michael,

I am writing this letter to express Forte's support of FortisBC's application for a new tariff for Renewable Natural Gas.

I have been in the construction industry for over 20 years and have garnered extensive experience in home construction and know-how with multiple highly respected and industry-leading builders and developers such as Mosaic Homes and Cressey Developments. For the past 7 years I have operated independently as a construction and development firm: Forte Projects Ltd. Forte has been instrumental in envisioning and building exceptional homes in the Vancouver area, including residential heritage retention buildings, luxury new-builds, and highly energy efficient single/duplex/triplex family homes. Many of these homes utilize structural insulated panels (SIPs) that form a building system of extreme strength and energy-efficiency.

All of our projects strive for innovative building science, materials, expert craftsmanship, seamlessly blending form and function with inspiring architectural designs. To this end, our homes stand the test of time and our home owners love our beyond-the-extraordinary attention to details that we put into every project. Energy efficiency and sustainability are central to our design philosophy and as such, we see FortisBC's renewable gas as an excellent means to bring carbon-neutral energy into new homes and buildings. We understand that renewable gas comes from bio-methane, a by-product from decomposing agricultural and food scrap waste that can be captured, cleaned, and repurposed to power and heat our homes. We welcome this offering as it allows Forte to be in alignment with meeting greenhouse gas intensity and climate targets.

We are on the lookout for innovative building options and therefore support choices in various clean energy sources. We fully support FortisBC's application with the British Columbia Utilities Commission for a renewable gas tariff and look forward to having this clean energy solution for new buildings.

Regards,

Babak Nikraftar
Director of Construction
Forte Projects Ltd.
babak@forteprojects.ca
604-340-1740

FOXRIDGE HOMES
A QUALICO Company

#201-6525 177B Street
Surrey, BC V3S 5N4
P: 778-571-2111
F: 604-579-2113
foxridgehomesbc.com

November 1, 2021

Brad Ricketts
Energy Solutions Manager
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC
V4N 0E8

Letter of Support

RE: Foxridge Homes BC supports the tariff on new home renewable natural gas.

Foxridge Homes BC is an award-winning division of Qualico, one of Western Canada's largest fully integrated, privately owned real estate companies. Foxridge Homes entered the Metro Vancouver region in 1991 and has since built over 3,000 homes in 43 communities across Coquitlam, Maple Ridge, Surrey, and Langley. Today, we employ close to 60 full time employees and have become one of the largest single family production home builder in the Lower Mainland.

Currently we have 5 active projects underway in Coquitlam, Langley, and Surrey:

1. The Ridge at Burke Mountain (Phase 3) – 20 single family homes on Coquitlam's Burke Mountain
2. Westbrooke at Willoughby (Phase 1 & 2) – 113 single family homes and 79 non-strata row homes and duplexes in Langley
3. Latimer Creek – 26 single family homes in Langley
4. Edgestone at Grandview Heights – 62 single family homes in South Surrey
5. Pacific Vistas – 20 single family homes in South Surrey

In the next 7 years, we will bring more than 1,000 new single family homes to the Fraser Valley and expand into new markets including Aldergrove and West Abbotsford. In conjunction with this expansion will be the introduction of a new product type not yet offered by Foxridge Homes, large "master on the main" stratified townhomes. For the past 30 years, our business has been building freehold single family homes and more recently, non-strata row homes and duplexes. However, with the diminishing supply of land zoned for single family development and increasing pressure to densify, the addition of stratified product will ensure our longevity for years to come.

The core value of our parent company, Qualico, is *doing the right thing*. This permeates into every aspect of our business, from ensuring homeowner complaints are thoroughly addressed to deficiencies being repaired correctly the first time, or surpassing energy step codes to making donations to local charities and organizations that will have a direct positive impact on families that live in the communities we build.

The vision of Foxridge Homes BC is to be the largest and most trusted single family production home builder in British Columbia with a reputation for building timeless, high quality, and energy efficient homes that exceed customer expectations. We are on the road to achieving this having won the Canadian Home Builder's Association (CHBA) "Single Family Production Home Builder of the Year" Grand

Georgie Award three times and Avid Ratings “Avid Gold” for having the highest customer move-in experience score in all of BC. To the best of our knowledge, we are also the only single family production home builder in the Lower Mainland building a Net-Zero certified home.

Foxridge Homes currently builds to Step 3 of the BC Energy Step Code, with some houses achieving Step 4, and as mentioned above, are currently working on our first Net-Zero certified home. All our homes are also labelled through Natural Resources Canada’s Energuide Rating System. Green building and energy efficiency has grown in popularity over the years and helps us produce higher quality, more durable homes, which are more comfortable and healthier to live in, with the added benefit of potential cost savings for the owner.

Market demand for highly efficient gas mechanical equipment and appliances has steadily grown over the years as homeowners become more aware of the substantial cost benefits. Access to renewable natural gas provides home buyers uncompromised access to highly efficient mechanical systems such as condensing gas forced air furnaces and instantaneous gas water heaters without the ecological worry over traditional fossil fuel use. Similarly, it allows homeowners to continue using gas cooking equipment, outdoor recreation options such as barbeques and firepits, and accent features in their homes like gas fireplaces. Foxridge Homes supports the FortisBC tariff application as renewable natural gas provides us with the opportunity to provide our homebuyers with the features of the homes they demand while building environmentally conscious homes with reasonable operating costs.

As one of the largest single family production home builders in Metro Vancouver with five active projects currently under way and over 1,000 new homes in the pipeline, Foxridge Homes BC sees the benefit of renewable natural gas and fully supports FortisBC’s renewable gas tariff application.

Sincerely,

Gary Mertens
Vice President

FULCRUM
development inc.

FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8

October 22, 2021

Attention: John Drazic, Regional Energy Solutions Manager, FortisBC

Re: FortisBC Proposed Renewable Gas Tariff

Dear Mr. Drazic

We are writing to support the Renewable Gas tariff that FortisBC is proposing for. We believe that builders and consumers deserve competition in the energy sector and are thrilled that FortisBC has come up with a carbon neutral option through your 100% Renewable Gas program.

Our company is uncomfortable with the idea of a Provincially owned utility being allowed to become a monopoly for energy usage in homes. We would like to thank you for this initiative as it protects our rights as consumers.

Please do not hesitate to contact should you need anything to ensure the success of this initiative.

Thank you again,

Tom Calne

Mail: box 1166 Station Main Kamloops BC V2C 1G1
Tel: 250-314-7667/ 250-682-3291 Fax: 250-314-0740

GABLEcraft HOMES

October 22, 2021

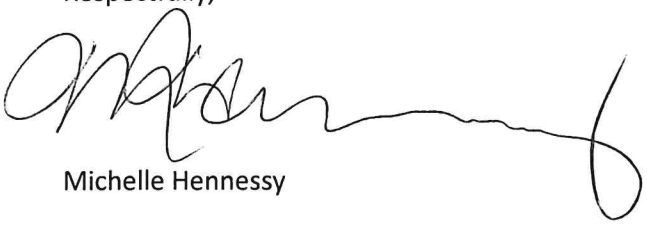
Re: FortisBC Renewable Gas Tariff Application

FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC, V4N 0E8

To whom it may concern,

I would like to express my support for the proposed FortisBC Renewable Gas Tariff Application. As a builder this proposed tariff will allow me to continue to offer my new homebuyers a choice of energy options while continuing to work towards our zero carbon emission targets.

Respectfully,



Michelle Hennessy

Operations Manager, Single Family

GORDON 'N' GORDON
INTERIORS LTD

845 Orono Ave. Victoria, B.C. V9B 2T9
Office: 250-474-2100 Fax: 250-474-2640

October 20, 2021

FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC, V4N 0E8

Re: FortisBC Renewable Gas Tariff Application

To whom it may concern,

I would like to express my support for the proposed FortisBC Renewable Gas Tariff Application. As a builder this tariff would allow me to continue to offer my new homebuyers a choice of energy options while continuing to work towards our zero carbon emission targets.

Thank you,

Stewart Gordon

Owner

Greenlane Renewables Inc.
Suite 110 - 3605 Gilmore Way | Burnaby BC V5G 4X5 | Canada
Telephone: +1 (604) 259-0343
www.greenlanerenewables.com

December 14, 2021

Benjamin Nishi
Regional Manager, Energy Solutions
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

Dear Mr. Nishi:

RE: Greenlane Renewables letter of support for new home renewable natural gas tariff

Greenlane is a pioneer in the rapidly emerging renewable natural gas (RNG) market, with more than 30 years of industry experience helping our customers recover value from waste. Today, we are ranked number one in installed biogas upgrading capacity worldwide, having sold more than 125 biogas upgrading systems into 19 countries and counting. Greenlane is the only biogas upgrading system supplier to offer all three of the primary technologies for upgrading biogas – water wash, membrane and pressure swing absorption (PSA) – a key reason why our customers select Greenlane to offer unbiased advice as to the optimum technology solution.

As a leading global provider of biogas upgrading systems, we help waste management facilities, gas utilities, and project developers do more with biogas, helping them turn a low-value product into a high-value, low-carbon renewable resource. Our end-to-end solutions remove impurities from raw biogas to create clean RNG for pipeline injection, liquefaction, or direct use as a vehicle fuel.

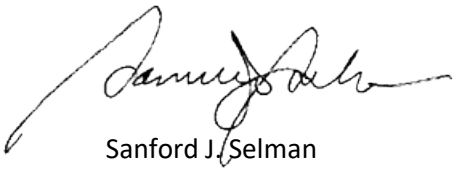
We are constantly seeking strategic partnerships with municipalities, gas utilities, and developers to facilitate the transition to a low-carbon economy. An example includes a water wash technology solution provided by Greenlane for a municipal wastewater treatment facility in Metro Vancouver. Our water wash (or water-scrubbing) technology is a proven gas purification process that uses no chemicals or heat. As a result, the facility will produce RNG for injection into FortisBC's gas distribution network. In addition, FortisBC's customers can realize the benefits and comforts that high-efficient gas appliances provide while reducing their carbon footprint.

Greenlane recognizes the importance of FortisBC's various supply- and demand-side RNG initiatives, and recently celebrating a significant milestone in climate action in British Columbia – the 10th anniversary of its RNG program. FortisBC was the first utility in North America to offer RNG, providing a green energy alternative to its customers. As a result, the demand for RNG in the Province has grown substantially over the last decade.

The transition to a low-carbon global economy is the future. Consumer and shareholder demand coupled with supportive public policy are driving decarbonization efforts in transportation and natural

gas distribution, two of the largest sectors of the worldwide energy system. Therefore, we support FortisBC's renewable natural gas tariff, allowing new homes to be constructed based on the premise they will be 100% supplied with RNG for the duration of their lifetime. This is an important step to reducing the greenhouse gas intensity (GHGI) of the built environment and a model for the natural gas utility industry.

Sincerely,



Sanford J. Selman
SVP Project Finance

Guillevin Pacific Regional Office
#101 – 3920 Norland Avenue
Burnaby, BC V5G 4K7

November 5, 2021

Benjamin Nishi
Regional Manager, Energy Solutions
Fortis BC Energy Inc.
16705 Fraser Hwy.
Surrey, BC V4N 0E8

Dear Mr. Nishi,

Guillevin International Pacific Region supports Renewable Natural Gas for all new homes.

The origins of Guillevin International date from a business founded in 1906. Today, with its nationwide distribution network, Guillevin ranks among Canada's largest distributors of electrical, data, industrial and construction materials.

With a vast distribution model in BC including a regional head office and 15 strategic branches, they sell inventory in most communities in the province. We support and provide innovative solutions to a vast service network of residential contractors. These locations and our contractor network ensure that implementation of any Guillevin program is affordable, reliable, and available anywhere in the province.

Guillevin British Columbia is taking a leadership role with its supplier and contractor partners in providing affordable innovations to help with the carbon emission reduction of our province. We are focusing on complete solutions and programs that are environmentally friendly by increasing efficiency and reducing emissions. Solutions that are affordable in operations for all residents, including seniors and multigenerational homeowners.

Our products and programs are significant in the construction and operation of single and multi-story residential homes. We are focused on providing the industry and homeowners viable and affordable options to reduce emissions and manage energy efficiently.

Today, as an industry we are continually challenged with finding ways to make home ownership affordable while embracing and adopting the green building policies in construction and energy management. This balance is not easily achieved, and in some cases the cost of operating a greener home can fall heavily on the homeowner. The ability to incorporate Renewable Natural Gas into the equation of residential construction and energy management of the home, bring a welcome lower cost option to reduce emissions. These options are effective tools to achieving the provinces CleanBC objectives.

For these reasons, Guillevin Electric supports the options associated with Renewable Natural Gas for all new homes.

Best regards,

Rob Tate

VP & General Manager

HAVAN
Homebuilders Association Vancouver

778-565-4288
info@havan.ca
www.havan.ca

#1011, 7445 – 132 Street
Surrey, BC V3W 1J8

November 5, 2021

Mr. Ben Nishi – Regional Energy Solutions Manager, FortisBC
16705 Fraser Hwy
Surrey, BC
V4N 0E8

Re: FortisBC Renewable Natural Gas Initiative

Dear Mr. Nishi,

Thank you for taking the time to explain the FortisBC strategy and plans for the introduction of Renewable Natural Gas (RNG) in the efforts to meet the announced goals of your 30/30 plan to reduce carbon emissions.

As you know, the Homebuilders Association Vancouver (HAVAN) is a non-aligned association and we do not directly endorse or support specific ventures and/or projects. HAVAN does acknowledge that the need to address carbon emissions, greenhouse gas intensity, and greater access to renewable fuel resources has never been more acute, and we are pleased to see as many tools as possible being brought to bear to mitigate, and ultimately reduce the negative effects of a changing climate.

We wish FortisBC good fortune in introducing the RNG concept for new residential homes and the other aspects of your 30/30 plan in the pursuit of climate responsibility.

Thank you.

Best Regards,

Ron Rapp
CEO, HAVAN

The Homebuilders Association Vancouver (HAVAN) is over 1,100 members strong, and we are recognized as leaders in the homebuilding industry since 1974. Our members include builders, developers, renovators, designers, suppliers, sub-trades and leading industry professionals. Proudly affiliated with CHBA-BC, and CHBA National, HAVAN is an association of knowledgeable, trusted, resourceful, local professionals who build over 65% of Metro Vancouver's homes.

HAVAN AWARDS FOR HOUSING EXCELLENCE

Canadian Home Builders' Association

CANADIAN HOME BUILDERS' ASSOCIATION BRITISH COLUMBIA

HENDERSON-EDWARDS

DEVELOPMENTS LTD.

3595 Marine Ave., Powell River, B.C. V8A 2H5 P:604-483-8481 E:hened@telus.net

FortisBC Energy Inc.

16705 Fraser Highway

Surrey BC V4N 0E8

October 18, 2021

Attention: Greg Enns (Energy Solutions Manager, FortisBC)

Re: FortisBC Proposed Renewable Gas Tariff

Dear Mr. Enns

We are writing in support of the Renewable Gas tariff that FortisBC is proposing that would see new residential customers receiving 100% Renewable Gas that would remain permanent for the life of the building.

