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November 6, 2015

Via Email
Original via Mail

British Columbia Utilities Commission
Sixth Floor
900 Howe Street
Vancouver, B.C.
V6Z 2N3

Attention: Ms. Erica M. Hamilton, Commission Secretary

Dear Ms. Hamilton:

Re: FortisBC Energy Inc. (FEI)

Application for Approval of Biomethane Energy Recovery Charge (BERC) Rate Methodology (the Application)

Response to the British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1

On August 28, 2015, FEI filed the Application referenced above. In accordance with Commission Order G-147-15 setting out the Regulatory Timetable for the review of the Application and Exhibit A-4 granting an extension to the deadline for filing the IR responses, FEI respectfully submits the attached response to BCUC IR No. 1.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed by: Michelle Carman

For: Diane Roy

Attachments

cc (email only): Registered Parties

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A. OBJECTIVE OF APPLICATION AND APPROVALS SOUGHT

1.0 Reference: INTRODUCTION AND APPROVALS SOUGHT

Exhibit B-1, Section 1.1, p. 3; Section 1.3, p. 4; Section 2, p. 6;

FEI Biomethane Service Offering: Post Implementation Report and Application for Approval of the Continuation and Modification of the Biomethane Program on a Permanent Basis (2013 Biomethane Application), Decision released December 11, 2013, p. 72

Objective of market based BERC rate

On page 3 of FortisBC Energy Inc.'s (FEI) application for Approval of Biomethane Energy Recovery Charge (BERC) Rate Methodology (Application), FEI states "FEI expects that this approach will result in maximizing the volumes sold under the RNG Program while minimizing the impact of unsold RNG on FEI customers."

On page 4 of the Application, FEI refers to "lowering BERC rates to encourage [renewable natural gas] RNG Program participation."

On page 6 of the Application, FEI states "it may be appropriate to set the BERC rate below the cost, thereby maximizing the volumes sold while minimizing the unsold cost impact [on] the remainder of FEI ratepayers." FEI then goes on to quote the following from page 72 from the 2013 Biomethane Decision:

> 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.

1.1 Please discuss the primary objectives of the Application.

Response:

The primary objective of the Application is to encourage customer participation in the RNG program. To achieve this objective, FEI is proposing a change to the BERC rate. With this change, FEI expects to increase the sales of RNG to customers, to maximize the recovery of RNG program costs from RNG customers, and to moderate the long term rate impacts of the RNG program on non-RNG customers.

Moderating the rate impacts on non-RNG customers and increasing the sales volume of biomethane are interrelated. Specifically, maximizing sales of RNG will minimize rate impacts on non-RNG customers. If the Application is approved, FEI expects that the lower BERC rate will encourage more customers to join the program, that volumes of RNG sold will increase, and

that consequently RNG customers will pay a greater share of the costs than they would with the existing BERC methodology in place.

1.1.1 Please discuss the relative importance of minimizing the rate impact on non-renewable natural gas (RNG) customers in relation to the biomethane sales objective.

Response:

Please refer to the response to BCUC IR 1.1.1.

1.1.2 Is the objective appropriately maximizing volumes of biomethane sold or optimizing the RNG sales volumes such that the rate impact on non-RNG customers is minimized by maximizing revenues from biomethane sold? Please discuss.

Response:

Please refer to the response to BCUC IR 1.1.1.

2.0 Reference: INTRODUCTION AND APPROVALS SOUGHT

Exhibit B-1, Section 1.2, p. 3

Approvals sought

On page 3 of the Application, FEI provides a list of approval sought in the Application.

Item 4 is listed as "FEI may apply to transfer unsold biomethane supply that is greater than 18 months in age and/or 250,000 GJs in the BVA to the MCRA at the prevailing [Commodity Cost Reconciliation Account] CCRA rate on January 1, each year."

Item 5 is listed as "Approval to amortize the forecast December 31 balance in the BVA, net of the transfer of unsold inventory and remaining supply costs, through the delivery rates of all non-bypass customers effective January 1 of the subsequent year."

2.1 Please confirm, or otherwise explain, that FEI intends that the proposed annual transfer of unsold biomethane from the Biomethane Variance Account (BVA) to the Midstream Cost Reconciliation Account (MCRA) would be approved in concept only in this proceeding and FEI would make further application and obtain British Columbia Utilities Commission (Commission) approval at a future date before the transfer would be executed.

Response:

Confirmed. Please also refer to the response to BCUC IR 1.41.1.

2.2 Please confirm, or otherwise explain, that FEI intends that if it obtains the approval sought in Item 5, the subject amortization of the forecast December 31 balance in the BVA would be automatic without the need for further approval from the Commission.

Response:

Confirmed.

3.0 Reference: PROPOSAL

Exhibit B-1, Section 1.1, p. 3; Section 7.4, p. 48

Increase in customer education and awareness spending

On page 48 of the Application, FEI states: "Thus, FEI will resume customer awareness and education spending to $300 thousand per year, commencing January 1, 2016."

3.1 In the Application, is FEI requesting Commission approval for customer awareness and education spending of $300 thousand per year?

Response:

FEI has not requested approval for the resumption of customer awareness and education spending to approximately $300 thousand per year from the current amount of approximately $175 thousand. Consistent with current practice, customer awareness and education spending will continue to be captured in the BVA on an as-spent basis, the total forecast O&M associated with the RNG Program will continue to be identified in the Annual Review for delivery rates[1] and the actual additions to the BVA will be reviewed in the Annual Status Report pertaining to the BVA. While FEI has not sought approval, FEI has provided details with respect to the resumption of customer awareness and education spending in the Application and FEI recognizes that the Commission may provide direction with respect to the resumption of customer awareness and education spending in this proceeding.

3.2 Please confirm the list on page 3 is a complete list of all approvals sought in this application. If not confirmed, please provide a complete list of approvals sought.

Response:

Confirmed.

Please also refer to the response to BCUC IR 1.3.1.

[1] FEI Annual Review for 2016 Rates, Section 6.3.3 and Section 11, Schedule 21.

4.0 Reference: INTRODUCTION AND APPROVALS SOUGHT

Exhibit B-1, Section 1.1, p. 2; Section 7.2, pp. 46–47

Filing of applicable rate schedules

On page 2 of the Application, FEI describes the two proposed service offerings that FEI is seeking approval of: the Short Term Contract and the Long Term Contract. FEI has not included in the Application black-lined versions of Rate Schedules 1B, 2B, 3B, 5B and 11B, proposed new tariff pages, or proposed standard form contracts in the Application.

In Section 7.2.2 of the Application, FEI provides a summary of some of the possible Long Term Contract terms and conditions and states: "Because FEI has not fully negotiated a Long Term RNG Contract, it cannot anticipate all of the future terms and conditions."

4.1 Please confirm, or otherwise explain, that FEI is seeking approval in principle of the proposed offerings.

Response:

Confirmed.

With respect to the proposed service offering under a Short Term Contract, the terms and conditions for such service will remain the same as under the currently approved Rate Schedules 1B, 2B, 3B, 5B, and 11B. The only required amendments to these schedules, if approved, will be to the Cost of Biomethane (Biomethane Energy Recovery Charge) per GJ upon the approved effective date, as explained in section 7.2.1 of the Application.

With respect to the service offering under a Long Term Contract, if approved, FEI will negotiate a Long Term Contract with each customer. FEI intends to file each Long Term Contract for Commission approval as a Tariff Supplement as each Long Term Contract would be specific to each customer. Table 7-1 in the Application provides a summary of some possible terms and conditions that are expected to be included in Long Term Contract Agreements and the corresponding tariff supplements.

4.1.1 If not confirmed that FEI is seeking approval in principle at this point, please provide a copy of the applicable rate schedules and/or standard form contracts together with a black-lined version showing the changes

to the applicable existing rate schedules and General Terms and Conditions.

Response:

Please refer to Attachment 4.1.1 which provides proposed amendments (black-lined) to the FEI General Terms and Conditions.

4.2 Please confirm, or otherwise explain, that if the Application is approved, Rate Schedules 1B, 2B, 3B, 5B and 11B will each be revised to reflect the new BERC rate as proposed in the Short Term Contract offering.

Response:

Confirmed. Please also refer to the response BCUC IR 1.4.1.

4.2.1 Please describe the timing and the specific approval process FEI contemplates in regard to filing of revised tariff pages for each of the Short Term Contract offerings.

Response:

Within 30 days of the Commission's Decision on the Application, including the approval of the Short Term Contract service offering as proposed in section 7.2.1 of the Application, FEI plans to file with the Commission the amended versions of Rate Schedules 1B, 2B, 3B, 5B and 11B, to be effective the later of the start of the first quarter after the Commission's Decision or January 1, 2016.

Please also refer to the response to BCUC IR 1.4.1.

4.3 Please describe any revisions that may be required in Section 28 – Biomethane Service of the General Terms and Conditions to accommodate the proposed BERC rate methodology changes.

Response:

Please refer to the response to BCUC IR 1.4.1.1.

4.4 Please provide a copy of Section 28 of the General Terms and Conditions and copies of each of the five current biomethane rate schedules.

Response:

Please refer to Attachment 4.4 for a copy of Section 28 of the FEI General Terms and Conditions and FEI Rate Schedules 1B, 2B, 3B, 5B and 11B.

4.5 Please describe the timing and the specific approval process FEI contemplates in regard to approval for the terms and conditions for the Long Term Contract offering. For instance, does FEI intend to: a) file a standard form Long Term Contract for approval by the Commission in advance of entering into the first Long Term Contract negotiated by FEI; b) file a standard form Long Term Contract for approval by the Commission concurrently with an application for approval of the first Long Term Contract negotiated by FEI as a tariff supplement; c) file each Long term Contract for approval as a tariff supplement as they are entered into; or d) another process other than described above. If d), please elaborate.

Response:

As stated in the response to BCUC IR 1.4.1, FEI intends to file each Long Term Contract for Commission approval as a Tariff Supplement.

B. BIOMETHANE PROGRAM TO DATE

5.0 Reference: INTRODUCTION

Exhibit B-1, Section 1, p. 1

Premium calculation

On page 1 of its Application, FEI states "In April of 2014, the BERC rate increased to $14.065 per Gigajoule (GJ), from $11.696 per GJ. The corresponding premium above natural gas increased to $8.11 per GJ." In footnote 2, FEI states that the premium is calculated as the "Price of RNG less the CCRA rate + Carbon Tax. $14.065 – ($4.464 + $1.4898) = $8.111."

5.1 For clarity, please confirm the formula for the BERC rate can be expressed as:

BERC rate = CCRA rate + Carbon Tax + BERC premium

Response:

Confirmed.

FEI notes that an incorrect CCRA rate of $4.464 per GJ was used in footnote 2 on page 1 of the Application. The correct CCRA rate for April of 2014 should be $4.640 per GJ as referenced in Figure 1 of the Application Supplementary Information Filing (Exhibit B-3). The corresponding calculated BERC premium should therefore be $7.93 per GJ.

5.2 As for the FEI proposed BERC rate methodology, please confirm that the BERC rate can be expressed as follows:

BERC rate (short term contracts) = CCRA rate + Carbon Tax + $7 premium for short term contracts

BERC rate (long term contracts) = CCRA rate + Carbon Tax + $6 premium for long term contracts

Response:

Confirmed.

6.0 Reference: PROGRAM STRUCTURE

Exhibit B-1, Section 3.2.3, p. 13;

Exhibit B-3, Supplementary Information, Attachment A, Tab Figure 3-3

RNG supply projections

6.1 Please confirm, or otherwise explain, that the RNG supply included in the schedules in Appendix E includes supply from the six currently approved supply contracts with additional supply from the City of Vancouver Landfill and the City of Surrey Biofuel facility coming on stream in 2017.

Response:

FEI used a multi-year forecast for potential RNG supply to develop the schedules in Appendix E.

Specifically, RNG supply included the following projects:

1. Six currently approved projects;
2. The City of Surrey and the City of Vancouver (both planned to commence in 2017); and
3. An additional two projects per year for 2018, 2019 and 2020.

The projects which comprise the projected supply are identified in Figure 3-2 of Attachment A of the supplemental filing.

6.1.1 Please provide an update on the status of the City of Vancouver Landfill and City of Surrey Biofuel facility supply contracts.

Response:

With respect to the City of Vancouver project, FEI is presently negotiating a long-term agreement with the City of Vancouver whereby FEI would purchase raw landfill gas from the City of Vancouver, upgrade the gas to pipeline quality and inject it into the FEI system. FEI is also performing due diligence work on possible biogas purification options for the landfill gas. If successful with the negotiations with Vancouver and with the determination of a technical solution for the purification of the landfill gas, FEI expects that it will file a CPCN in 2016.

With respect to the City of Surrey Biofuel facility supply contract, FEI has reached an agreement with Surrey and is expecting to file an Application with the Commission by mid-November.

7.0 Reference: PROGRAM STRUCTURE

Exhibit B-1, Section 4.2.1, p. 27;

Rate Schedule 1B, p. R-1B.4

Biomethane blends available under current program

On page 27 of the Application, FEI states

> FEI introduced an expanded selection of designated RNG percentages to customers in 2014. The expanded offering allowed customers to designated 5%, 10%, 25%, 50% or 100% of their consumption as RNG rather than just 10%. FEI had hoped that the introduction of these options would result in higher consumption of RNG from customers who chose more than 10%.

As set out in Note 1 on page R-1B.4 of Rate Schedule 1B extracted below, the currently approved biomethane tariffs provide for FEI to offer any biomethane blend in increments of 5 percent:

> 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%.

7.1 Please discuss the rationale for selecting the specific percentage blends FEI currently offers for customers to select from and whether, in FEI's view, this has limited customer uptake of RNG in any way.

Response:

FEI does not believe that the specific percentage blends that FEI is currently offering have limited customer enrollment numbers. FEI has not specifically solicited customer feedback on the attractiveness of the blend options since introducing them and FEI has not received any feedback from customers requesting additional options at this time. FEI selected the specific blends of RNG for the following reasons:

- Alignment with research: the blends generally align with the research done by FEI where customers ranked their preferences for options based on five choices;
- Ease of communication: A range of five distinct percentage blends is simple to communicate to customers;
- Customer information: using the five percentage blends gives customers a range of choice to align with their level of commitment; and

- Alignment with Information Systems: the use of 5 percentage blends was reasonable to execute with the existing, billing system and back end reporting.

8.0 Reference: CURRENT CHALLENGES

Exhibit B-1, Section 4.1, pp. 22–23, 25–26

Churn rates by rate schedule

8.1 Please calculate the quarterly churn rate (number of customers lost last quarter/number of starting customers last quarter) for Rate Schedule 1B customers from June 2011 to March 2015 and for Rate Schedule 2B customers from March 2012 to March 2015. Please include a fully functional spreadsheet with the response.

Response:

The following tables identify the quarterly churn rate for Rate Schedule 1B and Rate Schedule 2B customers. Please refer to Attachment 8.1 for the fully functional spreadsheet.

Rate 1B Customer Quarterly Churn Rate

Quarter	Number of starting customers last quarter	Net Adds (Gross Adds - Number of customers lost current quarter)	Number of customers lost last quarter	Churn Rate (%)
2011 (Jun-Dec)	-	1,088	5	-
2012 (Jan-Mar)	1,088	87	38	3%
2012 (Apr-Jun)	1,175	1,290	63	5%
2012 (July-Sep)	2,465	959	90	4%
2012 (Oct-Dec)	3,424	1,011	91	3%
2013 (Jan-Mar)	4,435	369	121	3%
2013 (Apr-Jun)	4,804	334	133	3%
2013 (Jul-Sep)	5,138	388	190	4%
2013 (Oct-Dec)	5,526	623	154	3%
2014 (Jan-Mar)	6,149	232	246	4%
2014 (Apr-Jun)	6,381	145	227	4%
2014 (Jul-Sep)	6,526	155	230	4%
2014 (Oct-Dec)	6,681	6	220	3%
2015 (Jan-Mar)	6,687	(128)	297	4%

Rate 2B Customer Quarterly Churn Rate

Quarter	Number of starting customers last quarter	Net Adds (Gross Adds - Number of customers lost current quarter)	Number of customers lost last quarter	Churn Rate (%)
2011 (Jun-Dec)	-	-	-	-
2012 (Jan-Mar)	-	5	-	-
2012 (Apr-Jun)	5	21	1	20%
2012 (July-Sep)	26	15	-	0%
2012 (Oct-Dec)	41	19	3	7%
2013 (Jan-Mar)	60	12	2	3%
2013 (Apr-Jun)	72	7	7	10%
2013 (Jul-Sep)	79	12	4	5%
2013 (Oct-Dec)	91	30	4	4%
2014 (Jan-Mar)	121	9	3	2%
2014 (Apr-Jun)	130	8	2	2%
2014 (Jul-Sep)	138	2	5	4%
2014 (Oct-Dec)	140	(1)	7	5%
2015 (Jan-Mar)	139	(5)	7	5%

9.0 Reference: CURRENT CHALLENGES

Exhibit B-1, Section 4.2.2, Table 4-1, p. 28

Reduction in marketing spend

On page 28 of the Application FEI provides the total marketing expenditures for each year from 2011 through 2015.