The idea that gas will not be available for future builds is alarming. As a builder who installs natural gas combi boilers for radiant infloor heat in all of our new builds, I can tell you that there is no comparison with an electric boiler. In the past we installed electric boilers and now many years later see homeowners converting those electric boilers to gas fired ones. The cost of electricity is just too high and the annual cost to heat these homes using electricity is considerably higher.

Each home we build has a gas range, gas BBQ box and a gas fireplace. All of these are expected features and major selling points in our homes. To be faced with the elimination of these options in new construction would be devastating.

I am excited about the prospect of 100% Renewable gas that would addresses climate concerns while maintaining affordability and choice for builders and homeowners.

Thank you for your time and I hope and look forward to using gas as our number 1 choice for heating our new homes.

Yours truly

Darren Edwards

Henderson-Edwards Dev. Ltd

HENDERSON-EDWARDS

DEVELOPMENTS LTD.

3595 Marine Ave., Powell River, B.C. V8A 2H5 P:604-483-8481 E:hened@telus.net

HKRBuilders
RESIDENTIAL & CUSTOM HOMES

FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8

October 25, 2021

Attention: John Drazic, Regional Energy Solutions, Manager, FortisBC
Re: FortisBC Proposed Renewable Gas Tariff

Dear Mr. Drazic,

HKR Builders Ltd. is in full support of the Renewable Gas tariff/price structure proposed by FortisBC. This proposal would see new residential customers receiving 100% Renewable Gas that will remain permanent for the life of the building.

The proposal maintains choice and affordability in the market place for builders, developers, and home owner. This will help the government meet its climate objectives. regardless of where the GHGI metrics are set.

Please contact me directly if you have any questions or need further information.

Regards,

Kelly Reid
HKR Builders Ltd.
President/Owner

Homes By CREUZOT CONSTRUCTION LTD.
(CREUZOT HOMES & CONSTRUCTION LTD.)

P.O. Box 2098
Prince George, B.C.
V2N 2S6

Phone / Fax (250) 964-9319
e-mail: creuzot@bcgroup.net

"QUALITY – INTEGRITY – HONESTY"

October 28, 2021

To Whom It May Concern:

Creuzot Homes & Construction Ltd., would like to show our support for RNG as another option for the heating needs in the construction of new projects.

This may also be a very cost effective way too meet the heating needs of customers in areas where options are limited.

As the new codes are going to have us re think our heating systems, there should be more alternatives to conceder than just electric and or heat pumps.

As the environment is on the top of everyone thinking these days, we need to consider all cost effective and environmentally friendly alternatives. While a Heat pump may work great in some areas of the province, it is not a one size fits all solution. Heating loads are significantly different in other areas of the province than they are in the lower mainland. With EV chargers also being put into designs of new projects, the addition of Heat pumps forces the home owner to increase the size of the service to the project, an added expense that can be very costly, not to mention the existing grid is going to struggle to keep up with the increased loads.

RNG will be able to give builders and owners of new projects, the ability a have other environmentally friendly options to their HVAC systems and should be given very series consideration and the opportunity to be included in new designs.

Thank you:

Allen J Creuzot
President
Creuzot Homes & Construction Ltd.

October 29, 2021

FortisBC Energy Inc
16705 Fraser HIghway
Surrey, B. C. V4N 0E8

Re: **Application for Renewable Natural Gas Tariff**

Homex Development Corporation has been constructing Residential Units in the Kamloops area for 50 years and to date has completed over 1000 homes.

We support the application that FortisBC is making to the B. C. Utilities Commission for a tariff to commit all new residential customers to their Renewable Natural Gas sources for the life of the residence.

Yours truly,

Peter C. McCurrach
Director

Homex Development Corporation
"Building Communities Since 1971"

Box 3279, Kamloops, BC V2C 6B8
Telephone: 250-374-5769 Fax: 250-374-5742
info@homexdevelopment.ca

Hearth, Patio & Barbecue Association of Canada
PROTECT • PROMOTE • EDUCATE

December 2, 2021

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

Re: FortisBC Energy Inc, (FEI)

Dear Mr. Wruck,

I am writing on behalf of the Hearth, Patio & Barbecue Association of Canada (HPBAC) to express our support for the FortisBC application for a Built Green Tariff. This is an innovative approach to ensure the emission reduction attributed to a building built with Renewable Natural Gas (RNG) would remain throughout the operations of the building.

We agree with Fortis that Approval of this application would:

- Provide builders and developers the ability to decide upon their mechanical solutions while aligning with climate change policies.
- Potentially reduce construction costs because it provides greater energy options to the marketplace.
- Provide an affordable energy option as RNG is expected to be about 50% of the price of electricity

The hearth industry and HPBAC have committed to improving the efficiency and performance of gas hearth appliances and the promotion of RNG. Manufacturers in BC have made great progress in achieving improvements. British Columbia is a major hub of the gas fireplace industry in North America with more than 40% of gas hearth appliances sold in Canada and close to 20% of gas hearth appliances sold across North America manufactured in BC. The industry represents approximately 3000 direct jobs in the province.

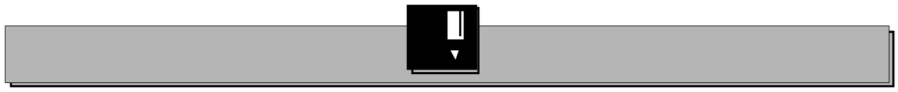
We have worked closely with FortisBC's Conservation and Energy Management group for many years developing and promoting our EnerChoice certification mark to identify top performing gas hearth appliances to BC consumers. We are pleased to support FortisBC's Built Green Tariff Application.

Sincerely,

Laura Litchfield

T 705 349 2221 PO Box 5432, Huntsville, ON P1H 2K8 **laura@hpbacanada.org** **hpbacanada.org**

ICON HOMES LTD.



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1315 North Cariboo Highway ♦ Quesnel, BC V2J 6R5 ♦ Canada
Phone 250-992-6778 ♦ Fax 250-992-6768

Fortis BC Energy Inc.
16705 Fraser Hwy
Surrey BC.
V4N 0E8

To whom it may concern.

I'm writing in support of Fortis BC's, Renewable Gas Tarriff in regards to Renewable Natural Gas, (RNG)

Our company, Icon Homes Ltd is a new home builder in Northern BC. We are a certified Net Zero builder and have built several homes over the last 3 years using Step Code metrics. Our range of homes are from Step 3 up to Step 5. I also sit on the Energy Step Code Council and so I'm very familiar with the options and issues around this.

I have been having a hard time justifying to my customers the idea of moving to an all electric home. The equipment required is more expensive in the north and fairly expensive to use. I can't with a clear conscience leave my clients with potentially larger utility bills. We are moving to a combination of Hydro electric and Natural gas combined with an energy efficient home to help our customers achieve their goal of an efficient, affordable home. We have started to implement some solar panels and I feel that the ability to add RNG to this mix fits perfectly with the needs of our customers. The infrastructure is already in place for this. There are areas in rural parts of our Province where major upgrades would be needed from BC Hydro if we plan to use only their product and add solar and EV plugs.

I personally feel that using all of any one utility is a mistake, as any glitch in the system could cause serious issues. Especially in the dead of winter.
I think RNG will have a very big impact on what we are all trying to achieve.

Regards

Joe Hart
President
Icon Homes Ltd.

INFINITY
PROPERTIES

FortisBC Energy Inc.
16705 Fraser Highway
Surrey, B.C.
V4N 0E8

Attention: Brad Rickets, Energy Solutions Manager

RE: Letter of Support

Dear Brad,

Infinity Properties Ltd would like to take this time to indicate our support for the tariff on new home renewable natural gas. Infinity has been developing residential communities in Metro Vancouver over the past 20 years and during this time have developed over 2,000 residential lots and 1,000 residential units. We employ 20 staff at the current time and have nearly 1,500 new residential units in our pipeline. These units are in projects in the Langley, Surrey, Coquitlam and Abbotsford areas of Metro Vancouver and the Fraser Valley.

We continue to support the use of gas appliances and HVAC systems in our developments and as part of the changing requirements for carbon neutral developments, support Fortis's proposed Renewable Gas Tariff. We believe that our customers/purchasers should continue to have the choice to have gas use within their homes and this tariff will allow this use to continue.

We believe that renewable gas is a solution to the current movement towards the use of renewable energy sources for the operation of our homes. It is our hope that Fortis's proposal will be supported by the regulatory bodies involved.

Tim Bontkes
Infinity Properties Ltd.

"CERTIFIED HOME BUILDER"

J.ZSIROS
CONTRACTING LTD.

J. Zsiros Contracting Ltd
6010 Island Highway North
Courtenay, BC
V9J 1T5

Fortis BC Energy Inc
16705 Fraser Valley Highway
Surrey, BC
V4N 0E8

1 November 2021

To whom it may concern:

As a professional home builder in the Comox Valley I would like to register my support for the proposed Renewable Gas Rate Proposal.

I feel that approval of this proposal would benefit clients/homeowners in several ways:

a. it would provide an affordable alternative to electric;

b. it would give more options that I can offer clients when they choose heating systems for their homes; and,

c. having the choice between electric or gas provides a safe and sustainable supply of energy.

Sincerely,

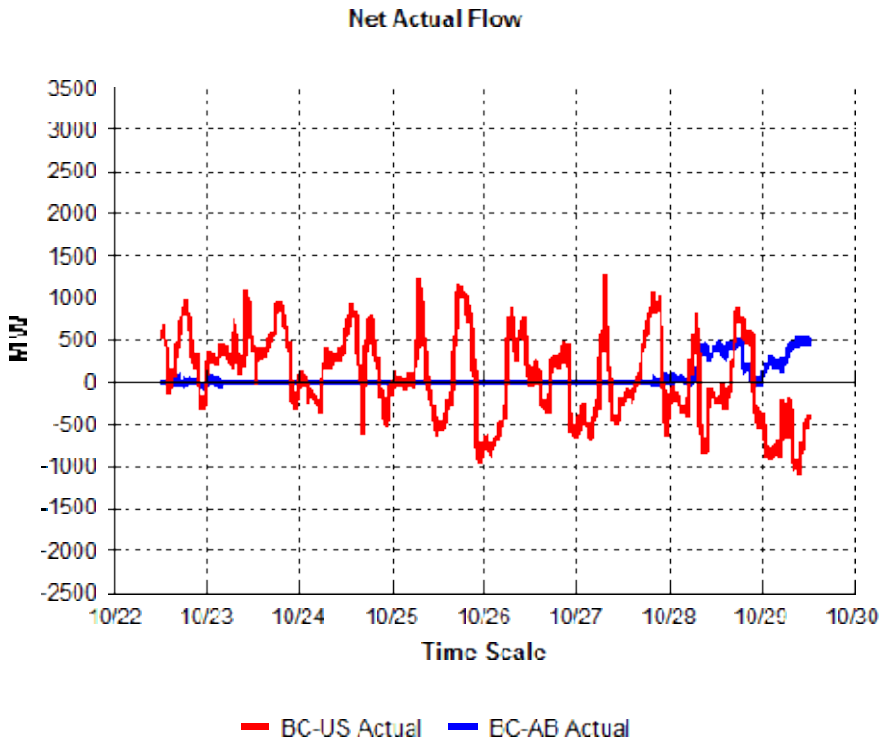
J.R Zsiros
President
J. Zsiros Contracting Ltd

Oct. 29th, 2021

Attention: FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8

I am writing in support of the renewable gas tariff that Fortis BC is proposing. I understand that new residential customers could receive 100% renewable gas that would remain permanent for the life of the building. Existing sources that produce methane could be redirected to residential heating and hot water production and provide an alternative energy source for homes.

Furthermore, I am disappointed by the green marketing and lack of transparency on the part of BC Hydro. Eliminating natural gas as a source of energy is in my opinion pointless until BC Hydro stops importing electricity from the Washington grid. As a point of reference, the following figure shows that this week our province was importing more than 1 billion BTUs per hour many days from the United States, which I understand is bought at a cheaper price than what we sell power back to them at (through BC Hydro's Powerex division). I expect this electricity was generated from natural gas or coal plants that were either in a cycle of heating up or cooling down and able to sell power to BC Hydro at a discount price.



https://www.bchydro.com/energy-in-bc/operations/transmission/transmission-system/actual-flow-data.html

WWW.JRSENGINEERING.COM

VANCOUVER
300 - 4595 Canada Way
Burnaby, BC, V5G 1J9
tel: (604) 320.1999
fax: (604) 320.1991

CALGARY
115 - 1925 18th Avenue NE
Calgary, AB, T2E 7T8
tel: (403) 452.3377
fax: (403) 457.4707

SEATTLE
405 - 9750 3rd Ave. NE
Seattle, WA, 98115
tel: (206) 728.2358
fax: (206) 728.2446

If BC Hydro is able to profit from buying gas or coal fired electricity, it is reasonable that developers, builders and homeowners in British Columbia should be able to make their own decisions about sources of energy, in particular the renewable gas sources that are being proposed by Fortis BC.

Natural gas provides heating and hot water for the majority of the large towers and commercial buildings I have worked on the last decade, and converting these buildings to all electric sources would be prohibitively expensive given current BC Hydro prices and the amount of energy these buildings require.

Sincerely,

David Croft, M.Eng., P.Eng.

Large & Co.

607 Vancouver St. Victoria BC V89V3T9

250-480-2894

info@largeandco.com

largeandco.com

October 20, 2021

To: Spencer Evans, Fortis BC

I would like to express my support for the proposed FortisBC Renewable Gas Tariff Application. It is my understanding that RNG is better for the climate than fossil natural gas since its byproducts won't contribute to climate change. It is my hope that such a tariff would allow homebuyers as many energy choices as possible as we work towards our zero carbon emission targets.

Respectfully,

Kim Colpman, CEO
Large & Co.

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November 19, 2021

Benjamin Nishi
Regional Manager, Energy Solutions
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

Dear Mr. Nishi

RE: Lee's Sheet Metal (LSM) letter of support for new home renewable natural gas.

Lee's Sheet Metal (LSM) was founded in 1964 by Lee Merlo and is currently divided into six divisions: commercial, industrial, residential service, manufactured products, powder coating, and energy solutions. LSM's core value has remained for the past 57 years: quality proven over time - where talent, passion, and discipline unite.

LSM's Energy Solutions department provides creative solutions to our customers' challenges by combining superior products, exceptional customer service/experience, and innovative engineering and technology. Together, we help find the best solutions to meet the needs of business, the community, and the environment.

We provide services that help clients maximize energy efficiency, lower their operating costs, and reduce their carbon footprint. Each project aims to grow communities and use more sustainable resources to become energy independent and environmentally friendly.

The use of renewable gas, which has the lowest emissions factor, takes this one step further by allowing our gas products to become carbon neutral. As a result, our efficient gas-powered heating and cooling solutions work with all building types. We believe that FortisBC's renewable gas application would help the adoption of innovative technologies such as gas fired heat pumps and combined heat and power units (CHP).

We deliver energy solutions today for a better tomorrow; therefore, we support FortisBC's renewable gas application for new homes.