9.1 For 2011-2015, please provide a breakdown of the RNG marketing costs by year and type of cost indicating which customer rate class was targeted where applicable. Please include a fully functional spreadsheet with the response.

Response:

Please refer to the table below for a breakdown of RNG marketing costs by year.

RNG Program Marketing Cost Breakdown

Category	2011	2012	2013	2014	2015 Projected
RNG Program Marketing - Total	$ 384,725	$ 300,978	$ 321,083	$ 166,815	$ 175,000

FEI does not specifically break down marketing spend by rate class or type of cost. However in reviewing past marketing expenditures, approximately 60% of marketing spend was more focused on residential customers with the remainder targeted to commercial customers. Note however that there is marketing spill over from activities that are targeted to residential or commercial customers and vice versa. In reviewing past marketing activities by type, FEI believes that a reasonable average break down of type of cost is as follows:

- Research 5%
- Print Advertising 60%
- Digital Advertising 10%
- Radio Advertising 10%
- Sponsorship 10% and
- Direct Sales Costs 5%

Please refer to Attachment 9.1 for the fully functional spreadsheet.

9.2 Please provide the Forecast, Actual and Variances (Actual-Forecast) sales volumes for 2011-2015 by year and customer class. Please include a fully functional spreadsheet with the response.

Response:

Please refer to Attachment A, Tab 4b-4f provided in the Supplementary Information Filing, Exhibit B-3.

C. CUSTOMER RESEARCH

10.0 Reference: RESEARCH ON RNG PREMIUM

FEI 2013 Biomethane Application, Exhibit B-17, BCUC IR 1.15.1

Demographic research

In response to BCUC IR 1.15.1 in the 2013 Biomethane Application proceeding, FEI provided the following information about its proposed customer research, specifically in relation to attracting customers from a wider range of demographics:

> FEI is currently in the process of conducting a focus group session with the participants and non-participants across different demographic groups and regions to seek feedback on the effectiveness of the communication messages and the channels. The results will be available sometime by end of summer 2013 and will inform FEI with respect to any changes it may make to its marketing program. Additionally FEI is also in the process of engaging UBC students from the MBA program this fall to help evaluate the effectiveness of current campaigns and make changes to its 2014 marketing plan to appeal to the 35-44 category while continuously attract the 45+ segment.

10.1 Please provide the focus group questions and the detailed results of the 2013 session discussed above.

Response:

Please refer to Attachment 10.1 for a copy of FortisBC: Renewable Natural Gas Focus Group, Report on Findings, dated August 15, 2013.

10.1.1 What, if any, changes did FEI make to its communication messages and channels as a result of this customer feedback?

Response:

As a result of the customer feedback, the following changes were made:

- FEI adjusted both print marketing and its web page. The revised material provides more details on the RNG Program, the product and the RNG manufacturing process to answer initial questions and to demonstrate that RNG is a proven and safe technology. To help

communicate this information, FEI designed a simple process infographic which is now used on these materials.

- FEI put in place additional reference material for its call center personnel so that they would be in a better position to respond to customer questions directly.

- FEI raised the profile of the RNG suppliers, positioning them as advocates of the program, third party educators and proof of the local and viable nature of the product and process. As a primary tool, FEI produced a supplier video that is hosted on its website and YouTube, improved the supplier pages of the website and put supplier testimonials on printed materials.

10.2 Did FEI complete its collaboration with University of British Columbia (UBC) students in the MBA program, as discussed above?

Response:

Yes. The students reviewed the RNG Program and provided recommendations to FEI on how to improve the awareness and success of the program. The recommendations provided were generally aligned with marketing strategies that FEI had considered in the past or with existing FEI strategies, such as maximizing the use of existing channels to create awareness.

Two recommendations were adopted by FEI:

1. Customer recognition: The students recommended giving recognition to customers by providing certificates or loyalty-related gifts. FEI completed a summer recognition campaign for commercial customers by providing emission saving certificates and by featuring a variety of these customers in the RNG email newsletter (Renewz). FEI also incorporated a monthly prize draw (using existing RNG customers such as Ethical Bean coffee) for existing residential customers.

2. Improved Awareness through trade shows: The report recommended using trade-shows as a means of increasing awareness. FEI has adopted a strategy of providing basic RNG training to its existing street teams, which engage in one-on-one communication with interested customers.

There were a number of other recommendations that were not adopted because they were not considered cost-effective, such as holding an annual recognition event and creating a membership program.

Overall, the exercise provided some fresh insight, while at the same time affirming that FEI's approach was reasonable.

Please refer to Attachment 10.2 for a copy of the UBC Marketing Report.

10.2.1 If no, please explain why not.

Response:

Please refer to the response to BCUC IR 1.10.2.

10.2.2 If yes, please describe the evaluation process.

Response:

Please refer to the response to BCUC IR 1.10.2.

10.2.2.1 What, if any, changes were made to FEI's marketing plan as a result of this evaluation?

Response:

Please refer to the response to BCUC IR 1.10.2.

11.0 Reference: RESEARCH ON RNG PREMIUM

Exhibit B-1, Section 5.1.1, p. 31

Residential customer feedback

On page 31 of the Application, FEI states, "FEI sent out a survey to previous RNG customers who had dropped from the RNG Program to gain feedback on the influences in their decision to leave the RNG Program. While the response levels were low, 86% of those surveyed dropped out due to the price (extra cost on bill) and the discontinuance of the Air Miles programs as of February 28th, 2014."

11.1 Please provide the 2014 residential customer survey questions and results cited above.

Response:

Please refer to Attachment 11.1 for a copy of the survey questions and results.

11.1.1 How was this survey conducted (i.e., telephone, mail, email)?

Response:

The survey was conducted by email and was sent to previous RNG customers from whom FEI had permission to send email correspondence.

11.1.2 Given the low response rate to this survey, has FEI considered using other methods to solicit customer feedback?

Response:

Yes, FEI has considered other options to solicit customer feedback. In particular, FEI considered focus group research and telephone surveys with a segment of participants who have left the RNG Program. This would provide for a more direct line of communication with past RNG customers.

FEI decided to use the email survey as it was the lowest cost alternative that met the objective of seeking feedback on the program. The RNG Program has seen significant research and

costs incurred over its life to help determine customer desire and the appropriate direction of the program. FEI determined that at this time the email survey was the appropriate option, which balanced the need to seek feedback on the program with the additional costs required to do so.

11.1.2.1 If yes, please describe these methods.

Response:

Please refer to the response to BCUC IR 1.11.1.2.

11.1.2.2 If not, please explain why not.

Response:

Please refer to the response to BCUC IR 1.11.1.2.

12.0 Reference: INTRODUCTION

Exhibit B-1, Section 3, p. 8

Customer bills

On page 8 of its Application, FEI states:

> The BERC rate is the rate that the customers who participate in the RNG Program pay for their RNG. It is a commodity charge like the CCRA rate charged for natural gas. The BERC rate is charged for equivalent amounts of RNG consumed regardless of biomethane Rate Schedule, blend or rate class, and is reflected on a customer's bill if applicable. All other aspects of the customer bill remain the same.

12.1 Please file sample customer bills for each biomethane rate class.

Response:

Please refer to Attachment 12.1 for sample customer bills for Rate Schedules 1B, 2B, 3B, and 11B.[2]

12.2 Does FEI believe that improvements can be made to the customer bills to better inform their level of participation and educate customers on the benefits of the FEI RNG product? If so, how? If not, does FEI believe that the current customer bill is effective?

Response:

FEI uses the customer bill primarily as a financial record of the customer's account activity. As such the focus of the bill is on the charges and credits incurred during the month. In this regard, FEI believes that the current customer bill design for the FEI RNG Program is effective in terms of identifying and communicating the customer's participation level and associated costs. FEI notes that customers generally first look to their bills to ensure that the amount owing is correct. If the amount is correct, customers are less likely to look at the details of the bills.

There are opportunities to use space on the bills for messaging, which is currently done today; however, too much information can make it more difficult for customers to understand their bill.

[2] Rate Schedule 5B currently does not have any customers enrolled in it.

13.0 Reference RESEARCH ON RNG PREMIUM

Exhibit B-1, Section 5.1.1, p. 31; Section 5.2.3.2, p. 39

Utility interviews

On page 39 of the Application, FEI states, "FEI's learning has reinforced FEI's conclusion that customers look at alternatives and are sensitive to swings in the premium for 'green' products. Further, large swings in the premium for RNG could lead to a credibility challenge, which would in turn create a barrier to increasing voluntary participation."

In Section 5.1.1 of the Application, FEI also noted that price, specifically the extra cost on the bill, and the discontinuance of the Air Miles program negatively impacted residential RNG customer retention.

13.1 Given the noted customer sensitivity to changes in price or offerings for "green" products, how has FEI communicated program changes to customers participating in RNG program?

Response:

FEI has used a number of methods to communicate changes to its RNG Program, such as its website, direct mail, email and its Energy Solutions and customer service representatives.

FEI reviews and updates (if necessary) its website to communicate RNG price information quarterly. For instance, under the Renewable Natural Gas/Calculate your contribution tab of the website, a customer can easily find out their approximate monthly and annual RNG cost based on their consumption level.

Certain events that have a broader effect on customers in the RNG Program, such as the launch of new blend options, are communicated via the RNG email newsletter (Renewz) and bill inserts. RNG information may be included as part regular bill inserts to all customers or it may be included on bill inserts in specific regions – such as Vancouver Island. In the case of the discontinuation of Air Miles, FEI sent letters to all RNG customers who were Air Miles collectors.

On occasion, FEI has also made direct contact with customers. For example, when the BERC rate changed from $11.696 per GJ to $14.065 per GJ, FEI used existing staff (key account managers and the RNG temporary sales position) to communicate either by phone or face-to-face with key commercial Rate Schedule 2B, 3B and 11B customers.

13.1.1 Has FEI requested feedback from customers on the effectiveness of these communication methods?

Response:

FEI has not specifically requested feedback from customers on the effectiveness of these communication methods. Given the costs of another study, the significant past research available to FEI, and other business needs, FEI felt that other customer research was a higher priority over the last two years.

Many of the commercial customers contacted in person regarding rate changes (please refer to the response to BCUC IR 1.13.1) were pleased with FEI's effort and were able to ask questions and explore what it might mean for their bills moving forward.

13.1.1.1 If not, please explain why not.

Response:

Please refer to the response to BCUC IR 1.13.1.1.

13.1.1.2 If yes, please elaborate on the feedback received.

Response:

Please refer to the response to BCUC IR 1.13.1.1.

13.2 How does FEI communicate program changes, such as changes in price (increases or decreases) and the discontinuance of the Air Miles program, to customers not already participating in RNG program?

Response:

Please refer to the response to BCUC IR 1.13.1.

14.0 Reference RESEARCH ON RNG PREMIUM

Exhibit B-1, Section 5.2.3.2, p. 37

Utility interviews

On page 37 of the Application, FEI states, "[i]n order to better understand the reasons behind the success of other programs, FEI conducted interviews with the program managers for many of the top performing programs by participation level. The interviews covered price, program design and marketing approaches."

14.1 Please describe FEI's findings in relation to the marketing approaches used by the top performing programs, including any findings specific to the different customer types (i.e. residential, commercial, large volume).

Response:

FEI's research of other utilities' programs primarily focused on residential customers. Information on programs targeting commercial customers was not as prevalent; however, in general utilities had more difficulty attracting commercial customers, which mirrors FEI's experience.

For residential customers, FEI identified several key similarities among top performing utilities including:

1. Using a third-party vendor to promote and sell the program.
2. Incorporating the use of more direct "one-to-one" marketing, which is generally more expensive but results in higher conversion rates. PGE, North West Natural, Puget Sound Energy and Town of Wellesley Utilities have implemented targeted direct mail, community based and door to door sales strategies.
3. Focusing on meeting customer education requirements. PGE and Town of Wellesley Utilities utilized appropriate representatives to answer specific customer questions, reducing program sign up barriers.

FEI plans to review its marketing methods and potentially introduce other forms of marketing in its 2016 marketing plan with the resumption of the $300 thousand marketing spend.

14.1.1 Did FEI identify any trends in the marketing approaches used by the top performing programs?

Response:

Please refer to the response to BCUC IR 1.14.1.

14.1.2 What, if any, changes has FEI implemented as a result of this information?

Response:

Please refer to the response to BCUC IR 1.14.1.

15.0 Reference: RESEARCH ON RNG PREMIUM

Exhibit B-1, Section 5.1.1, pp. 31–32

Large volume customer feedback

On page 31 of the Application, FEI states, "FEI has spoken to many customers over the last three years to seek understanding of the sales potential and barriers specific to large volume customers."

15.1 Please describe the methodology FEI uses, or has used, to contact and solicit feedback from large volume customers.

Response:

Large volume customers are typically managed by Key Account Managers. They have existing relationships and work directly with the customer to introduce all FEI offerings (such as applicable EEC and RNG programs) and obtain feedback where appropriate.

FEI has discussed the RNG program with certain large volume customers in the context of their energy, greenhouse gas reduction and sustainability objectives or requirements to identify how the RNG Program can support and facilitate meeting their objectives/requirements.

15.2 Please describe any alternative methodologies FEI has considered but is not using, or has not used, to contact and solicit feedback from large volume customers.

Response:

This response also addresses BCUC IR 1.15.2.1.

FEI recognizes that there are other alternative methods of contacting and soliciting feedback from large volume customers, such as a written survey or a formal interview process. However, to date, FEI has not considered using such methods. FEI believes that the communication approach with respect to large volume customers as described in the response to BCUC IR 1.15.1 is reasonable and efficient as it takes advantage of established relationships and time spent with these customers and feedback can be easily obtained through direct contact with Key Account Managers. Adding a formal process would only add costs to the RNG program.

15.2.1 Please elaborate on the reason(s) why FEI has not utilized these alternatives.

Response:

Please refer to the response to BCUC IR 1.15.2.

16.0 Reference: RESEARCH ON RNG PREMIUM

Exhibit B-1, Section 5.3, p. 40

Green alternatives in BC

On page 40 of its Application, FEI states:

> Bullfrog's Green Natural Gas customers pay a premium on top of their FEI bill for GNGCs [Green Natural Gas Certificate] from a landfill project in Quebec. The supply of gas from the landfill project in Quebec differs from FEI's model in two key ways. First, the gas supplied is not "on system" and therefore it does not displace natural gas in BC. Secondly, the project does not clean the gas to meet full pipeline quality standards as FEI's supply does. The gas is injected into a transmission pipeline and diluted by mixing it with large volumes of natural gas pipeline in order to keep the gas quality within specification limits.
>
> The premium for Bullfrog Green Natural Gas GNGCs is currently $3.48 per GJ compared to the current RNG premium of $10.43 over current FEI natural gas rates. This comparison suggests that the premium for RNG should be in the range of $3.50 per GJ to be competitive with Bullfrog Green Natural Gas.

16.1 Please discuss if FEI plans to educate, or have educated, FEI's RNG offering versus other green alternatives in BC such as Bullfrog's Green Natural Gas product.

Response:

FEI educates its customers on its own offering. To date FEI has not taken the approach in advertising to compare its RNG offering to other offerings such as Bullfrog. FEI notes that the Bullfrog offering is different as the customer is not directly purchasing RNG produced in BC from Bullfrog. In the event customer questions such as this arise, FEI program or sales staff explain the differences and point out the key aspects of FEI's RNG offering.

16.1.1 If applicable, what is the customer feedback? Is there evidence to show that customers are willing to pay an additional premium for BC supplied RNG?

Response:

Market research included in Appendix A of the Application indicates that some customers are willing to pay more for RNG. The research also indicates that buying local and supporting local business are motivating factors (page 23 of TNS survey). In addition, through one on one interaction with customers, FEI has received feedback that customers like the fact that the RNG is produced locally. However FEI does not have quantitative evidence that demonstrates that local RNG can command a higher premium.

17.0 Reference: RESEARCH ON RNG PREMIUM

Exhibit B-1, Section 5.3, p. 40;

FEI Customer Choice Program, Current gas marketer offerings[3]

Green alternatives in BC

The following table was extracted from FEI's website on October 8, 2015 from information provided on FEI's Customer Choice Program. It lists offerings for gas marketers participating in the Customer Choice program as of that date.