Thank you,
LSM - Lee's Sheet Metal Ltd.

Brian Freemark
per: Brian Freemark
Commercial Manager

Manufactured Housing
Association of British Columbia

November 5, 2021

Mr. Benjamin Nishi
Regional Manager, Energy Solutions
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

Dear Ben,

Re: Manufactured Housing Association of British Columbia supports the renewable natural gas initiative for new homes.

Since 1972, the Manufactured Housing Association of British Columbia has been the voice of manufactured and modular home builders, retailers, transporters and suppliers providing service across BC. As a key requirement of our mandate, the MHABC represents the interests of both the industry and that of the general public. Through working with many government agencies at the federal, provincial and local levels, the MHABC governs the strict criteria required to become a member of the MHABC. We have Members serving on technical committees in building code and standards development so we very familiar with the need to address emerging issues. The MHABC also serves as an information source for the general public, fielding questions ranging from sales and service providers to technical details on affordability and manufactured and modular home construction practices.

Manufactured and modular housing has been recognized as one of the most sustainable ways to build, resulting in considerable emission and site waste reductions. It has also been recognized as a major provider of affordable housing in all areas of British Columbia. With many of the on-going changes associated with the BC Building Code and different municipal performance targets, the benefits associated with manufactured and modular housing standardization become even more evident.

The MHABC is focused on innovation and adaptation of new technologies to further reduce the carbon footprint of factory-built homes at the factory level, during the build process as well as the on-going operation of the home once the purchaser takes possession.

/2

Phone: 604-466-2006 Fax: 604-466-3006 E-mail: Info@mhabc.com
www.mhabc.com

The Fortis Build Green program offers factories and home owners additional options in developing affordable overall home manufacturing strategies for a more sustainable building, and home operations.

As an association and as one having a strong affinity for the FortisBC strategies in addressing climate change and carbon reduction matters, the Manufactured Housing Association of British Columbia readily supports the tariff on new home renewable natural gas as it ensures affordable options for greener home ownership. Together with this program, we look forward to playing an important role in helping British Columbia move to an affordable, low carbon, housing future.

Sincerely,

MANUFACTURED HOUSING ASSN OF BC

C.G. (Gord) Rattray. Executive Director

cc: MHABC Board of Directors

Oct 29th 2021

Brad Ricketts
Energy Solution Manager
Fortis BC Energy Inc
16705 Fraser Highway
Surrey B.C.
V4N 0E8

In principal and concept Maskeen Group of Companies would like to support the proposed tariff on new home renewable natural gas as it aligns with our core values and general approach to the environment and sustainability by allowing the option for all home owners to access and participate in green alternatives without limits due to costly upgrades of their current fixtures .

For more than three decades Maskeen has earned a reputation within the industry for quality and integrity delivered by a small core group of employees that has developed residential and Commercial real estate throughout the Lower Mainland from West Vancouver to Abbotsford but proud to call Surrey home .

Currently Maskeen has several projects in various stages of Development with several larger High Density projects in the pipe line that will ultimately contribute a 1000+ residential units to the housing stock over the next five years in Richmond & Surrey . It is important that we capture our company motto "Your Greener Path" as it is always at the forefront of the decision process on all future projects viability and specs that provides us with the reward that our organization is delivering a tangible quality product that will serve the customer well in its quality and performance .

Maskeen has always been very forward thinking and innovative in its approach embracing organizations like Built Green as well being groundbreaking as the first multi family developer in Surrey to incorporate geo-exchange into a development back in 2006 with currently over 400 units in our geo- portfolio. These efforts are the backbone of our company culture to create sustainable efficient homes prior to step code being introduced.

We have recently been experimenting with Combi units that have gas fired hot water on demand tied into a p-911 air handler and a condenser for the A/C delivering a functional climate control that has proven to be very affective in distinguishing our product in the market . This experience has helped expand our thinking and the possibilities of incorporating more homes into this system that ultimately will be operating on Natural Gas making sense that the end user will have further opportunities to contribute their values and beliefs by supporting renewable Natural gas .

Grant Copland
PROJECT MANAGER
MASKEEN.CA.

MASTERCRAFT
CONSTRUCTION

www.MastercraftConstruction.ca

To whom it may concern:

I would like to express my support for the proposed FortisBC Renewable Gas Tariff Application. As a builder this proposed tariff will allow me to continue to offer my new homebuyers a choice of energy options while continuing to work towards our zero carbon emission targets.

Respectfully,

Earl Andrews

MELCOR

October 18, 2021

FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8
Attention: Wade Benner, Energy Solutions Manager, FortisBC

RE: FORTISBC PROPOSED RENEWABLE GAS TARIFF

Dear Mr. Benner

I am writing in support of the Renewable Gas tariff that FortisBC is proposing that would see new residential customers receiving 100% Renewable Gas that would remain permanent for the life of the building.

This approach addresses climate concerns while maintaining affordability and choice for builders and homeowners. As developers in this industry, we are aware of the effort to reduce emission to take better care of our environment while still trying to ensure our clients have choices for their buildings.

A variety of reliable options are key for continued effective growth in our communities.

I support the proposed tariff request by FortisBC Energy.

Tobi McNeil
Development Manager, Kelowna Region
Office: 250-717-8390
Cell: 250-801-4411

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November 18, 2021

Fortis BC Energy Inc.
16705 Fraser Highway,
Surrey BC V4N 0E8

Attention: John Drazic, Regional Energy Solutions Manager

Re: FortisBC Proposed Renewable Gas Tariff

Dear Mr. Drazic,

I write to you as a Vancouver-based developer and real estate consultant who is currently involved with several large-scale developments located in municipalities and Regional Districts that are eager to see reductions in greenhouse gases.

I recently learned about FortisBC's proposed carbon neutral option through your 100% Renewable Gas program which would seem to be a highly desirable alternative to the use of electric energy in those communities and buildings which are required to be fossil fuel-free.

This option will significantly help developers and builders meet the increasingly higher Provincial Step Code and GHG requirements in a cost-effective manner.

I am therefore pleased to add my name to the many others who support the Renewable Gas tariff that FortisBC is proposing.

Please do not hesitate to contact me if I can provide further information on why I support this initiative.

Yours sincerely

Michael Geller FCIP, RPP, MLAI, Ret. Architect AIBC
Principal, The Geller Group
Adjunct Professor, SFU Centre for Sustainable Development;
Resource and Environmental Management

MILES INDUSTRIES
Manufacturer of Valor Gas Fireplaces

Wayne Cankovic
Energy Solutions Manager
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

November 25, 2021

Dear Wayne,

Please add Miles Industries ltd, manufacturer of Valor Gas Fireplaces, to the list of supporters to your innovative initiative to supply renewable natural gas as for new home construction.

British Columbia has the highest concentration of manufacturers of Natural Gas burning fireplaces of any State or Province in North America. It is a local success story. Natural Gas fireplaces are about the only domestically made appliance installed in new homes today. Electric fireplaces are 100% made off shore.

Valor, FPI (Regency), Pacific Energy, Blaze King, Canadian Heating Products (Montigo), Enviro, Savanah, Archguard are some of the companies designing and manufacturing natural gas fireplaces in the province.

Natural gas burning fireplaces have done much to clean the air sheds of British Columbia over the last 30 years. A modern construction new home needs very little energy to stay comfortable. A zone heating energy efficient, natural gas fireplace can provide enough heat to supply most of an evening's heating requirement for modern home with very little fuel required.

The industry has been advancing with smart controls that reduce fuel consumption and increased thermal efficiency. Most fireplaces sold today are Enerchoice rated, thanks in part to Fortis incentive programs. Projects are underway to explore hydrogen combustion in the years ahead.

With the many windstorms that hit our coast each year, the natural gas fireplace is the most common backup heat that has kept British Columbians warm and safe during power failures. An alternative energy grid is a very important strategy to support our increasingly heavily utilized electric grid. If Natural gas is not available, homeowners will turn to propane and wood burning.

Your initiative will support not only carbon reduction and local manufacturing jobs, but will provide energy security and home heating affordability for lower income British Columbians.

Yours truly.

Paul Miles

President

Miles Industries Ltd. ■ 190-2255 Dollarton Hwy ■ North Vancouver, BC ■ Canada ■ V7H 3B1
Tel: 604.984.3496 ■ Fax: 604.984.0246 ■ Toll Free: 800.468.2567
www.valorfireplaces.com

Millennium Group
788 Richards Street, Vancouver BC V6B 3A4 Canada
T (604) 688-2300 F (604) 683-3420
hq@millenniumdevelopment.com

October 28, 2021

Attn: Wayne Cankovic
Michael Liu
Energy Solutions - New Construction
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

Re: Letter of Support for Renewable Gas in New Homes

To Whom It May Concern:

With over 70 years of experience in construction and real estate development spanning 3 continents, Millennium has created a legacy of timeless communities. Our in-house construction management expertise combined with our longstanding affiliations with experienced consultants and international associates allow us to stay at the forefront of our industry and deliver exceptional value.

Our work defines us and the buildings and communities we bring to life are designed with purpose and built to the highest standards to create a sense of place, enrich everyday life, and offer lasting value for future generations. Millennium's real estate developments encompass world-class master-planned communities, mixed-use complexes, residential towers and buildings, shopping centres, office buildings, and commercial and industrial centres. The most iconic development, Millennium's Olympic Village, built to house athletes during the 2010 Winter Olympic Games, was North America's first truly sustainable neighbourhood. A private project used for a global purpose, it provides a legacy for residents and future generations, and a showpiece for Vancouver and Canada.

As we aim to integrate our goals around sustainability into all our projects, we see the proposed FortisBC application for a Renewable Gas (RG) Tariff as a means to help us achieve them. An RG tariff for new homes will guarantee permanence of RG usage and effectively allow all new buildings with RG-based equipment and appliances to meet greenhouse gas intensity (GHGi) targets and achieve climate goals. We support flexibility in innovation in the way we build our homes and feel that RG would offer the real estate construction industry a desirable option that not only help with the province's climate goals but to also help provide safe, reliable and affordable building options and energy solutions for home owners. Many of our current condominium tower projects already include energy-efficient gas appliances like hot water heaters, cooktops, fireplaces and make-up air units. RG would power these same types of technologies while eliminating greenhouse emissions.

We support a green building approach that integrates various energy sources including the optimal mix of both electric, renewable gas, and any other no / low carbon energy. We fully support your proposed RG tariff application with the British Columbia Utilities Commission.

Yours sincerely,

Peter Malek
Director
Millennium Group

MIRACON

November 9th, 2021

Brad Ricketts
Energy Solutions Manager
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, B.C.
V4N 0E8

Letter of Support

Miracon Development Inc supports the tariff on new home renewable natural gas.
Miracon Development has been a residential builder for over six years and have completed a total of 160 single and multi-family units in Greater Vancouver. We are currently working on a 106 unit townhouse site and a 55 unit single family site in Langley. We have 15 employees and were recognized by HAVAN as the best Single-Family Builder in Greater Vancouver from 2017-2020.

Over the next 5 years Miracon is schedule to build 3 additional townhouse sites and 2 single family sites in Langley and Surrey totaling 500+ units.

One of Miracon's core values is building a Sustainable Legacy through the Development of Sustainable communities. We recognized and appreciate the complicated nature of land development and residential construction and believe that sustainability is an integral component of our industry. For this reason, we fully support FortisBC's renewable gas tariff application. This initiative is integral to the future of our industry and has mutually beneficial consequences for builders, home buyers and the environment.

Please don't hesitate to reach out if you have any further questions or require additional input from our organization.

Sincerely,

Ryan O'Shea (MBA)
Vice President Miracon Development

MORTISE

GROUP OF COMPANIES

November 22, 2021

Madiha Fahim
Energy Solutions Manager
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC
V4N 0E8

Letter of Support

RE: Mortise Group supports the tariff on new home renewable gas.

Mortise Group has been in business for 25 years with 40+ employees. Mortise has built and sold over 100 million dollars of homes all across the Lower Mainland, shaping the communities we live in and helping countless families achieve their dreams as homeowners.

We currently have 5 projects under construction in Surrey, Langley, Coquitlam, and Maple Ridge consisting of 241 Townhomes and condominium units and 10+ single family homes. We have a 54-unit rental project in surrey starting construction in 2022. We have another 3 projects in the Development Permit/Building Permit stage consisting of 759 condominium units and 80 townhomes.

Mortise is active in Langley City, Langley Township, Surrey, Maple ridge and Port Coquitlam. When working in these communities our desire is to leave the community better than when started. all of our projects are built with the same commitment: to deliver results that exceed expectations for our homeowners. This starts with the guarantee of flawless quality to the highest possible degree and unmatched customer service for a straightforward buying experience.

Currently we have been increasing energy efficiency in our projects with the use of heat pumps, solar panels, and more efficient building design. At this time, we are designing to hit Step Code 3 in our projects. We find this helps our customers with lower energy bills and helps governments hit there CO2 reduction targets.

I believe it is important to give industry and customers a choice in their energy method. Relying purely on electricity for our energy is not realistic nor prudent. We need choice to keep energy prices competitive.

We support a tariff on renewable gas as this is an important part of the energy mix necessary for our prosperity while reducing greenhouse gas emissions.

Sincerely

Travjit Johal
Chief Operating Officer,
Mortise Group of Companies.

November 29, 2021

Benjamin Nishi
Regional Manager, Energy Solutions
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

Dear Mr. Nishi

RE: Navien's letter of support for new home renewable natural gas.

Since 2006, Navien, Inc. has become one of the fastest-growing companies in the home comfort sector in North America and is now a leader in condensing technology, providing condensing tankless water heaters, combi-boilers, and boilers. Navien's products possess state-of-the-art technology, high efficiency and reliable quality.

Navien has achieved international recognition for its sophisticated engineering and robust designs. Backed by the parent company, KyungDong Navien (KD Navien), with more than thirty-five years of experience with advanced boiler and water heating technology, Navien will continue its mission to provide high-quality products.

Today, Navien retains the largest market share for condensing gas water heaters in North America and is ranked top in technology patents. In addition, Navien proudly exports that leadership in efficiency, green technology and customer service to over 35 countries.

Our practical value is to contribute "to society through corporate activities," which allows Navien to make sustained efforts to promote leading-edge eco-friendly technologies. Furthermore, using renewable gas would create a better and greener environment for future generations. Renewable gas has the lowest emissions factor in comparison to other fuel types.

Education and development of the trade community are critical to ensure the proper installation of our products. In addition, the network and reach of our partners installing high-efficient gas appliances drive job creation, business growth and development. Limiting gas appliances usage could potentially limit job growth within the community, leading to a shortage of staff, increased price hikes, and overall construction costs.

Navien makes every effort to develop the world's best high-efficiency, environmentally-friendly products that will positively impact the living culture worldwide; therefore, we support FortisBC's renewable gas application for new homes as well as allowing existing homeowners to opt in to the renewable gas program.