Gas marketers' residential fixed rates (per GJ)

Click prices for more information

Supplier name	1 yr. term	2 yr. term	3 yr. term	4 yr. term	5 yr. term
Access Gas Services Inc. 877-519-0862	$3.89				
Access Gas Services Inc. 877-519-0862	$4.14				
Access Gas Services Inc. 877-519-0862		$4.89	$4.89	$4.89	$4.89
Access Gas Services Inc. 877-519-0862	$5.14	$5.89	$5.89	$5.89	$5.89
Direct Energy 877-376-1445			$3.99		$3.99
Just Energy 866-587-8674			$4.78	$4.78	$4.78
Planet Energy 866-360-8569			$4.99		$4.69
Summitt Energy BC LP 877-222-9520				$5.39	$5.39
Summitt Energy BC LP 877-222-9520				$6.39	$6.39
Summitt Energy BC LP 877-222-9520					$5.39
Summitt Energy BC LP 877-222-9520					$6.39

Click the gas marketer names to view their websites

The offerings from Access Gas Services Inc. and Summitt Energy BC LP indicate additional offerings with names such as "Green Energy" at a premium of $1.00 per GJ to the marketer's other offerings for the same term indicating that marketers participating in FEI's Customer Choice program have "green" alternatives.

3 http://www.fortisbc.com/NaturalGas/Homes/CustomerChoice/ComparingHowRatesAreSet/PriceComparPric/Pages/default.aspx

17.1 Please describe the extent to which FEI is aware of the uptake of customers in the marketer's green offerings through its administration of the Customer Choice program.

Response:

FEI is aware of the marketer "green offerings"; however, FEI has little insight on the uptake of customers or the specific details of the marketer's programs

17.2 Has FEI discussed the uptake of these programs with the respective gas marketers? If not, why not.

Response:

No, FEI has not discussed the uptake of these programs with the respective gas marketers. For purposes of this Application, other than Bullfrog Power, FEI focused on programs offered by other utilities for comparisons; however, FEI agrees that there is some value in understanding what is being offered by gas marketers and the relative level of uptake of their customers and will consider including gas marketers in future research where appropriate.

18.0 Reference: RESEARCH ON RNG PREMIUM

Exhibit B-1, Section 5.1.2, p. 32; Appendix D, Letter from UBC, p. 2;

Creative Energy Vancouver Platforms Inc. Application for a Certificate of Public Convenience and Necessity for a Low Carbon Neighbourhood Energy System for Northeast False Creek and Chinatown Neighbourhoods of Vancouver (Creative Energy NES NEFC CPCN Application), Exhibit B-34, Section 9 g);

Creative Energy NES NEFC CPCN Application ,Transcript, Volume 2, pp. 356, 359–360

BERC rate UBC is willing to pay

In describing feedback from large volume customers, FEI references a letter provided by UBC; an existing biomethane customer taking service under Rate Schedule 11B. The letter describes why UBC has scaled back its RNG purchases from FEI, its potential RNG requirements and the pricing alternatives considered in discussions between FEI and UBC. The following is an excerpt from that letter:

> It should be noted that buying NG + Transport+ Carbon Tax + Carbon Offsets is currently 50% the price of RNG per GJ and under this pricing it is difficult the see how any business case would support making the transition to RNG.
>
> Should RNG pricing fall by a significant value, then UBC's may reconsider increasing its purchase of RNG to work back towards the original planned volume of 96,000GJ's per annum.
>
> UBC holds a 15 year LDA agreement with BCHydro, so UBC would have an active interest to look towards a long term fixed price schedule or multiyear contract. However, for this to be possible there would have to be a significant reduction in current pricing. FortisBC and UBC have had some preliminary discussions as to what this may look like ranging from:
>
> a) A levelized or fixed rate for 10 years e.g. $?/GJ 'all in cost', with no price rise annual escalation.
> b) A lower start commodity price e.g. $Average NG + $2.75 (Carbon Tax & Offset)/GJ, but with a fixed annual escalator e.g. 1 or 2% over 10 years to recover costs.
>
> UBC is reviewing a potential large scale Cogeneration project (phase 2) to supplement the new UBC Campus Energy Center (CEC) (phase 1), currently under construction at UBC. This Cogeneration project would require up to 1,000,000GJ's RNG annually, if approved. The present day RNG price adversely impacts this project, such that it has not made it beyond the schematic development stage. Were UBC to proceed with a cogeneration facility it would have an active interest in a long term fixed price schedule/ multiyear contract for up to 1,000,000 GJ's of RNG.

In the Creative Energy NES NEFC CPCN proceeding where UBC and FEI are each registered interveners, UBC filed Rebuttal Testimony on behalf of Creative Energy

Vancouver Platforms Inc. In response to question 9f), UBC provided its UBC Vancouver campus greenhouse gas (GHG) reduction targets as follows:

> UBC Vancouver campus GHG reduction targets, against a 2007 baseline:
> - 33% reduction by 2015
> - 67% reduction by 2020
> - 100% reduction by 2050

In response to question 9g) in the same testimony, UBC responded:

> **g. Can you please discuss UBC's analysis of and/or reliance on renewable natural gas and biomass energy in achieving targets.**
>
> UBC Vancouver does not rely on RNG to achieve its GHG reduction targets.
> As mentioned previously UBC's Vancouver campus operates a 6MW renewable biomass gasification system (part of the Bioenergy Research Demonstration Facility or BRDF) to provide thermal energy and reduce campus GHG emissions by approximately 14%.
>
> Also within the BRDF, UBC operates a 2MW Cogeneration engine that primarily uses Renewable Natural Gas to generate clean electricity and Natural Gas for thermal production (total gas consumption of the engine is split 40% RNG and 60% conventional Natural Gas. The purchase of RNG is solely based on ensuring the 100% of the electrical production is coming from a renewable resource. If UBC were to purchase 100% RNG for the engine the total combined production of thermal energy from the BRDF would offset 18% of UBC's total GHG emissions production. Unfortunately the current price of RNG limits its economic value as a viable option to assist in achieving UBC's targets. If the RNG premium was more inline with the cost of carbon ($55/tonne) then RNG would be considered as a viable option.

In an undertaking (Exhibit B-43) in the same proceeding, UBC provided the conversion to dollars per GJ:

> $55/Tonne (excl. taxes) CO2e emissions is equivalent to $2.78/GJ of natural gas. Based on a natural gas conversion factor of 0.04975 Tonnes/GJ.

In its oral testimony at that hearing, UBC testified:

> … the $55 a tonne is basically what we pay between the carbon tax and the public- sector offset required – requirement. So all public-sector organizations

are required to account for their emissions, reduce what they can, and offset the remainder to zero on an annual basis at $25 a tonne.[4]

In its oral testimony, when asked why UBC concluded that RNG is not a viable option unless it is in line with the $55 per tonne cost of carbon UBC replied:

> Because we wouldn't be given the approval to purchase renewable natural gas if it cost – if it costs more that the cost of conventional natural gas, plus carbon costs, the carbon tax and the offset costs that we pay.[5]

UBC confirmed on page 359 of the transcript that when considering the price it would be willing to pay for clean energy to meet its future targets of 100 percent reduction in GHG emissions, it would "expect [targets] to be in line with the carbon pricing at that time."

18.1 If the Long Term Contract premium was set at $2.75, a price in line with UBC's $55 per tonne current cost of carbon, does FEI anticipate that UBC is highly likely to contract for the original 96,000 GJ per annum? Please discuss.

Response:

Based upon ongoing communication with UBC, FEI believes that UBC would contract for the original expected volume of 96,000 GJ per year if the contract premium was set at $2.75 per GJ. In addition, if the price of RNG were set at UBC's cost of carbon, FEI believes that UBC would contract for additional RNG.

However, FEI believes that a premium of $2.75, or at UBC's cost of carbon, is too low. FEI believes that having a price that is too low will result in more costs being paid by non-RNG customers and is therefore not in the best interest of all customers. FEI believes that the Long Term Contract premium proposed in this Application is appropriate. RNG customers, including UBC, will then have to determine if the price and offering meet their own requirements.

18.2 To the extent the premium is set at the equivalent of UBC's cost of carbon, please discuss the extent to which FEI believes it increases the likelihood that UBC would contract for 1,000,000 GJ of RNG per year to supply UBC's cogeneration project.

[4] Creative Energy NES NEFC CPCN Application, Transcript, Volume 2, p. 356.
[5] Creative Energy NES NEFC CPCN Application, Transcript, Volume 2, p. 360.

Response:

Please refer to the response to BCUC IR 1.18.1.