Regards,

Scott Semple
Senior Western Canadian Territory Manager

ORCHARDS
WALK

FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8

October 22, 2021

Attention: John Drazic, Regional Energy Solutions Manager, FortisBC
Re: FortisBC Proposed Renewable Gas Tariff

Dear Mr. Drazic
At Orchards Walk Development, we are in fully support of the Renewable Gas tariff/price structure that FortisBC is proposing that would see new residential customers receiving 100% Renewable Gas that would remain permanent for the life of the building.
The proposal will maintain choice and affordability in the market place for all builders and developers like ourselves and for our home buyers, while helping the government to meet its climate objectives, regardless of where the GHGI metrics are set.

Please don't hesitate to contact me directly if you have any questions or need more information.

Kind Regards,

Orchards Walk Developments

Jere Lorenz – Master Builder
Vice President of Operations

PANATCH GROUP
PROPERTIES · CAPITAL · FOUNDATION

November 24, 2021

Madiha Fahim
Energy Solutions Manager
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC
V4N 0E8

Letter of Support

RE: Panatch Group supports the tariff on new home renewable gas.

Panatch Group is a family-owned business that is guided by integrity, excellence, quality, and vision. With over 30 years of experience as a developer of commercial, industrial, and residential real estate, Panatch Group has grown significantly over the last two years, now employing thirteen people on a full-time basis. Panatch Group has built and maintained a highly regarded reputation in both the local community as well as the development community. Through past projects and the Panatch Family Foundation, Panatch Group has demonstrated its dedication to making the communities within which we work great places to live, work, and play.

Panatch Group's most recent development is 50 Electronic Avenue in Port Moody. The 358 homes in this development are now sold out and the project is currently under construction. The development consists of two-six story buildings; one residential and the other mixed use. It also features a 9,000 square foot amenity building and an acre of landscaped outdoor space. Homes range from 1-bedroom to 4-bedrooms and unit sizes cater to the diverse needs of individuals and families. Drawing on experience gained in Port Moody and past developments, Panatch Group will be focusing their efforts in 2022 on developments located in Richmond and Abbotsford.

Panatch Group has a proven history of creating value for homeowners and communities alike. With a focus on building community, Panatch Group is doing its part to create a vibrant, kind and inclusive society for future generations. Best known for piloting a Rent-to-Own program at 50 Electronic Avenue, Panatch Group was the first local developer to implement this program. 30 purchasers are able to rent their home at 50 Electronic Avenue for two years and have their monthly rent payments allocated toward a down payment. With more than 500 applicants for the program's selection draw, the initiative put into focus the challenges many families face when it comes to finding a place to call home.

PANATCH GROUP
PROPERTIES · CAPITAL · FOUNDATION

Our most recent project that is under construction is targeting environmental building standard levels equivalent to Silver under both the Built Green and LEED standards. The architecture employs passive design strategies such as reducing windows on the south side of the site to limit unwanted solar gains. We are incorporating automated outdoor lighting and security systems as well as installing heat-pump dryers, which use approximately 50% less electricity than traditional dryers. In recent years we have noticed that customers are making more deliberate decisions regarding energy efficiency in their homes and are asking questions of our sales staff.

It is my understanding that renewable gas has the lowest emissions factor which allow developers and homeowners alike to meet any of the current municipal GHGi regulations. Utilizing organic waste, capturing and cleaning biogas to reduce the amount of conventional natural gas needed is paramount, now more than ever, to help meet climate targets. Based on the information provided by FortisBC, renewable gas is a tangible way for individuals to effect positive change on our environment and making this option available to homeowners will allow them to make their own informed decision. Therefore, I support the tariff application for renewable gas that FortisBC is proposing.

Sincerely,

Kush Panatch
President

Pennyfarthing

Suite 100 – 1450
Creekside Drive
Vancouver, BC
V6J 5B3

November 4, 2021

FortisBC Energy Inc.
Attn: Mr. Michael Liu – Energy Solutions
16705 Fraser Highway, Surrey, BC V4N 0E8

Regarding: Pennyfarthing Development's Support for Renewable Gas (RG)

Dear Mr. Liu:

Pennyfarthing Homes has been over-delivering to buyers for more than 35 years, with homes of the highest calibre, in neighbourhoods with a reputation for quality. We believe that the best homes will always find the right owner. Our buyers expect more; they recognize the value in investing in a better quality home. We consider it our life's work is to deliver this kind of quality, and this superior value, in everything we do. Our buyers see those attributes in every community we create.

Our homes and communities are built far above the average standard, with materials that reflect an elevated sensibility and taste. This means better build quality, better finishes, and better satisfaction over the years. And it all amounts to a legacy that we at Pennyfarthing Homes, and our owners, can be absolutely proud of. After three decades in development and property management, we have come to know precisely what our homeowners really want and need.

First, we find sites with proven value. Then, we clearly identify whom we're building for and hold that buyer clearly in mind throughout the process. This clarity allows every decision from the foundation to the gable, to all the extra features that have become a Pennyfarthing Homes hallmark, to have a clear purpose. This makes every detail work together seamlessly, for a home that elevates the experience of living. This elevation of living means designing buildings with creativity and innovation and with sustainability top of mind. To this end, we design and build our homes and communities with highly efficient energy systems and appliances that not only make our homes comfortable, they also help reduce their carbon footprint. We therefore see FortisBC's renewal gas (RG) as an excellent option that provides a cost-effective *and* carbon-neutral energy solution, one that meets all greenhouse gas intensity (GHGi) targets while helping meet the Province's climate goals.

We strongly support FortisBC's application with the British Columbia Utilities Commission for a new RG (or Renewal Natural Gas (RNG)) rate class for new construction. An RG rate class for new homes would allow new buildings to stay on carbon-neutral RG for the life-cycle of the buildings. We believe having the ability to choose the best types of energy systems and appliances allows the construction industry to continue to build with creativity which in turn, helps drive innovation, consumer choice, and affordability. Renewable Gas is compatible with all "traditional" natural gas and/or electric energy systems and will help builders optimize and diversify energy sources, allowing the best combinations of fuel types and technologies that support affordability, reliability, and resiliency of *all* carbon-neutral energy that power BC's new homes and buildings.

Sincerely,

Anthony Hepworth
President and CEO
Pennyfarthing Group

Pheasant Hill Homes Ltd.

Date: November 3, 2021

Attention: FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8

Pheasant Hill Homes is writing in support of the Renewable Gas tariff that FortisBC is proposing that would see new residential customers receiving 100% Renewable Gas that would remain permanent for the life of the building.

This approach addresses climate concerns while maintaining affordability and choice for builders and homeowners.

Thank you,

Morrison Barr

PJR Holdings LTD
901 Howard Ave
Nanaimo BC
V9R 3T4

November 03, 2021

Attention: FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8

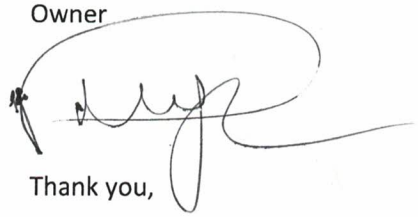
I am writing in support of the Renewable Gas tariff that FortisBC is proposing that would see new residential customers receiving 100% Renewable Gas that would remain permanent for the life of the building.

This approach addresses climate concerns while maintaining affordability and choice for builders and homeowners.

Kind Regards

Peter Monga

Owner



Thank you,

PLATINUMGROUP

November 23, 2021

Brad Ricketts
Energy Solutions Manager
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, B.C.
V4N 0E8

Letter of Support

RE: Platinum Group supports the tariff on new home renewable natural gas.

The Platinum Group of Companies is a locally owned and operated Surrey based developer. We have been in business for over 25 years and have built throughout the Lower Mainland. Platinum Group has been nominated or awarded our industry's highest accolades.

Current active projects underway by Platinum Group include a multi-phase condo development in Downtown Maple Ridge, a townhouse project in Fleetwood Surrey featuring larger than typical units, as well as an executive single family lot subdivision in Brookswood Langley. In the pipeline, Platinum Group has over 1000 new units planned ranging from Townhouse to Condominium. These projects are expected to launch within the next few years and we look forward to integrating natural gas within them.

We at Platinum Group take great pride in building truly livable communities that owners are proud to call home. Whether it be a subdivision, townhomes or condominiums, from the early planning stages all the way to completion, each detail is scrutinized to ensure well thought out floor plans, superior standards and finishing, and affordable prices. We feel that a reputation built on trust, integrity and professionalism will continue promoting Platinum Group within the industry and will help direct future homeowners to our communities.

Energy efficiency has become a major feature of home buyers and renovators. With the rising costs of heating and cooling, incorporating new efficient technology and air tight construction helps set the comfort of a home at a level occupants can enjoy without compromise. Platinum Group is proud to integrate efficient heating and cooling systems, high performance windows, and dynamic home ventilation systems to ensure satisfied buyers.

Platinum Group believes that renewable natural gas has an extensive list of benefits to help operate a home at a great level of efficiency and we will continue incorporating natural gas into future projects. We believe that renewable natural gas is a great alternative energy source when

compared to electricity as it is also quite environmentally friendly. Renewable natural gas being a carbon neutral energy option is a major advantage and a primary factor in our encouragement of its usage. By providing and integrating natural gas energy into our projects, our homes have a degree of versatility, dependability, as well as affordability that is unmatched by other units powered by singular energy sources.

In summary, we at Platinum Group are proponents of the use of natural gas energy within our projects. In order for us to provide our future homeowners with a variety of options to fit their lifestyle and daily needs, and to meet buyer demands, we will continue to use natural gas equipment and appliances. We feel that natural gas helps us reach a high level of service and quality and therefore are in support of the tariff on new home renewable natural gas.

Kind regards,

Avtar Johl, CPA CA

201-12837 76th Ave, Surrey BC V3W 2V3 | Ph: 604.599.6512 | F: 604.599.6527

December 9, 2021

Michael Liu
Energy Solutions Manager
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, B.C.
V4N 0E8

RE: Letter of Support for FortisBC's application on new home Renewable Natural Gas Tariff.

Dear Mr. Liu,

I have been working in the new home industry for more than 25 years and want to express my support for FortisBC's application on new home Rendewable Natural Gas Tariff.

Reducing Green House Gas emissions while giving owners the convenience and choice of the energy source in heating, hot water and appliances is a key principle to ensure creative solutions while delivering new homes.

I see FortisBC's application to the BC Utilities Commission for a renewable gas (RG) tariff as beneficial to both the real estate development industry as well as to the home owners. I understand this new tariff will be linked to the use of RG for the life of new buildings, therefore allowing builders to include a variety of carbon-neutral energy equipment (RG being one of them and is fully compatible with regular natural gas appliances). This gives builders AND consumers choice, thereby ensuring a diversified and integrated energy system that is more cost effective, affordable, and resilient while meeting municipal greenhouse gas intensity targets and achieving BC's climate goals.

I fully support FortisBC's tariff application for renewable gas and look forward to multiple environmentally friendly energy options in the marketplace.

Sincerely,

C. Marcyniuk

Craig Marcyniuk
Director of Development

Porte Communities
100-33 East 8th Avenue
Vancouver, BC V5T 1R5

QUADRA HOMES

November 3, 2021

Brad Ricketts
Energy Solutions Manager
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, B.C.
V4N 0E8

Letter of Support
RE: Quadra Homes supports the tariff on new home renewable natural gas.

Quadra Homes has been in business for 17 years with 14 employees. In that time we have contributed over 1.1 billion in economic activity with over 4000 housing units completed.

We currently have 3 projects under construction in Surrey, Langley and Kelowna consisting of 596 condominium units and 20 single family homes. We have a 410 unit rental project in Langley starting construction in 2022. We have another 3 projects in the Development Permit stage consisting of 506 condominium units and 44 townhomes.

Quadra Homes is active in Langley City, Langley Township, Surrey, Abbotsford, Pitt Meadows, Port Coquitlam and West Kelowna. When working in these communities our desire is to leave the community better than when started. In all aspects of our business, we look for win win situations.

Currently we have been increasing energy efficiency in our projects with the use of heat pumps, solar panels and more efficient building design. At this time we are designing to hit Step Code 3 in our projects. We find this helps our customers with lower energy bills and helps governments hit there CO2 reduction targets.

I believe it is important to give industry and customers a choice in their energy method. Relying purely on electricity for our energy is not realistic nor prudent. We need choice to keep energy prices competitive.

We support a tariff on renewable gas as this is an important part of the energy mix necessary for our prosperity while reducing greenhouse gas emissions.

Sincerely,

Shawn Bouchard
Quadra Homes
604-825-7333

RAICON

November 4, 2021

FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

Attention: Brad Ricketts, Energy Solutions Manager

Letter of Support

RE: Raicon Developments Inc. ("Raicon") supports the tariff on new home renewable natural gas

Raicon was established in 2005 and is a developer, builder and project manager. Raicon works throughout the Lower Mainland and West Kelowna, BC. Over the years, Raicon has also performed tenant improvements of over 25,000 square feet of commercial office space. Between 2016 and 2019, Raicon built 50 townhomes in Delta, Burnaby and South Surrey and an additional 133 single family units in South Surrey. Raicon (under it's then co-brand Miracon) was awarded nominations and wins in 2016, 2017, 2018 and 2019 Ovation (now Havan), Georgie and National Awards in multiple categories as a leader in construction, interior design and marketing. The Prima project was named finalist in the 2016 Ovation Award for Best Townhome/Rowhome Community. Prima was named finalist for the 2017 Grand Georgie as Multi-Family Home Builder of the Year. For three consecutive years between 2017 and 2019 Miracon won the coveted Grand Ovation award as Best Single-Family Builder of the Year. In 2018 Miracon also won the Grand Georgie Award for Best Single-Family Builder of the Year. In 2019, Miracon achieved nominations and awards for the Westside, Southside and Southcrest project showhomes completed under Raicon's builder's license. Raicon currently employs 9 full time employees and as a lead contractor, provides work to 100's of tradesmen and women.

Raicon's current projects consist of 39 townhomes in South Surrey (Veza) and 8 single family homes in South Surrey (Eterno). Eterno was awarded the Havan Award for Housing Excellence in 2021 for Best Single-Family Detached Home (Production). Raicon's future projects consist of approximately 189 residential units between the Spring of 2022 to Spring of 2025. This consists of 76 townhomes in Maple Ridge (two separate projects), 45 townhomes in South Surrey and 68 townhomes in Abbotsford.

RAICON DEVELOPMENTS INC.

202 – 17610 65A AVE, SURREY, BC, CANADA V3S 5N4
T: 604.579.0909 **F:** 604.579.0910

info@raicon.ca
www.raicon.ca

RAICON

Raicon is a dynamic company that remains committed to the vision of providing quality construction and design elements while continuously seeking ways to improve and reduce our carbon footprint. Raicon has been on the forefront of implementing green and sustainable approaches into its developments projects—using high efficiency systems and encouraging green training for the sub-contractors and suppliers it partners with.

In the past three years, all of Raicon's homes include as standard, gas ranges, high efficiency gas forced air furnaces, gas BBQ connect bibs, Navien recirculating hot water heaters, roughed in 40 amp 240 electric car chargers, EnergyStar appliances and LED light fixtures. Where space allows, we endeavour to install gas fireplaces where possible. By utilizing energy efficient components, our projects are more marketable and sell more quickly than our competitors and our customers spend less money on their energy bills and have the comfort and convenience of today's gas fixtures.