18.3 Please discuss the potential annual demand for RNG from other British Columbia public institutions that have the same legislative requirement to offset their GHG emissions as UBC.

Response:

It is difficult for FEI to predict potential annual demand for RNG from other public institutions that have a legislative requirement to offset their GHG emissions as there are a variety of approaches, programs and measures each institution can take to meet their individual targets. FEI is not aware of any other public institutions that have the same level of potential demand as UBC (1,000,000 GJ annually). However, there are factors that will make RNG an attractive option for all customers, including public institutions that have a legislative requirement to offset GHG emissions, including:

1. RNG is recognized by the Climate Action Secretariat as a legitimate means for reducing GHG emissions.
2. RNG exists as an option under BC SMARTTool for GHG reporting. This tool is widely adopted by public institutions and therefore RNG-related offset reductions are easily reportable.
3. RNG is a feasible alternative because it can be adopted readily and without significant capital costs.

FEI notes that public institutions are only one type of customer that could or may wish to take RNG. The proposal in this Application is intended to meet the needs of a broader range of customers and, as noted in the response to BCUC IR 1.18.1, FEI does not recommend setting the price for RNG at the 'price of carbon' at this time.

18.4 Please discuss the viability, merits, costs and benefits of the first alternative listed by UBC as having been explored with FEI (i.e. a levelized or fixed "all in" rate).

Response:

As described in the letter, the discussions were of a preliminary nature and the parties explored potential rate structure options that could be attractive for UBC's long-term plan for green energy, including an "all-in" rate or a "levelized rate" (as described by UBC). It is important to note that in meeting with customers, FEI is often presented with alternative options for rate structures that meet that specific customer's needs. FEI considers these in the context of its existing programs and the customer in question. FEI believes that its proposal in this Application best meets the needs of a broader range of customers, is consistent with existing tariffs, is administratively efficient, and encourages adoption of RNG.

With respect to the two options noted in the question, an "all-in" concept would be a rate that includes all delivery, midstream, commodity/RNG and riders. Due to the existing tariff rate structures in place, this concept, while feasible, is not a structure that FEI is currently pursuing.

A "levelized rate" was proposed by UBC to avoid the potential for inflation of the price in a long term contract. The Long Term Contract offering in this Application accomplishes the goal of having a long term price. UBC would still be at risk of changes to delivery, midstream and riders; however, this is no different than the service it currently receives under existing natural gas rate schedules.

D. ALTERNATIVES CONSIDERED

19.0 Reference: ALTERNATIVES CONSIDERED

Exhibit B-1, Section 5, pp. 31–34; Section 6, pp. 42–44; Section 7, pp. 45–47;

RNG pricing alternatives

On pages 43-44 of its Application, FEI notes that it seeks to maximize participation in the RNG program on a voluntary basis or minimize the potential rate impact to non-RNG customers. FEI believes that a market-based rate for RNG, if priced properly, would increase voluntary participation in the program and minimize the potential rate impact to non-RNG customers.

In its Application on pages 31-34 and 45-47, FEI provides the details and rationale of the $7 premium to Commodity Cost Reconciliation Account (CCRA) rate proposal and the $1 discount for long term contracts. On page 34, FEI notes that in the first market research study in 2012, price was identified as a major barrier with 58 percent of respondents indicating that was their primary reason for not considering RNG.

To better understand other possible RNG pricing alternatives, Commission staff have developed the following table to illustrate the possible BERC rate methodologies:

Commission Staff Table 1

	Option Description	Potential Benefits	Potential Concerns	Did FEI consider similar option?
	Status Quo: cost based rate			Not applicable
	FEI Proposal: BERC Rate = CCRA Rate + Carbon Tax + $7 premium for short term contracts; $1 discount for long term contracts.			Not applicable
1	**Two Short Term Contract Offerings:** split the Short Term Contract into two offerings based on volume with the premium set at $8.50 for a Low Volume Short Term Contract offering (less than 2000 GJ per year), at $7.50 for a High Volume Short Term Contract offering (higher than 2000 GJ per year) and at $6.50 for the Long Term Contract offering.	• Price signals for RNG volumes purchased • Encourage RNG sales volume to large purchasers	• Determination of rate(s) that is not unjust or unreasonable	Yes or no

2	**Rate class based BERC Rate:** presumably residential customers will consume less RNG than commercial customers, and commercial customers will consume less than industrial customers. The BERC rate can be set based on rate class. For example, higher rate for residential customers and lower for industrial customers due to RNG volumes purchased.	• Price signals for RNG volumes purchased • Encourage RNG sales volume to large purchasers	• Determination of rate(s) that is not unjust or unreasonable	Yes or no
3	**Declining premium based on blend percentage:** discounted price for higher volume blends. For example, $9 premium at 5% blend, $8.50 premium at 10%, $8 premium at 20%, etc.	• Price signals for volumes purchased • Lower price for large volumes purchased, thus incentive to buy more RNG • Price discovery for different customer preference	• Determination of a rate(s) that is not unjust or unreasonable • May be difficult to educate customers of different price structure • Potential system changes costs	Yes or no
4	**Customer choose their own blend:** Any blend between 1% to 100%	• Allow customers to choose their optimal percentage • Attract all levels of participation • Customers may choose blend depending on total bill impact (e.g. seasonality)	• Administration costs • Customers may gravitate towards the “lowest” option	Yes or no
5	**Customer determined flat fee contribution:** customers can pay a fixed lump-sum amount each period. FEI derives the customer’s blend and informs the customer, for example, by way of customer bill	• Allow customers with a fixed budget to participate in the RNG program • Customers are less impacted by BERC rate volatility (premium based rate or otherwise) • Total bill impact stability and certainty	• Incremental system administration and implementation costs • Uncertainty of RNG quantities sold	Yes or no

6	**RNG premium by percentage:** BERC rate = CCRA rate + Carbon Tax + % premium	• Equal proportion to any CCRA rate change • Retain existing enrollment as the premium to buy RNG is relatively equal to CCRA rate	• Volatility of BERC rate will depend on CCRA rate changes	Yes or no
7	**Auction:** FEI sells blocks of RNG units in an auction environment, for example, for large volume customers who may have long term contracts.	• Bidding process can reveal customers' willingness to pay • Unsold biomethane volumes can be cleared at a certain price	• Revenue may not be maximized as it will depend on the winning bid • Incremental system and administration costs • Transparency of determining a rate that is not unjust and unreasonable	Yes or no

19.1 Please evaluate each option listed in the Commission Staff Table 1. Please correct any incorrect comments suggested by Commission staff. Discuss the potential benefits and concerns for each option suggested and complete the table with any additional points.

Response:

Please refer to Attachment 19.1 for a consolidated version of Commission Staff Table 1.

Where applicable, incremental marketing costs have also been included as a consideration; FEI believes that these alternatives will incur additional marketing costs in the first year due to increased customer research to test the level of understanding for a revised rate structure, for example. These values are intended to serve as a high level estimate for information purposes only and may vary.

FEI has only ranked those options which are feasible in addressing current program challenges of a high BERC rate, declining enrollment and attracting and potentially acquiring long term large volume contracts for fixed load.

FEI continues to prefer the approach proposed in the Application. While some of the alternatives identified provide varying customer benefits, FEI is mindful of the potential costs associated with changing the customer information system, program administration and program marketing in addition to the ongoing complexity associated with tracking multiple rates. For example, alternatives where there are broader options for customers are likely to be more complex and expensive to administer and would therefore rank lower.

19.1.1 To the extent possible, please propose the appropriate BERC rate or the mechanism by which FEI will carry out for each suggested options. Discuss whether or not FEI will consider recommending the particular alternative.

Response:

Please refer to response to BCUC IR 1.19.1 for a consolidated version of Commission Staff Table 1.

19.1.2 For each option, please estimate the system implementation costs and determine whether the option is feasible.

Response:

Please refer to response to BCUC IR 1.19.1 for a consolidated version of Commission Staff Table 1.

19.1.3 From most preferable to least preferable, please rank options 1 through 7 as alternatives to the FEI proposal.

Response:

Please refer to response to BCUC IR 1.19.1 for a consolidated version of Commission Staff Table 1.

19.2 Has FEI considered any other pricing alternatives in the BERC rate methodology? Please add to the table above and explain why they are not recommended.

Response:

FEI also considered a block based program, similar in nature to option 5 (Flat Fee Contribution), but with the option to buy several blocks at this price. The block based option was not pursued, primarily because the environmental attributes are difficult to track. In addition, there would be increases to administration and billing costs without a commensurate increase in volume sold.

In contrast, FEI's proposed approach minimizes changes to the fundamental back end systems, internal processes, education messaging and overall program structure. FEI is essentially proposing a change to the price of the RNG commodity, without otherwise affecting the design of the program. FEI believes that this will help increase customer participation in the program without changing the program design and incurring additional costs

19.3 Is there evidence that seasonality may influence customers' decision to opt in/out of the RNG program, or switching their blends?

Response:

At the time of writing, FEI has not identified any clear evidence that seasonality has affected drop rates or the switching to different blends.

20.0 Reference: ALTERNATIVES CONSIDERED

Exhibit B-1, Section 5, pp. 34–38; Appendix C

National Renewable Energy Laboratory (NREL) report

On pages 34-35 of its Application, FEI states:

> Based on this data [market research FEI conducted in 2012], the optimum price point to maximize participation appears to be $6.00 per month assuming a 10% designation of RNG. Based on an average household consumption of 90 GJ per year that additional amount on a bill translates to a per GJ premium of approximately $8.00 (or $72 per year).

In its Application on page 35 and in Appendix C, FEI provides the NREL report which shows the typical price range for utility green pricing programs. FEI notes that the pricing varies significantly with the average premium being US $4.92 per GJ equivalent and the medium premium being US $4.17.

On pages 36 and 37, FEI provides Table 5-1: NREL Top Ten Utility Participation and Sales, which shows customer participation rate ranging from 5.88 percent to 12.33 percent and "Monthly premium average house to go 100% green power" ranging from $6 to $30.

On page 38, FEI shows that their percentage of residential participation is at 0.7 percent. On page 37, FEI states that "Based upon the relative participation rates of other utilities, FEI believes that participation can be improved in BC" with a lower BERC rate premium.

20.1 Please provide the maximum and minimum premium as well as the variance referenced on page 35 (i.e. average premium US $4.92 and medium premium US $4.17). Please also state these figures in Canadian dollars. Please show the exchange rate.

Response:

The following table summarizes the range in pricing premiums (GJ equivalent) converted to Canadian dollars.[6] FEI interprets "variance" to refer to the maximum and minimum price difference in dollars per GJ equivalent from the average price premium of $4.92 as referenced on page 35 of the Application.

[6] Page 16, NREL Status and Trends in the US Voluntary Green Power Market 2013 (Published November 2014).

NREL Report Green Program Pricing Premiums ($/GJ Equivalent)

Premium ($/GJ equivalent)	USD$/GJ equivalent	Exchange Rate (USD-CAD)*	CAD$/GJ equivalent
Minimum	$2.89	1.33	$3.83
Median	$4.17	1.33	$5.53
Average	$4.92	1.33	$6.53
Maximum	$12.50	1.33	$16.58
Min Variation	$2.03	1.33	$2.69
Max Variation	$7.58	1.33	$10.06

* Bank of Canada Monthly Average of Exchange Rates - Ottawa, September 2015, Average 21 days, rounded to nearest 100th decimal

20.2 If FEI's RNG premium is $8, the annual RNG spending is $72 per year. Thus, the monthly RNG spending is $6. Given that the "Monthly premium for average house to go 100% green power" for the top ranking utilities as shown in Tables 5-1 ranges from $6 to $30, would FEI expect that the participation rate will improve from 0.7 percent to around 5 percent or better if FEI's RNG premium is around $7 to $8 per GJ?

Response:

FEI expects that the participation would likely increase if the premium is lower based on the evidence from other utilities. However, the exact participation rate is difficult to determine. Factors including characteristics of the program and local market conditions can also influence the overall participation rate when comparing the programs from other utilities listed in Table 5-1 on page 36 of the application with FEI's RNG Program.

FEI believes that with the current Program design parameters and with an RNG premium between $7 and $8 per GJ, it is reasonable to achieve a participation rate of 2.1% for residential customers. This is the forecasted participation rate used in the demand projections included in Schedule 2 of Appendix E of the Application.

21.0 Reference: ALTERNATIVES CONSIDERED

Exhibit B-1, Section 5, pp. 37–38; Appendix B

Utility interviews

FEI conducted interviews with the program managers of top performing programs by participation level. Table 5-3 on page 38 and in Appendix B of its Application, FEI provides a detailed summary of the interview results and a list of the interview questions. All prices in that section are in US dollars.

Based on Table 5-3, Commission staff compiled the top five utilities with the highest participation rates in comparison with FEI.

Company	Green Energy Price per GJ	$ Premium per GJ (% Premium)	Monthly premium for average house to go 100% green power	% residential participation
FortisBC Rate 1 (LML service area) (G)	$19.30	$10.43 net of carbon tax credit (262%)	$72	0.7%
City of Palo Alto (G)		$1.14	$5	19.4%
Portland General Electric (Green Source) (E) *		$2.22 (6%)	$7-10	15% (combined)
Portland General Electric (Clean Wind) (E) *	$2.50 per block of 0.72 Gje			
Sacremento Municipal Utility District (E)	$3 (50%) or $6 (100%) monthly flat fee		$6	11.7%
Wellesley Municipal Light Plant (E) *		$11.11 (25%)		11.0%
Farmers Electric Cooperative of Kalona (E)	Minimum of $3 per month			10.4%

On pages 34-35, FEI states:

> Based on this data [market research conducted in 2012], the optimum price point to maximize participation appears to be $6.00 per month assuming a 10% designation of RNG. Based on an average household consumption of 90 GJ per year that additional amount on a bill translates to a per GJ premium of approximately $8.00 (or $72 per year).

21.1 Please clarify if the $72 "Monthly premium for average house to go 100% green power" should instead be $6 per month based on FEI's evidence on pages 34-35. Restate Table 5-3 and Appendix B if applicable.

Response:

Based on annual consumption of 90 GJ, the monthly premium for participation at a 100% designation of RNG, would be approximately $78 per month (as opposed to the $72 provided in Table 5-3) when considering a $10.43 premium per GJ.[7]

The $6 per month premium referred to on page 34 of the Application represents the customer feedback data from the market research conducted by the FEI in 2012. On Page 11 of the Renewable Natural Gas Monitor: Pricing, which is part of Appendix A to the Application, it is shown that 27% of survey respondents would "pay a premium of 10% (or an additional $6 per month) for a 10% reduction in their greenhouse gas emissions."

A revised Table 5-3 and Appendix B (which includes the $78 per month premium) are included in Attachment 21.3 as part of response to BCUC IR 1.21.3.

21.2 Please show the breakdown/calculation for the FEI $19.30/GJ green energy price and the FEI $10.43 premium per GJ figures.

Response:

The $19.30/GJ green energy price for a residential customer can be represented as:

$3.559 (Delivery charge) + $1.334 (Storage and Transport charge) + $14.414 (Cost of Biomethane/BERC rate) =$19.30 (Approved rates as of August 1, 2015)

The FEI green energy price premium (BERC premium) can be represented as:

$14.414 (Cost of Biomethane/BERC rate) – [$2.486 (Cost of Gas/CCRA rate) + $1.489 (Carbon Tax)] = $10.43

[7] ($10.43 premium/GJ x 90 GJ annual consumption)/12 months ≈ $78.

21.3 For Table 5-3 and Appendix B, please add columns, converted to Canadian dollars, showing the comparable "Green Energy Price per GJ"; "$ Premium per GJ (% Premium)"; and "Monthly premium for average house to go 100% green power." Please show the exchange rate.

Response:

Please refer to Attachment 21.3, which shows Table 5-3 and Appendix B prices in Canadian dollars.

21.4 One of the top five residential participation utilities uses a monthly flat fee program and another utility uses a monthly minimum dollar amount program. Does FEI consider that this is evidence to support FEI offering a flat fee program to generate higher participation rates?

Response:

Not specifically. Based upon discussions with other utilities, FEI does not believe that the flat fee or fixed dollar offering alone is the driver of the high participation. For example, in the interview with Portland General Electric (PGE), it was indicated that legislation was the reason for initiating the program and that PGE did extensive marketing and a door-to-door sales campaign. PGE has also hired a third party marketer to promote and sell the program.

In another example, Puget Sound Energy uses a flat fee based program for two reasons. First, the customers are buying credits associated with energy rather than biomethane. Therefore, there is no direct correlation between the quantity of energy purchased and the quantity sold to the customers. Second, the flat fee concept was adopted to reduce heating season bill impact.