The proposed FortisBC renewable gas tariff is an important factor in the marketplace as it allows residential builders and customers who are on new connections to meet unified building standards for municipalities regardless of individual policies for regulations on GHGi and emissions. This provides housing affordability by providing builders additional design options and lower cost alternative to other options. For our customers, they can be afforded the comfort that the rate is permanent to the life of the home.

In summary, Raicon supports the tariff on new home renewable natural gas.

Sincerely,

RAICON DEVELOPMENTS INC.

Per:

Ranjit Rai
President
Cell: 604.716.4501

RAICON DEVELOPMENTS INC.

202 – 17610 65A AVE, SURREY, BC, CANADA V3S 5N4
T: 604.579.0909 **F:** 604.579.0910

info@raicon.ca
www.ralcon.ca

REGENT INTERNATIONAL

Suite 208, 6088 No.3 Road
Richmond, BC V6Y 2B3

October 21, 2021

Mr. Michael Liu
FortisBC Energy
16705 Fraser Highway,
Surrey, BC V4N 0E8

RE: Regent International's Support for Renewable Gas

Dear Mr. Liu:

For more than 35 years, Regent International has built a wide spectrum of commercial and residential real estate, from single-family homes to townhomes to high-rises in some of Metro Vancouver's most coveted urban and suburban neighbourhoods. Regent International is a multi-generational family run company with extensive knowledge in advanced building technology for the West Coast climate and a highly regarded reputation forged over three decades. Regent understands the needs of today's market and is a leading developer in Vancouver's growing and evolving real estate industry. With an extensive track record of excellence, Regent International's award-winning portfolio includes residential and commercial developments in Vancouver, Richmond, Port Moody, Delta, and Abbotsford. A proven envisioning process, attention to detail and a meticulous design ethos result in high-quality properties that exceed market demands, Regent understands how to stay relevant in today's market while anticipating future shifts. Regent works with some of the most esteemed and regarded architects, interior designers, landscape architects, engineers, and builders in Metro Vancouver to deliver visionary residences.

Regent International sources the latest innovations in making life more comfortable for homeowners. The company was among the first in Metro Vancouver to include air conditioning in their homes. Today, Regent residences include convenient perks such as home automation systems for lighting and heating, cloud-based customer care service for easy access to support, individual suite metering and geo-thermal heating for the latest in affordable and sustainable climate control. Regent's specialized approach results in brilliant projects that are environmentally and fiscally responsible.

In order to continue building innovative homes in British Columbia that meet environmental and fiscal objectives, we see FortisBC's Renewable Gas as an excellent option that not only help combat climate change but also provide a source of safe, affordable and reliable, carbon-neutral energy. Offering renewable gas to new homes through a proposed RG Rate class by FortisBC will allow new buildings to permanently stay on this resilient and environmentally friendly energy source while meeting carbon emission reduction targets.

We also believe renewable gas along with other types of energy options provide choice and flexibility in design options for new buildings. This has a direct impact on pricing as more options means more appliance types and more trades personnel spread over more energy-specific appliance expertise. We support the proposed tariff that FortisBC plans to bring forward to the BCUC and look forward to having access to energy options like RNG to help us meet emissions targets.

Sincerely,

Matthew Ng
Matthew Ng
VP of Development and Operations
Regent International Developments

Rinnai®

November 10, 2021

Benjamin Nishi
Regional Manager, Energy Solutions
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

RE: Rinnai's letter of support of FortisBC's Renewable Gas Application

Dear Mr. Nishi:

By way of introduction, Rinnai America Corporation is a subsidiary of Rinnai Corporation in Nagoya, Japan and came to North America in 1974. Our North American headquarters is in Peachtree City, Georgia, U.S. Rinnai Corporation manufactures gas appliances, including tankless water heaters, a wide range of kitchen appliances and heating and air conditioning units.

Rinnai is the largest gas appliance manufacturer in Japan and is the No. 1 selling brand of tankless gas water heaters in North America. As the technology leader in its industry, Rinnai products are available in 79 countries through 17 group companies worldwide, with one common value: *"Creating a Healthier Way of Living."*

As a comprehensive heat-energy appliance manufacturer, Rinnai is committed to contribute to society and address various global warming issues. Considering the emissions factor of renewable gas is the lowest, the proposed FortisBC's renewable gas tariff application aligns with many environmental objectives.

Allowing new homes to utilize the resilient gas infrastructure with renewable gas offers customers a choice in their energy needs. As a result, our customers will reduce greenhouse gas emissions while simultaneously enjoying our gas appliances.

The Rinnai Pro Network helps skilled trades grow by offering a diversity of product lines; however, climate policies can potentially shrink the number of skilled trades wanting to join the network. Shortage of trades would result in delayed construction projects, potential price hikes, and overall pressure on remaining trades in the industry.

Rinnai continuously strives to offer environmentally-enhanced products that stress safety, comfort and convenience to our customers across the globe; therefore, Rinnai supports FortisBC's renewable gas application.

Thank you very much for your time in consideration of this matter.

Sincerely yours,

Frank Windsor
President

October 13, 2021

Benjamin Nishi
Regional Manager, Energy Solutions
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

Letter of Support

RE: Ryan Heating and Air Conditioning support for new home renewable natural gas.

I have been a part of the residential heating, cooling, and home comfort industry in the Lower Mainland for nearly a decade. I gained experience by building one of the largest retrofit companies in the area and then venturing into my own company, Ryan Heating and Air Conditioning. My company serves customers in Maple Ridge, Pitt Meadows, Mission, Abbotsford, Langley, Surrey, and Delta.

Our company's motto is only to carry the best brands and products we believe will be reliable and supply homeowners comfort for many years to come. Expertise in understanding the latest heating and cooling equipment and technologies is essential in building a sustainable future. I believe FortisBC's Renewable Natural Gas (RNG) program provides a solution to help combat climate change and would help keep preferred products available to my customers.

The climate policies at various municipalities can potentially shrink the number of skilled trades capable of installing relatively new equipment. This puts pressure on trades and will lead to a price hike, overall construction costs, and delays to the consumers.

Specifically, RNG into buildings would allow homeowners to continue to enjoy the comforts of natural gas appliances, such as forced-air furnaces, hydronic heating systems, water heating, cooking appliances, etc.

The RNG program also provides a solution to help customers utilize current equipment without significant capital costs during retrofits. For example, replacing older natural gas furnaces for higher efficient furnaces would allow homeowners to use existing ductwork. Furnaces for many years have provided comfortable, evenly balanced warmth and improved air quality in homes.

I support the proposed tariff that FortisBC has brought forward that will allow our company to offer choices to homeowners that can help reduce costs, meet municipal GHGi targets and enjoy the comforts of natural gas.

Ryan Cocking
Ryan Heating and air Conditioning

SAKURA DEVELOPMENTS LTD.

295 King George Terrace, Victoria, BC, V8S 2J8
250-882-8568
dan@sakuradevelopments.com

Oct. 19, 2021

Re: FortisBC Renewable Gas Tariff Application

Attention:
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC, V4N 0E8

To whom it may concern,

I would like to express my support for the proposed FortisBC Renewable Gas Tariff Application. As a builder this proposed tariff will allow me to continue to offer my new homebuyers a choice of energy options while continuing to work towards our zero carbon emission targets.

Respectfully,

Dan Robbins

11/26/2021

Wayne Cankovic
Energy Solutions Manager
Fortis BC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

Re: Support for Renewable Natural Gas Proposal

Wayne,

This letter is to is to clearly state both Savannah Heating Products Ltd & The Fireplace Warehouse Ltd full support for Fortis BC's proposed Renewable Natural gas program; Built Green. Upon review, this program is a significant step forward to satisfy the changing climate for both the environment and changing opinions in the new home construction industry.

As a gas appliance manufacturer, distributor and retailer based here in the lower mainland, who sells across Canada, a program like this must be fully supported at all levels to maintain a fair and level playing field for companies such as ours. Builders deserve every viable option available to them and this program is a desirable option for both builder and the environment alike.

The Built Green program will allow all participating new buildings & new homes to stay carbon neutral using 100% renewable natural gas. This is something we strongly support and are, in fact, very excited about as far as the potential positive outcomes it will have for the various levels of our industry.

Based on the information at hand the Built Green proposal is an excellent alternative to be offered in the energy sector and it should be fully supported in a fair and competitive market environment.

Regards,

Craig McClean
General Manager
Savannah Heating Products Ltd.

Owner
The Fireplace Warehouse Ltd.

Sendero Canyon
AT PENTICTON

Office Address: **19055 34A Ave Unit 225, Surrey, BC V3Z 0P6**
Mailing Address: **800 – 15355 24 Ave Suite 550, Surrey, BC V4A 2H9**
Telephone: **604.536.7333**

FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8
October 25, 2021

Attention: Wade Benner, Energy Solutions Manager, FortisBC

Re: FortisBC Proposed Renewable Gas Tariff

Dear Mr. Wade Benner

We are writing in support of the Renewable Gas tariff that FortisBC is proposing that would see new residential customers receiving 100% Renewable Gas that would remain permanent for the life of the building.

This approach addresses climate concerns while maintaining affordability and choice for builders and homeowners.

We also appreciate that a major energy supplier like Fortis is addressing the climate change issues with a long-term view and at a Provincial level.

The thought of 100 municipalities establishing 100 different approaches would create chaos, regulatory uncertainty and significant cost burden on new housing.

We are glad Fortis has taken this initiative.

Yours truly

Ewen Stewart
President

Shawnigan Lake Developments Ltd
PO Box 17
Shawnigan Lake, BC
VOR 2W0

October 29, 2021

Attention: FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8

We at Shawnigan Lake Developments Ltd would like to indicate our support for FortisBC's application for approval of a tariff that would commit new residential construction homes, to its Renewable Natural Gas product for the life of residential buildings like those that we develop.

Approving this tariff request will provide FortisBC with the opportunity to meet greenhouse gas intensity (GHGI) targets outlined in current lower mainland municipal policies and future provincial/municipal policies. We understand that Renewable Natural Gas has the lowest emission factor of any energy source in the province (including electricity provided by both BC Hydro and the FortisBC electrical division). It is also important to consider emissions associated with the generation of electrical power.

We believe that providing our future owners with a choice in the type of energy sources they choose for their homes (electricity or Renewable Natural Gas) should be their right as a consumer, rather than just having electricity as their only approved option. Approving this tariff request will allow for our buyers to take advantage of the lowest emitting and most affordable energy source in the province, Renewable Natural Gas. It permits competition and reduces the load on BC Hydro to continue to meet the growing needs of the province (these risks were demonstrated in the summer of 2021 during the heat dome).

Beyond the benefits to our home buyers, approving this tariff should also aid in keeping housing affordable as builders will have additional design options for appliances and mechanical equipment, as more choices creates more competition to keep prices lower. Reducing design options could also impact manufacturers and supply chains, likely increasing product pricing which is an important consideration right when supply chains are often impacted. Reducing design options could also reduce the skilled labour force which could also drive up prices for product installation. Everything we do to keep house costs lower is important in ensuring long term viability for home ownership for our buyers specifically and in BC in general and is something we strongly support.

Approving this tariff request will keep choices available for the type of energy supply used as an option for our home buyers which will benefit consumers, builders, manufacturers, skilled trades, and the environment, which all benefits the province in general. We wish you all the best in this application.

Thank you,

Craig Partridge, Director
Shawnigan Lake Investments

SIAN GROUP

October 22, 2021

Fortis BC Energy
Attention: Mr. Michael Liu, Energy Solutions Manager
16705 Fraser Highway
Surrey, BC V4N 0E8

Regarding: Sian Group's Support for Renewable Gas Tariff

Dear Mr. Liu:

Family owned and operated, Sian Group has been developing quality homes in the Lower Mainland since 1992. With each new home, we continue to earn the trust and respect of our valued customers through our innovative design, quality workmanship and exceptional customer care. With superior craftsmanship and meticulous attention to detail, we ensure that the homes we build are of the highest quality and durability.

We take great pride in every home that displays our name and as an award-winning, fully-licensed and insured custom home builder and major renovation company serving the Lower Mainland, we believe that in order to build a truly beautiful home, you need to start at the bottom and work your way up. This includes offering flexible energy solutions that are aligned with our sustainable design and innovative building practices. We are therefore writing to you to support your plan for a renewable gas (RG) tariff application with the BC Utilities Commission.

We like the ability to ensure permanence in RG usage in new homes that last the life span of the buildings. We also like that the emission factor of RG meets GHGi targets. In addition, we support the province and industry in continuing to offer multiple safe, convenient, and reliable energy options in the marketplace and having RG as one of many effective low/no carbon energy sources help with housing and energy use affordability and security.

Our understanding is that climate policies can restrict natural gas use; this significantly impacts and limits options around our building designs which can lead to increased construction costs. An RNG tariff will keep our designs flexible to various energy options (including electric *and* gas, among other energy sources) and it will help support and strengthen our sustainable design practices that work to lower energy consumption in the homes we build. Many of our townhome projects feature highly efficient compact furnaces that heats the homes comfortably, efficiently and in very cost effective manner. An RNG tariff will allow builders like Sian Group to continue to build using an optimal mix of energy solutions including renewable gas equipment and thus help meet our climate and emission reduction goals.

We fervently support FortisBC's application for RNG in new buildings.

Regards,

Rick Sian

President - Sian Group

solterra

HEAD OFFICE
1-460 Fraserview Place
Delta, British Columbia
Canada V3M 6H4

November 3, 2021

Attn: Mr. Michael Liu
Energy Solutions
New Construction
FortisBC
16705 Fraser Highway
Surrey, BC V4N 0E8

Re: Letter of Support for Renewable Gas in New Homes

Dear Mr. Liu:

Solterra Group of Companies specializes in developing and building top-quality high-rise residences and town homes. Over the past 18 years, the team at Solterra has been involved with the development of many award-winning multi-residential communities throughout the Lower Mainland. We understand the importance of a home and pride ourselves on creating residences that feature exceptional design, solid construction and quality finishes. With the emphasis on superior construction and stringent quality control, Solterra provides well-built and affordable homes for the discerning buyer. For added peace of mind, our homes are backed by third party 2/5/10 warranty insurance. We are proud to have received local and national recognition and numerous awards over the years within the development and construction industry. These awards signify the realization of our commitment to our valued homeowners and local community in building exceptional residences with lasting value. Some of our recent awards include:

- Best Multi-Family Lowrise/Highrise Unit: Less than 800 s.f. – "Gold" for Milano – 2020 HAVAN Awards for Housing Excellence
- Best Outdoor Living Space: Single-Family Production or Multi-Family – "Gold" for Milano – 2020 HAVAN Awards for Housing Excellence
- Best Multi-Family Kitchen – New – "Gold" for Bordeaux - 2019 Georgie Awards ®

Integral to our goal to build homes with exceptional design, value and solid construction, we look to highly efficient energy systems to heat (and cool) our homes and to high quality in-suite appliances to enhance the comfort, convenience and affordability for home owners when operating their homes. We feel that a touch of luxury in our homes does not have to come at the expense of operational costs. We therefore see FortisBC's proposed application for a Renewable Gas (RG) Tariff as a means to help both home builders *and* owners achieve not only value with energy efficient appliances but also in helping the Province meet our climate goals. We understand this new RG tariff will be attributed to new homes and in so doing ensure RG usage throughout the life span of these homes. As RG is considered carbon-neutral, it will add to the mix of various environmentally friendly options available in the marketplace to allow all new buildings with either RG-based equipment or electric-based equipment (or an optimal mix between the two or more systems) to collectively meet greenhouse gas intensity (GHGi) targets and achieve climate goals. We support this innovative and flexible approach to build climate-friendly equipment into new homes and feel that RG would offer the industry, home owners/residents and business operators an array of choices, all of which help meet climate goals. Many of our current condominium tower projects already include energy-efficient gas appliances like central hot water heaters, cooktops, fireplaces and make-up air units. These appliances are fully compatible with RG which will effectively make them carbon-neutral equipment.

We strongly support your proposed RG tariff application with the British Columbia Utilities Commission.

Yours sincerely,

James Hu
Legal Administration Manager
Solterra

STREETSIDE DEVELOPMENTS

A QUALICO Company

November 18, 2021

Brad Ricketts
Energy Solutions Manager
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, B.C.
V4N 0E8

Dear Brad

Re: RNG Letter of Support for Tariff on New Home Renewable Natural Gas

StreetSide Developments is an award-winning division of Qualico, one of Western Canada's largest fully integrated, privately owned real estate companies. StreetSide has been in the Metro Vancouver region for 10 years and has since built over 1,000 homes in Burnaby, Maple Ridge, Surrey, and Langley. Today, we employ over 60 full time employees and are growing in this region.

We have 5 active projects underway in Burnaby, Coquitlam, Langley, and Surrey:

1. Valeo – mixed use project with 62 homes in Burnaby.
2. Port & Mill – medium rise condominium project with 175 homes in Coquitlam.
3. Willoughby Town Centre – 91 condominiums in a mixed use building in Langley.
4. Boroughs – Holloway – 127 townhomes in South Surrey
5. Boroughs – Bexley – 82 townhomes in South Surrey

In the next 7 years, we have another 13 sites in development which will bring nearly 3,000 townhome and condominiums to Metro Vancouver and the Fraser Valley. For the past 10 years, our business has been building fee simple row homes, and stratified townhomes and condominiums and we will continue to build in this marketplace.

The core value of our parent company, Qualico, is *doing the right thing*. This permeates into every aspect of our business, from ensuring homeowner complaints are thoroughly addressed to deficiencies being repaired correctly the first time, or surpassing energy step codes to making donations to local charities and organizations that will have a direct positive impact on families that live in the communities we build.

The vision for StreetSide is to become recognized as one of the predominant and trusted multi-family builders in British Columbia with a reputation for building high quality, and energy efficient homes that exceed customer expectations. We are working on our first Net-Zero Ready certified townhomes and will be one of the first larger volume home builders in the Lower Mainland to achieve this.

StreetSide currently builds to Step 3 of the BC Energy Step Code at both Part 3 and Part 9 scale, and as mentioned above, are currently working on our first Net-Zero Certified home. All our homes are also labelled through Natural Resources Canada's Energuide Rating System. Green building and energy efficiency has grown in popularity over the years and helps us produce higher quality, more durable homes, which are more comfortable and healthier to live in, with the added benefit of potential cost savings for the owner.

Market demand for highly efficient gas mechanical equipment and appliances has steadily grown over the years as homeowners become more aware of the substantial cost benefits, in fact 4 years ago StreetSide elected to switch entirely to gas fired hot water tankless boilers, gas cooktops and BBQ outlets to meet market demand and to address the feedback from owners in relation to energy bills.

Access to renewable natural gas provides home buyers uncompromised access to highly efficient mechanical systems such as condensing gas instantaneous water heaters without the ecological worry over traditional fossil

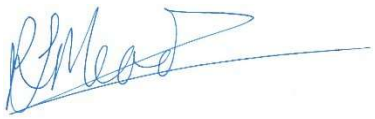
fuel use. Similarly, it allows homeowners to continue using gas cooking equipment, and options such as barbeques. StreetSide supports the FortisBC tariff application as renewable natural gas provides us with the opportunity to provide our homebuyers with the features of the homes they demand while building environmentally conscious homes with reasonable operating costs.

It should be noted that there are occasions where municipalities may mandate alternate energy sources or connection to DE is mandated, and we have no overall control of the energy source for these requirements. Naturally we encourage BCUC to work with the operators of these systems to fuel switch to RNG or other equivalent low carbon systems.

As a growing multi-family home builder in Metro Vancouver with eighteen active projects currently under way and nearly 3,000 new homes in the pipeline, StreetSide sees the benefit of renewable natural gas and fully supports FortisBC's renewable gas tariff application for deployment on homes where applicable.

Please do not hesitate to contact me with any questions.

Sincerely,
StreetSide Developments (BC) Ltd.



Jonathan Meads
Vice President

Talus Green Building Consulting

Providing Solutions for Sustainable, Healthy and
Energy-Efficient Home Construction

Roger Chayer Architectural Technologist, Certified Energy Advisor **C:** 250-218-0965

October 25, 2021

FortisBC Energy Inc.
16705 Fraser Highway,
Surrey BC V4N 0E8

RE: Renewable Natural Gas (RNG) tariff application to the British Columbia Utilities Commission

I have been aware of FortisBC's Renewable Natural Gas program and see this as a great effort in reducing the GHG emissions in the building sector.

As an Energy Advisor I have the opportunity of helping home builders with recommendations and options to meeting their BC Step Code requirements including their heating/cooling and domestic hot water fuel source, of either, electricity, natural gas, or a combination. For several home builders' natural gas is the affordable option for their clients.

Along with the BC Step Code requirement, I understand that a Green House Gas Intensity (GHGi) metric has been introduced in some jurisdictions with a strong possibility that all British Columbia would follow suit. The RNG tariff that FortisBC is seeking approval on for all new residential and multi-use customers, I believe to be a good approach to meet these GHGi regulations. To my mind having this tariff implemented would enable me to still do my job in offering recommendations and choice to the home builder to suit their clients' needs.

Sincerely,

Roger Chayer
Architectural Technologist, Energy Advisor, Built Green HD Verifier
Talus Green Building Consulting

Thind
PROPERTIES

November 15, 2021

Michael Liu
Energy Solutions
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

Dear Mr. Liu,

RE: Letter of Support for Renewable Natural Gas (RNG)

For over 25 years, Thind Properties has been changing the Vancouver real estate landscape one quality home at a time. To date, we have built over a thousand homes throughout Metro Vancouver with thousands more planned in the next few years. From New Condo and Townhouse Developments, to single-family homes and custom builds, we specialize in a wide range of projects, putting our distinctive stamp on everything we do. Each one of our homes is built with an unmatched attention to design—from inception to creation, every detail is accounted for. Our homes endure the test of time and play a large role in enhancing the communities in which they are built. With a vision to create a real estate market with more affordable, environmental, and sustainable living options, we feel it is important to offer Home Owner's choice in environmentally friendly energy solutions that aim to affordably serve their homes for years to come.

We believe FortisBC's *Renewable Natural Gas* provides one such solution that will help combat climate change. We think the tariff proposed by FortisBC allowing permanence on new construction buildings is a positive step in the right direction. Essentially, more buildings signed up to RNG would help reduce overall emissions.

In addition, the supply of RNG into buildings would allow homeowners to continue to enjoy the comforts and convenience of existing natural gas appliances, such as central boilers, forced-air furnaces, hydronic heating systems, water heating, cooking and laundry appliances. Using natural gas technologies is important since space heating and domestic hot water account for more than 75% of household energy use and thus account for a significant portion of monthly operating costs. Note that these traditional natural gas appliances are totally compatible with RNG.

THIND PROPERTIES LTD.
700 – 4211 KINGSWAY VANCOUVER BC V5H 1Z6
P 604.451.7780
F 604.451.7740
THIND.CA

Thind
PROPERTIES

Moreover, for older buildings, RNG provides a solution to help customers utilize current equipment without significant capital costs. Under Thind's *Affordable Housing* division, for example, we would look to solutions that avoid costly retrofits in existing rental housing stock by replacing older natural gas furnaces for higher efficient renewable natural gas equipment that allow residents to use existing ductwork. These types of equipment would be conducive to more affordable housing via reduced energy cost especially during the heating season winter months.

We firmly support the proposed tariff that FortisBC has brought forward and how RNG meets emissions targets and allows customers to enjoy the comforts that renewal natural gas offers.

Sincerely,

Daljit Thind
President & CEO
Thind Properties

THIND PROPERTIES LTD.
700 – 4211 KINGSWAY VANCOUVER BC V5H 1Z6
P 604.451.7780
F 604.451.7740
THIND.CA

TLH Developments Inc.

Box 2344 Ladysmith, B.C.

V9G 1B8

November 3,2021

ATTENTION: Fortis BC Energy Inc.

16705 Frazer Highway

Surrey, B.C.

V4N 0E8

I'am writing to support Fortis BC effort to keep the renewable gas tariff for all new gas customers to remain in place for the life of the building.

I strongly feel that this addresses any climate concerns while at the same time keeping cost affordable and choices for my customers readily available.

I personally feel there are more serious issues to deal with as far as climate change than picking on what I believe is to be a very stable option moving forward.

Thank You

Todd Hancock Ctech

TLH Developments Inc.

TRESTLE RIDGE
UPPER MISSION

FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8
October 18, 2021

Attention: Wade Benner, Energy Solutions Manager, FortisBC
Re: FortisBC Proposed Renewable Gas Tariff

Dear Mr. Wade Benner

I am writing in support of the Renewable Gas tariff that FortisBC is proposing that would see new residential customers receiving 100% Renewable Gas that would remain permanent for the life of the building.

This approach addresses climate concerns while maintaining affordability and choice for builders and homeowners. The development industry is facing more and more complexity to reduce emissions, protect the environment, reach new milestones for energy efficiency all while trying to meet the demand and choice of our clients. Keeping natural gas as a service choice is important to our clients and the RNG program addresses the emissions issue.

We know that we will continue to see change and evolution in the coming years and decades. Having more tools is better than less and the RNG program is a good one to have. It needs a robust network of natural gas distribution. I support the proposed tariff request by Fortis BC Energy.

Sincerely,

Andrew Bruce

Andrew Bruce, Land Manager
Trestle Ridge/Fawn Run Developments

Tri-AMM Developments Corporation
111-550 Lorne St
Kamloops, BC V2C 1W3
info@triamm.com
250-320-7591

October 27, 2021

Fortis Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

RE: Renewable Natural Gas (RNG)

I'm writing in support of making natural gas an available option for consumers. We're developers and builders and can attest homebuyers view natural gas as a necessary utility both for heating and cooking and, most importantly, as back-up in the event of a power failure particularly in a winter storm event.

We appreciate GHG emissions are a concern with the regulators. RNG eliminates that concern by utilizing waste gases and still provides consumers with a critical utility. Furthermore, it's my view regulators need to employ a whole-house approach to analyze carbon sources balanced against sinks. For example, any building material that ties up carbon needs to be measured against carbon emissions from a natural gas appliance.

Should you wish to discuss any points raised in this letter, please do not hesitate to contact the undersigned.

Yours truly,

Marlene Anderson, P.Eng
President
250-320-7591
Tri-AMM Developments Corporation
marlene.anderson@triamm.com

UDI
CAPITAL REGION URBAN DEVELOPMENT INSTITUTE

December 3, 2021

FortisBC Energy Inc.
16705 Fraser Hwy
Surrey, BC V4N 0E8

To whom it may concern –

The Urban Development Institute (UDI) – Capital Region would like to take this opportunity to express our support for Fortis BC's proposed tariff that would commit all new residential service connections (new customers) to their Renewable Natural Gas product for the life of the building. As a "Partner in Community Building," UDI is committed to working with communities, organizations and governments to create and achieve the vision of balanced, wise and efficient urban growth through good planning and development practices which will result in sustainable communities.

BC's best practices, that the development community must adhere to, are a robust set of regulations that endeavour to keep up with the ever-increasing need for sustainability measures. Adding to these practices, the BC Provincial government is proposing a Green House Gas Intensity (GHGI) metric to accompany Step Code requirements. These policies require low carbon fuels to achieve these metrics and this is where Fortis BC's Renewable Natural Gas would meet this target. RNG has the lowest emission factor of any energy in the Province. Measuring and managing emissions can result in cost savings, increased organizational efficiencies and better asset management, which would benefit the development community in achieving our goal of creating more sustainable communities.

As we strive to assist the development industry in understanding and achieving greater sustainability measures, UDI would like to recognize and support the efforts of Fortis BC in creating their Renewable Natural Gas and their proposed tariff on all new residential service connections. It is through innovative offerings such as RNG that BC will be able to achieve its climate change mitigating initiatives.

Kind Regards,

Kathy Whitcher (Executive Director)

VANPROP

Brad Ricketts
Energy Solutions Manager
Fortis BC energy Inc.
16705 Fraser Highway
Surrey, B.C.
V4N 0E8

Dear Mr. Ricketts,

I whole heartedly support Fortis' initiative to obtain a new tariff for providing Renewable Natural Gas (RNG). I have been in the residential home building industry for over 25 years and have spent much of my career with Aquilini Development and Construction in a leadership where we were building 200-300 homes per year over the last 10 years. We were active in various municipalities around the lower mainland, the interior of British Columbia and on First Nation land. My current role now has me overseeing large master planned community in Richmond where we will be building 4 million sf of residential development and an additional 800,000 sf of commercial development on the 50 acre Lansdowne Centre site in the heart of Richmond.

Reducing greenhouse gas emissions (GHGi) is so important in light of the climate emergency we are facing now and as a developer I feel we have an obligation to not only meet, but exceed the various standards being introduced through the building code and the various municipalities. Some of the measures we have taken to date in our new homes to meet and exceed our obligations have been installing district energy systems, geothermal heating, air source heat pumps, tankless hot water, Energy Star appliances, higher R-Value insulation and programable thermostats to name a few. I believe adding an RNG tariff for new home construction will only add another option for developers to meet their obligations for energy efficiency and to provide a lower cost alternative to other energy savings options. Affordability is so important these days with the price of home ownership skyrocketing. I like the RNG tariff option because it is the renewable version of a reliable and mature technology that relies on existing infrastructure and an existing knowledge base and work force, be it is with the consultants, designers or trades. It is a major abundant global source of energy and the RNG tariff option works across all the different regulations for GHGi policies and emission polies that are being adopted.

For the reasons stated above, I am in support of the RNG tariff. I believe RNG is an important compliment in the energy transition process from fossil fuels to 100% renewable energy sources.

Kind regards,

Kevin Hoffman
Chief Executive Officer

Vanprop Investments Ltd.
355 – 601 W Cordova St.
Vancouver, BC V6B 1G1

VICTORIA
RESIDENTIAL BUILDERS
ASSOCIATION

Community Builders…

Building Communities

December 3, 2021

John Drazic
Regional Energy Solutions Manager
FortisBC

Dear Mr. Drazic,

Re: FortisBC Energy Inc. Renewable Natural Gas Tariff Application

The Victoria Residential Builders Association supports FortisBC's application to the BC Utilities Commission for Renewable Natural Gas Tariff.

This is a reasonable and practical solution to promote sustainability, affordability and choice in the housing market.

We recognize the importance of the global climate change crisis as well as the housing affordability crisis in British Columbia. The solution to both challenges is ensuring supply and diversity using creative solutions for our growing population.

Renewable natural gas reduces GHG's while continuing to provide the power needed for our economy as well as maintaining health and safety.

We wish you success in your application.

Sincerely,

Norm Verbrugge
President

#1–3690 Carey Road, Victoria, BC V8Z 4C2 • Tel: 250.383.5044 • Fax: 250.383.9423 • Email: admin@vrba.ca • Twitter: @VicBuilders •www.vrba.ca • www.careawards.ca

VIPEQ's
Thermal CorkShield™

400 McInnis Avenue
Prince George, BC V2N 1Y7
250-640-2848

FortisBC Energy Inc.

16705 Fraser Highway

Surrey BC. V4N 0E8

Re Renewable Gas Tariff

As a contractor involved in the building trade focusing on renovation with applying a product to help reduce air leakage and help with climate change, we would like to add our support to any initiative to help reduce greenhouse gases and improve our environment.

The rate filing with BC Utilities Commission by Fortis Gas regarding Renewable Gas Tariff (RGF) is an important step towards reduction of greenhouse gases and we whole heartily endorse this application.

Yours truly

Gordon Bliss

President

Vipeq Thermal Corkshield North Ltd.

FortisBC Energy Inc.

16705 Fraser Highway

Surrey BC V4N 0E8

October 18, 2021

Attention: Gerry Hohl

Re: FortisBC Proposed Renewable Gas Tariff

We are writing in support of the Renewable Gas tariff that FortisBC is proposing that would see new residential customers receiving 100% Renewable Gas that would remain permanent for the life of the building.

This approach addresses climate concerns while maintaining affordability and choice for builders and homeowners.

It has always been my strong belief that there is latent energy just disappearing into thin air at our landfills. To imagine creating more jobs locally while harnessing this latent energy to hopefully create more jobs locally while helping reduce greenhouse gas emissions and reducing the strain on our NG reserves seems to me like a win, win, win situation.

I look forward to learning more about this alternative source of energy and seeing how it might benefit our communities and the world.

Sincerely,

Wade Roberts

CEO/Owner

Wade Roberts Plumbing Ltd.

Saanichton B.C. Canada V8M 2A6

November 18, 2021

FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

Attention: Ranvir Khosla, Energy Solutions Manager

RE: Letter of Support for a Renewable Gas tariff.

Westbow Construction has been in the business of building homes and communities for 43 years with over 1,000 houses built and employing over 100 employees. We currently have several projects under development in the Chilliwack region and have over 1,000 new residential units in our pipeline that will be built out over the next several years.

Apart of our core values is to treat the homes we build with our customers in mind. Renewable gas offers a solution within the changing requirements for carbon neutral developments to continue to provide builders with design options and end-users with the choice of energy sources in the homes they purchase. Market demand for high-efficiency gas mechanical equipment and appliances has grown over the years as homeowners recognize the cost benefits associated with gas serving as their primary space and water-heating source of energy.

We believe that renewable gas is a solution to the current movement towards the use of renewable energy sources in building construction while keeping our energy grid in British Columbia diverse and reliable. It is our hope that the regulatory bodies involved will support FortisBC's proposal.

Sincerely,
Jason Metcalfe
Development Manager

Westland

8431 Granville Street
Vancouver, BC V6P 4Z9
T: 604-566-6888
E: info@westlandliving.ca

November 9, 2021

Attn: Mr. Michael Liu
Energy Solutions - New Construction
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

Re: Letter of Support for Renewable Gas (RG) in New Homes

To Whom It May Concern:

As a family-owned and operated homebuilder, we were founded on the values of hard work and craftsmanship. Westland Living's long legacy of homebuilding began in Vancouver with high-end single-family homes. Across our 15-year history, we have gained an appreciation for design excellence, craftsmanship, and integrated technology. We also learned the significance of attention to detail to enhance livability. With this solid foundation of knowledge and passion, we knew we wanted to make a bigger impact. Following years of acquiring land in optimal locations, in neighbourhoods across the region, we transitioned our expertise into developing multi-family buildings. Our condominiums are indicative of what people would want in a custom home - high value and elevated design. Architecture both stands out and complements its environment, while interiors equally focus on style and function. We incorporate premium features and technology-forward details such as built-in wireless chargers, UV drawers, and European appliances.

Our goal is to maximize lifestyle and wellness for every homeowner, now and tomorrow. These unwavering ideals, along with an excitement to enhance living experiences and communities, will be carried into our upcoming projects. Some past and coming-soon projects include:

- 29 unit condo project in Point Grey area in Vancouver
- 64 unit condo project on West 68th Avenue and Granville Street in Vancouver
- 50 storey mixed-use tower in Metrotown area in Burnaby
- 50 storey mixed-use tower situated in Surrey City Centre in Surrey

As a top goal at Westland is to enhance the communities we build in, we support choice in *all* innovative ways to build and recognize that renewable gas would offer an excellent energy solution that is safe, reliable and affordable for home owners. We therefore support your proposed application for a Renewable Gas Tariff with the British Columbia Utilities Commission. We understand that an RG tariff for new homes ensures the permanent use of RG throughout the life of the buildings and thus allow natural gas equipment and appliances to still be installed as they are fully compatible with renewal gas. Ultimately, since RG is carbon-neutral, buildings with both electric and renewal gas equipment will meet greenhouse gas intensity and climate targets. Our past projects have included a combination of electric *and* highly energy-efficient gas appliances like space and water heating boilers, make-up air units and in-suite gas cooktops. With RG, similar cost-effective equipment will continue to provide comfort, convenience and operational cost savings while eliminating greenhouse emissions. More choices in various carbon-neutral energy mean more innovative technology and building options which often translate to cost savings, both for builders *and* home owners. RG will certainly help support our goal to enhance the communities we build in.

Yours sincerely,

Shane Chen
Director of Development
Westland Living

Blenk Development Corp.
Wilden Construction Corp.
1454 Rocky Point Drive
Kelowna, BC, V1V3E3
www.wilden.ca

FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8

October 24, 2021

Attention: Wade Benner, Energy Solutions Manager, FortisBC

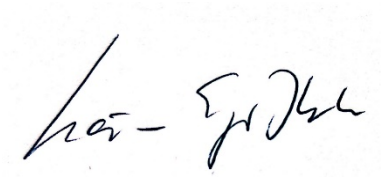
Re: FortisBC Proposed Renewable Gas Tariff

Dear Mr. Wade Benner,

We are writing in support of the Renewable Gas tariff that FortisBC is proposing that would see new residential customers receiving 100% Renewable Gas that would remain permanent for the life of the building.

This approach addresses climate concerns while maintaining affordability and choice for builders and homeowners.

As the largest master-planned real estate development in the Okanagan Valley we are dedicated to reducing carbon emissions quickly and effectively, especially in new development. We see RNG as a key ingredient to a clean energy mix and a carbon neutral future in residential living.



Karin Eger-Blenk
Co-Chair & Director

Regional Manager, Energy Solutions
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

Dear Mr. Nishi

Re: Yanmar Energy Systems Canada, Inc. support of renewable natural gas for new homes.

Yanmar has a long history of developing technology that focuses on sustainability and an energy saving society. Since 1912 Yanmar has been investing and developing technology that realizes most power from minimal energy. Our Energy systems division with our Combined Heat and Power and Heat Pump technology are in many communities with installations in over 400,000 locations worldwide.

Yanmar supports the RNG Tariff for new homes and buildings Initiative as it continues to encourage development of innovative technologies by offering affordable carbon neutral options for home and business operations. This initiative embraces our pioneering spirit to improve people's lives.

Yanmar continuously develop and provide high efficiency energy systems products and we hope we can provide environmentally friendly and affordable energy solution for customer together.

Sincerely,
Kazuko Newton, Managing Director

Nov. 22, 2021

Yanmar Energy Systems Canada Inc.

YANMAR ENERGY SYSTEMS CANADA INC.
710 South Service Rd, Unit 3, Stoney Creek, Ontario

Appendix F-3
LETTERS OF SUPPORT

INTERESTED PARTIES

November 24, 2021

Ranvir Khosla
Energy Solutions Manager
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, B.C.
V4N 0E8

Letter of Support

RE: renewable natural gas tariff for new residential buildings

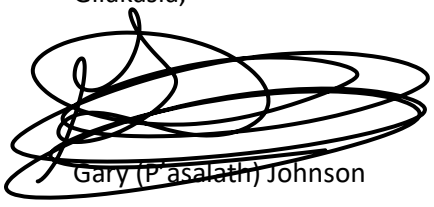
There are waste-to-energy projects being developed here in British Columbia that will provide energy to underserved communities, including Indigenous Communities whom are looking at renewable gas as an energy source that can assist in these communities escaping energy poverty.

I believe that FortisBC's renewable gas is an important energy option for British Columbians moving forward. It allows for significant existing energy infrastructure to continue to be used while diversifying the province's energy portfolio with a low carbon option as it seeks to reduce emissions.

I have familiarity in this regard as I've met with a few proponents. This option not only serves Fortis but also provides potential revenue sources along with the ability to serve the community and community businesses.

More importantly, it aligns with Indigenous values of environmental stewardship.

Gilakasla,



Gary (P'asalath) Johnson

Hereditary Chief, Laich-Kwil-Tach

Appendix F-4
LETTERS OF SUPPORT

LOCAL GOVERNMENT

City of Burnaby

Engineering Department

2021 October 26 FILE: 39000-04

Benjamin Nishi
Regional Manager, Energy Solutions
FortisBC Energy Inc.
16705 Fraser Highway
Surrey BC V4N 0E8

Dear Mr. Nishi:

SUBJECT: LETTER OF SUPPORT
RE: CITY OF BURNABY SUPPORT FOR NEW HOME RENEWABLE NATURAL GAS.

Burnaby is the third-largest city in the province, with over 249,000 residents, located in Metro Vancouver's centre. The city strives to protect and regenerate ecosystems, support a healthy and prosperous community, build sustainably and eliminate GHG emissions.

As we understand FortisBC's application for permanent renewable natural gas for new premises helps builders and residential customers who require new connections to meet building low energy standards through the use of RNG with a small carbon footprint at a rate that is permanent to the life of the home.

At Burnaby we developed a Community Energy and Emissions Plan (CEEP) to help reduce the community's overall energy use and greenhouse gas (GHG) emissions to address climate change. Of the five areas of action under CEEP, building and energy is an important element representing a large opportunity for various strategies and actions to reduce emissions in this sector.

We believe FortisBC's application is aligned with this plan and supports economic opportunities in the low carbon industry. More specifically, RNG is a tool that would help achieve the city's GHG targets and home affordability in Burnaby.

Again, the City of Burnaby supports the proposed FortisBC tariff application and the permanence of Renewable Natural Gas (RNG) in new construction buildings. The application aligns with Burnaby's Environmental Sustainability Strategy (ESS) and Community Energy Emission Plan (CEEP).

Yours truly,

James Lota, P. Eng. MBA, MPA
Director Engineering

JL/ac

Copied to: Chief Administrative Officer
Director Corporate Services

P:\!! Director\Lota\2021 - James\Letter of Support to FortisBC.jl.docx

CITY OF
PRINCE GEORGE

OFFICE OF THE MAYOR

1100 Patricia Blvd. I Prince George, BC, Canada V2L 3V9
p: 250.561.7600 I www.princegeorge.ca

December 7, 2021

FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

RE: City of Prince George letter of support for new home renewable natural gas.

Dear FortisBC,

Prince George is a city of over 80,000 people located on the traditional territory of the Lheidli T'enneh First Nation. “Lheidli T’enneh” means "people where the rivers come together" in the Carrier language. We are the largest city in northern British Columbia, geographically located in such a way that we are a transportation and industry hub for the north. We are proud to be a municipality that has become a leader in taking action on climate change and environmental sustainability.

The City’s 2020 Climate Change Mitigation Plan aims to reduce the greenhouse gas (GHG) emissions produced by transportation, buildings, and waste in Prince George and preserve natural aspects of the community that absorb carbon, such as forests and wetlands. In addition, the City’s myPG Sustainability Plan, an Integrated Community Sustainability Plan (ICSP), aims to create a long-term vision and process for becoming a sustainable community.

Renewable gas is carbon-neutral and has the lowest emissions factor compared to other fuel types so it helps our community meet greenhouse gas reduction goals and reduces our carbon footprint. Utilizing the resilient gas infrastructure at FortisBC, renewable gas helps create a healthy environment that supports a robust and stable local economy and provides energy choices for homeowners that allow for affordable housing and quality of life for residents.

Prince George has already seen the benefits of renewable gas from sawmill residuals (waste wood). Prince George's Downtown Renewable Energy System is powered by sawmill residuals and distributes heat to nearly a dozen downtown buildings. The renewable energy system has already reduced total net particulate matter by 100.7 tonnes per year and total greenhouse gas reduction by 1,868 tonnes per year.

Having renewable gas permanence on new homes will provide tremendous benefits to help Prince George achieve its vision of becoming a sustainable community.

Prince George City Council, believes that FortisBC’s application for the Renewable Gas Tariff (Build Green Program) aligns with the City’s 2020 Climate Change Mitigation Plan and the myPG Sustainability Plan. Climate change may feel like a problem of the future, however we are very aware that Prince George is already experiencing the impacts of a changing climate. Prince George City Council is

supportive of FortisBC's renewable gas application for new homes since it makes a lasting environmental difference today.

Sincerely,

Mayor Lyn Hall
City of Prince George

Appendix F-5
LETTERS OF SUPPORT

MUSQUEAM INDIAN BAND

MUSQUEAM
A LIVING CULTURE

Musqueam Indian Band
6735 Salish Drive
Vancouver, BC
V6N 4C4

November 29, 2021

Attn: Mr. Michael Liu
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8

Dear Michael,

As Musqueam's Public Works Department, we build, operate and maintain the physical infrastructure that supports the main Musqueam Reserve, including the water, sewer, storm drainage, and road systems, community buildings, and community grounds, including our parks and sports fields. Our objectives: increase the management and operational capacity of public works; improve efficiency, effectiveness, and accountability; enable Musqueam's programs for economic development and for development of new community buildings; and manage arrangements for delivering municipal services provided by the City of Vancouver.

We work closely with the City and the utilities to ensure that water, sewage, and energy infrastructure (electric and gas) are interwoven safely, effectively, and respectfully into our structures, communities and Lands and we see the vital benefits these systems provide. We support efforts to utilize these physical assets that aim to reduce or eliminate environmental impacts. We therefore see FortisBC's Renewable Gas as one solution that not only helps meet greenhouse gas intensity (GHGI) targets and climate goals but also helps drive economic, environmental, and social stewardship.

Our Vision: ***"We, the Musqueam, will work together to take care of our territory so the following generations will know how to be self-reliant. We will remember our own history and as well, use our traditional teachings to take care of everyone and everything on this earth"***

In close alignment to our vision, we seek opportunities to be caretakers of one another and everything on earth as they also relate to renewable energy. As such, we see the critical importance of energy that is clean and reduces harm to the environment. We also see the economic benefit that various sources of energy bring. Renewable energy such as hydro-generated electric power and renewable gases from organic waste help contribute towards the overall recipe that provides comfort, convenience, reliability, and resilience in generating power to appliances and heat our homes and our places of work, learning, care, and play. We therefore support FortisBC's application to the British Columbia Utilities Commission for a renewable gas tariff. We understand that the new tariff will enable all new buildings to tap into this carbon neutral energy source and ensure that they continue to do so for their life span. We understand that renewable gas meets all GHGI targets and can help meet the Province's climate goals, thus providing clean energy to our community homes and buildings via this environmentally friendly energy solution.

Yours sincerely,

Norman Point
Manager, Public Works and Community Infrastructure

Appendix G
DRAFT ORDERS

Appendix G-1
DRAFT PROCEDURAL ORDER

bcuc
British Columbia
Utilities Commission

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3
bcuc.com

P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

ORDER NUMBER
G-xx-xx

IN THE MATTER OF
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

FortisBC Energy Inc.
Application for Approval of Revisions to FortisBC Energy Inc.'s Renewable Gas Program

BEFORE:
[Panel Chair]
Commissioner
Commissioner

on Date

ORDER

WHEREAS:

A. By Order G-133-16, dated August 12, 2016, the British Columbia Utilities Commission (BCUC) approved the FEI Biomethane Energy Recovery Charge (BERC) Rate Methodology Application. Directive 16 of Order G-133-16 directed FortisBC Energy Inc. (FEI) to file a comprehensive assessment report for BCUC approval at the earlier of the application by FEI for a transfer of biomethane inventory from the Biomethane Variance Account (BVA) to the Mid-Stream Reconciliation account, or four years after the date of issue of Order G-133-16, whichever came first;

B. On August 12, 2020, in accordance with BCUC Order G-133-16, FEI filed the BERC Rate Methodology Assessment Report with the BCUC;

C. By Order G-35-21, dated January 29, 2021, the BCUC established a two-stage review process for the review of the BERC Rate Methodology Assessment Report. Directive 2 of Order G-35-21 directed FEI to provide the BCUC with a status update on its comprehensive review of the Renewable Gas Program on or before June 30, 2021, including expected timing for the application;

D. On June 30, 2021, FEI filed a status update with the BCUC on the Stage 2 Comprehensive Review and Assessment of the Renewable Gas Program, and advised the BCUC that FEI anticipated filing the Application in the fourth quarter of 2021;

E. On December 17, 2021, in accordance with Order G-35-21, FEI filed its Comprehensive Review and Application for Approval of a Revised Renewable Gas Program (Application);

F. In the Application, FEI seeks approval, pursuant to sections 59 to 61 of the *Utilities Commission Act* (UCA), of a new Rate Schedule (RS) 7B for General Interruptible Renewable Gas Service and corresponding amendments to FEI's General Terms and Conditions, as included in Appendix D-1,

effective February 1, 2022 so that FEI can begin to offer Renewable Gas service to customers in RS 7, consistent with FEI's current Renewable Gas service available to all other sales customers;

G. In the Application, FEI also seeks approval pursuant to sections 59 to 61 of the UCA of the following revisions to the Renewable Gas Program, effective on the beginning of the first quarter[1] that is at least 5 months after the issuance of a final Order in this proceeding:

   a) Approval of the Renewable Gas Connections service as described in Sections 7 and 8 of the Application and as set out in the corresponding new rate schedules in Appendix D-2;

   b) Approval of changes to the Voluntary Renewable Gas service as described in sections 7 and 8 of the Application, and the corresponding new and amended rate schedules in Appendix D-2;

   c) Approval to change the name of the Biomethane Variance Account to the Low Carbon Gas Account, and approval of the Low Carbon Gas Account;

   d) Approval to change the name of FEI's Biomethane Energy Recovery Charge to the Low Carbon Gas Charge;

   e) Approval to cease the Biomethane Delivery rate rider and to begin the use of the Storage and Transport Low Carbon (S&T LC) rider;

   f) Approval to discontinue the BVA Balance Transfer Account;

   g) Approval to discontinue the Unsold Biomethane Premium deferral account;

H. In the Application, FEI also seeks approval pursuant to sections 59 to 61 of the UCA of the Renewable Gas Blend service with an effective date of January 1, 2024 or such later date to be proposed by FEI based on sufficient Renewable Gas supply and the filing of amended rate schedules for approval by the BCUC at least three months prior to the actual implementation date; and

I. The BCUC considers the establishment of a regulatory timetable for review of the Application and certain approvals are warranted.

NOW THEREFORE pursuant to sections 59 to 61 of the UCA, the BCUC orders as follows:

1. A regulatory timetable for the review of the Application is established, as set out in Appendix A to this order.

2. FEI is to publish the Public Notice, attached as Appendix B to this order, in display-ad format in appropriate news publications, such as but not limited to, local and community newspapers to provide adequate notice to those parties who may have an interest in or be affected by the Application, as soon as reasonably possible, but no later than January 17, 2022.

3. FEI is to publish notice of this Application on social media platforms, by no later than January 17, 2022, and must also publish weekly reminder notices on each of these platform until the conclusion of the intervener registration period on January 27, 2021.

[1] i.e., January 1, April 1, July 1, or October 1, in order to align with FEI's quarterly gas cost filings.

4. FEI is to publish the Application, this Order, and the regulatory timetable on its website and to provide copies, electronically where possible, to all parties who participated in the FEI BERC Rate Methodology Assessment Report proceeding, FEI's Annual Review for 2022 Delivery Rates proceeding, and all recent Section 71 proceedings involving Renewable Gas, by no later than January 17, 2022.

5. Interveners are to register with the BCUC by completing a Request to Intervene Form, available on the BCUC's website at https://www.bcuc.com/get-involved/get-involved-proceeding.html, by the date established in the regulatory timetable, and in accordance with the BCUC's Rules of Practice and Procedure attached to Order G-15-19.

6. The addition of Rate Schedule 7B for General Interruptible Renewable Gas Service and corresponding amendments to FEI's General Terms and Conditions of its Tariff, are approved on a permanent basis, effective February 1, 2022.

7. In accordance with the terms of this Order, FEI is directed to file amended tariff pages for BCUC endorsement within 15 days of the date of this Order.

DATED at the City of Vancouver, in the Province of British Columbia, this (XX) day of (Month Year).

BY ORDER

(X. X. last name)
Commissioner

Attachment

FortisBC Energy Inc.
Application for Approval of Revisions to FortisBC Energy Inc.'s Renewable Gas Program

REGULATORY TIMETABLE

Action	Date (2022)
FEI to provide Public Notice	Monday, January 17
Intervener Registration Deadline	Thursday, January 27
FEI Workshop*	Thursday, February 3
BCUC Information Request (IR) No. 1	Thursday, February 10
Intervener IR No. 1	Thursday, February 17
FEI Responses to IR No. 1	Monday, April 4
Written Submissions on Further Process	Thursday, April 14

* To be held virtually commencing at 1 p.m. Active participation in the workshop, which will be transcribed, will be limited to the BCUC and registered interveners; however, any party may follow the live broadcast. Further details regarding the workshop will be issued in due course.

APPENDIX B
to Order G-xx-xx

bcuc
British Columbia Utilities Commission

PUBLIC NOTICE

FORTISBC ENERGY INC.'S APPLICATION FOR APPROVAL OF REVISIONS TO THE RENEWABLE GAS PROGRAM

On December 17, 2021, FortisBC Energy Inc. filed an application with the British Columbia Utilities Commission (BCUC) for approval of certain revisions to its Renewable Gas Program (formerly referred to as the Biomethane Program). The purpose of the Application is to enable FEI to revise its Renewable Gas Program in response to evolving government climate policies, customer needs for Renewable Gas, and the significant increase in Renewable Gas that FEI is acquiring pursuant to the *Greenhouse Gas Reductions (Clean Energy) Regulation*. The Application consists of changes to its tariff, cost recovery methods, and accounting treatment to allow FEI to provide new and revised Renewable Gas service to its customers.

HOW TO PARTICIPATE

- **Submit a letter of comment**
- **Register as an interested party**
- **Request intervener status**

IMPORTANT DATES

1. **Thursday, January 27, 2022** – Deadline to register as an intervener with the BCUC.
2. **Thursday, February 3, 2022** – FEI Workshop

For more information about the Application, please visit the Proceeding Webpage on bcuc.com under "Regulatory Activities – Current Proceedings". To learn more about getting involved, please visit our website (www.bcuc.com/get-involved) or contact us at the information below.

GET MORE INFORMATION

FortisBC Energy Inc. Regulatory Affairs

16705 Fraser Highway
Surrey, BC Canada V4N 0E8

E: gas.regulatory.affairs@fortisbc.com

P: 604.592.7664

British Columbia Utilities Commission

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3

E: Commission.Secretary@bcuc.com

P: 604.660.4700

Appendix G-2
DRAFT FINAL ORDER

bcuc
British Columbia
Utilities Commission

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3
bcuc.com

P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

ORDER NUMBER
G-xx-xx

IN THE MATTER OF
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

FortisBC Energy Inc.
Application for Approval of Revisions to FortisBC Energy Inc.'s Renewable Gas Program

BEFORE:
[Panel Chair]
Commissioner
Commissioner

on Date

ORDER

WHEREAS:

A. By Order G-133-16, dated August 12, 2016, the British Columbia Utilities Commission (BCUC) approved the FEI Biomethane Energy Recovery Charge (BERC) Rate Methodology Application. Directive 16 of Order G-133-16 directed FortisBC Energy Inc. (FEI) to file a comprehensive assessment report for BCUC approval at the earlier of the application by FEI for a transfer of biomethane inventory from the Biomethane Variance Account (BVA) to the Mid-Stream Reconciliation account, or four years after the date of issue of Order G-133-16, whichever came first;

B. On August 12, 2020, in accordance with BCUC Order G-133-16, FEI filed the BERC Rate Methodology Assessment Report with the BCUC;

C. By Order G-35-21, dated January 29, 2021, the BCUC established a two-stage review process for the review of the BERC Rate Methodology Assessment Report. Directive 2 of Order G-35-21 directed FEI to provide the BCUC with a status update on its comprehensive review of the Renewable Gas Program on or before June 30, 2021, including expected timing for the application;

D. On June 30, 2021, FEI filed a status update with the BCUC on the Stage 2 Comprehensive Review and Assessment of the Renewable Gas Program, and advised the BCUC that FEI anticipated filing the Application in the fourth quarter of 2021;

E. On December 17, 2021, in accordance with Order G-35-21, FEI filed its Comprehensive Review and Application for Approval of a Revised Renewable Gas Program (Application);

F. In the Application, FEI seeks approval, pursuant to sections 59 to 61 of the *Utilities Commission Act* (UCA), of a new Rate Schedule (RS) 7B for General Interruptible Renewable Gas Service and corresponding amendments to FEI's General Terms and Conditions, as included in Appendix D-1,

effective February 1, 2022 so that FEI can begin to offer Renewable Gas service to customers in RS 7, consistent with FEI's current Renewable Gas service available to all other sales customers;

G. In the Application, FEI also seeks approval pursuant to sections 59 to 61 of the UCA of the following revisions to the Renewable Gas Program, effective on the beginning of the first quarter[1] that is at least 5 months after the issuance of a final Order in this proceeding:

a) Approval of the Renewable Gas Connections service as described in Sections 7 and 8 of the Application and as set out in the corresponding new rate schedules in Appendix D-2;

b) Approval of changes to the Voluntary Renewable Gas service as described in sections 7 and 8 of the Application, and the corresponding new and amended rate schedules in Appendix D-2;

c) Approval to change the name of the Biomethane Variance Account to the Low Carbon Gas Account, and approval of the Low Carbon Gas Account;

d) Approval to change the name of FEI's Biomethane Energy Recovery Charge to the Low Carbon Gas Charge;

e) Approval to cease the Biomethane Delivery rate rider and to begin the use of the Storage and Transport Low Carbon (S&T LC) rider;

f) Approval to discontinue the BVA Balance Transfer Account;

g) Approval to discontinue the Unsold Biomethane Premium deferral account;

H. In the Application, FEI also seeks approval pursuant to sections 59 to 61 of the UCA of the Renewable Gas Blend service with an effective date of January 1, 2024 or such later date to be proposed by FEI based on sufficient Renewable Gas supply and the filing of amended rate schedules for approval by the BCUC at least three months prior to the actual implementation date;

I. By Order G-##-##, dated [Date], the BCUC established a regulatory timetable for the review of the Application; and

J. The BCUC has reviewed the Application, evidence and submissions filed in this proceeding and determines that the following orders are warranted.

NOW THEREFORE pursuant to section 59 to 61 of the UCA and for the reasons stated in the Decision issued concurrently with this order, the BCUC approves FEI's Application and orders as follows:

1. Effective on the beginning of the first quarter that is at least 5 months after the issuance of this Order:

    a. The Renewable Gas Connections service as described in the Application and as set out in the proposed RS 1PLC, RS 2PLC, RS 3PLC and RS 5PLC in Appendix D-2 of the Application are approved.

[1] i.e., January 1, April 1, July 1, or October 1, in order to align with FEI's quarterly gas cost filings.

b. The Voluntary Renewable Gas service as described in the Application and in the corresponding new and amended rate schedules in Appendix D-2 of the Application are approved. Specifically:

   i. RS 1B, RS 2B, RS 3B, RS 5B, RS 7B, and RS 11B are approved to be replaced by RS 1LC, RS 2LC, RS 3LC, RS 5LC, RS 7LC and RS 11LC.

   ii. Revisions to FEI's GT&Cs, RS 30 and RS 46 are approved.

   iii. RS 3VLC and RS 5VLC and the amendments to RS 46 are approved.

c. FEI is approved to change the name of the Biomethane Variance Account to the Low Carbon Gas Account, and is approved to create the Low Carbon Gas Account.

d. FEI is approved to change the name of FEI's Biomethane Energy Recovery Charge to the Low Carbon Gas Charge.

e. FEI is approved to discontinue the Unsold Biomethane Premium deferral account.

2. Effective January 1, 2024 or such later date to be proposed by FEI based on sufficient Renewable Gas supply and the filing of amended rate schedules for review and approval by the BCUC at least three months prior to the actual implementation date:

   a. The Renewable Gas Blend service as described in Sections 7 and 8 of the Application is approved;

   b. FEI is approved to cease the Biomethane Delivery rate rider and to begin the use of the S&T LC rider.

   c. FEI is approved to discontinue the BVA Balance Transfer Account.

DATED at the City of Vancouver, in the Province of British Columbia, this (XX) day of (Month Year).

BY ORDER

(X. X. last name)
Commissioner