FEI's primary reason for utility comparison was to understand market pricing of various green offerings by other utilities and to help inform or reinforce FEI's solution. More importantly, feedback from FEI's customers indicated that the overall level of the price for RNG was the most significant barrier to participation.

Please also refer to the response to BCUC IR 1.14.1.

22.0 Reference: RESEARCH ON RNG PREMIUM

Exhibit B-1, Appendix D, Letter from UBC, p. 1;

2013 Biomethane Decision, pp. 22–23;

2013 Biomethane Application, Exhibit B-19, BCUC IR 2.56.7;

FEI Rate Schedule 11B, Section 6.1

Issues with Rate Schedule 11B pricing

In the following excerpt from the letter provided by Rate Schedule 11B customer UBC, it describes a miscommunication with FEI regarding the cost of biomethane service under Rate Schedule 11B and the resulting misunderstanding regarding the pricing of biomethane supply:

> For approximately 18 months, UBC understood that pricing for RNG was $11.69 per GJ based on the posted rate. Further, UBC believed this to be an 'all-in' price for RNG. At this price the conversion of the BRDF engine to a dual fuelled machine of either RNG or Syngas was approved.
>
> Since the dual fuel engine conversion, two significant price rises impacted UBC:
>
> 1. The 2013 year end BCUC decision which changed cost allocation requiring that additional costs such as admin and advertisement costs be passed to RNG customers only. This decision along with higher than expected supply costs for FortisBC resulted in a change from $11.69/GJ to $14.06/GJ - a $2.37/GJ commodity rate increase.
> 2. FortisBC had not clearly communicated to UBC that RNG would still be subject to transport costs. This oversight effectively added another $2.34/GJ for transport + taxes to UBC costs.

22.1 Please explain the underlying reason for the miscommunication with UBC regarding the applicability of transportation service charges for a customer taking biomethane service under Rate Schedule 11B.

Response:

This issue raised in the BCUC IR 1.22 series of questions is an issue of miscommunication between FEI and a customer. There is no billing issue; the customer has paid its bills and the miscommunication has been resolved. What the issue does highlight is the need for customer education and increased communication efforts.

As with any new offering, and in particular the biomethane offering as noted in the focus group responses, it can sometimes be difficult to properly communicate the nature of the offering. In this case, FEI believes that the communication issue with UBC was due to a lack of precise language when discussing RNG with UBC. When FEI refers to the "price" of RNG (or natural

gas), it means the commodity cost. When a customer refers to "price," he or she may or can be thinking of the "bottom line" price or "all-in" price.

It appears that UBC understood the price to mean the "all in" cost, which included associated transportation as well as any marketer-related costs. Conversely, FEI believed that UBC understood that it was still responsible for any charges associated with its gas marketer and also transportation costs and that the RNG price was for commodity only.

Since this misunderstanding occurred, FEI has improved and clarified its communication about the RNG rate with all Rate Schedule 11B customers. FEI has also incorporated RNG into its regular rate reporting and publishes updated rate sheets each quarter. These rate sheets clearly indicate that the BERC rate (or RNG price) is for the commodity only.

22.2 Please confirm, or otherwise explain, that UBC was not billed the applicable transportation service charges for a period of 18 months.

Response:

Not confirmed. Please see response to BCUC IR 1.22.1

UBC has been billed for all applicable transportation service charges. The 18 month period referred to by UBC in the letter was the "negotiation period" leading up to UBC receiving RNG as a customer. It was during that period that UBC was developing its business case to use RNG for the BRDF engine.

22.2.1 Describe the extent to which the issue with UBC's billing has been resolved.

Response:

As described in the response to BCUC IR 1.22.2, a billing issue did not occur.

Furthermore, to help better serve customers and for improved bill clarity, in August 2015, FEI integrated RNG billing within its existing industrial billing process. Rate Schedule 11B customers including UBC now receive their RNG charges on the same bill as their delivery charges.

22.2.2 Please describe the extent to which other Rate Schedule 11B customers have experienced similar billing errors and/or miscommunication from FEI.

Response:

At the time of writing, FEI is not aware of any communication issue, similar to the one experienced with UBC, or any billing issues, that have occurred with respect to other Rate 11B customers.

An issue regarding Rate Schedule 11B accounting and billing adjustments was identified and discussed in the 2013 Biomethane Decision on page 22:

> In the PIR, FEI did not report any issues in regard to issues with the customer information system or any significant issues with billing. However, FEI agrees it has experienced difficulties in processing the sales to at least one particular Rate Schedule 11B customer, the City of Vancouver, with adjustments to sales continuing to occur some six months after the time the billing should have taken place. FEI notes it currently relies on a manual one-off billing process for biomethane sales to transportation service customers but plans to implement billing for these customers in its CIS system later this year (Exhibit B-19, BCUC 2.56.5.1).
>
> The Commission on page 23 of the 2013 Biomethane Decision states "The Commission is concerned that the ongoing issues with manual billing of Rate Schedule 11B customers, as has been the case with the City of Vancouver, has required a significant manual efforts.

22.3 Please describe the nature, cost and effectiveness of the billing system changes made to FEI's Customer Information System (CIS) to address the Rate Schedule 11B billing issues identified in the 2012 Biomethane Decision since that decision was issued.

Response:

Since the Biomethane Decision (issued in 2013), FEI has fully integrated billing for Rate Schedule 11B customers into FEI's CIS. With this billing integration, billing for Rate Schedule 11B service is now completely incorporated into the existing processes and systems for FEI's transportation service offerings.

Prior to the modifications, FEI was billing customers for RNG from the gas supply group. In addition, FEI was providing a bill from its industrial billing group using the CIS system for delivery-related charges. Thus, the customers were receiving 3 bills: one from the marketer, one from FEI for delivery charges and one from FEI for RNG commodity.

As mentioned above, the billing system has been changed by integrating the billing for the RNG commodity charge onto the same bill as the other charges. From a process perspective, an account with RNG is now managed in the same way as all other transportation natural gas accounts, regardless of whether the customer uses a gas marketer or is a customer of FEI under Rate Schedule 14A. This process also allows FEI to sell RNG directly to gas marketers who can act as re-sellers.

The cost for bringing about the above mentioned changes just for Rate Schedule 11B was approximately $60 thousand, including the costs of design, implementation and testing.

The alignment with existing processes has been very effective, resulting in greater clarity for customers.

22.4 Is the billing issue experienced by UBC due to the use of similar manual on-off billing processes as those that led to the billing issues identified in the 2012 Biomethane Decision? Please explain.

Response:

Please refer to the response to BCUC IR 1.22.1.

22.5 Please describe the extent to which upgrades or modifications are still required to FEI's transportation service scheduling, billing and customer information systems

to ensure customers are accurately billed under Rate Schedule 11B without the need for "manual one-off adjustments."

Response:

Please refer to the response to BCUC IR 1.22.3.

22.5.1 What is the estimated cost and timing for the implementation of those upgrades or modifications?

Response:

Please refer to the response to BCUC IR 1.22.3.

22.6 Given the issues FEI has experienced and/or continues to experience trying to accommodate the billing of Rate Schedule 11B customers through FEI's existing transportation service scheduling, billing and customer information systems, please describe any alternative approaches FEI has considered for offering biomethane service to transportation service customers.

Response:

Please refer to the response to BCUC IR 1.22.3.

22.7 Please describe the merits, costs and benefits of an alternative biomethane supply model for transportation service customers that relies on physical deliveries from the customer's marketer and/or off-system supplier and where FEI adds a biomethane rider per GJ on transportation delivery to collect the premium for the notional biomethane portion of the supply.

Response:

As discussed in the response to BCUC IR 1.22.3, FEI has now fully integrated RNG commodity billing for Rate Schedule 11B customers into existing processes. Therefore, FEI does not believe that pursuing an option as suggested at this time is necessary.

Please also refer to the response to BCUC IR 1.22.3.

22.7.1 Please discuss the extent to which this could help resolve billing issues that are unique to the sale of biomethane to transportation service customers.

Response:

Please refer to the response to BCUC IR 1.22.7.

E. PROPOSED MARKET BASED BERC

23.0 Reference: PROPOSED MARKET BASED BERC

Exhibit B-1, Section 3, pp. 15–17; Section 4, p. 21

Elasticity of demand

On page 15 of its Application, FEI states that "Customers may choose a designated percentage of their consumption as RNG or a fixed monthly amount of RNG in the case of transportation customers." On page 17, FEI states that "As the price of RNG has increased in both absolute terms and relative to natural gas since the beginning of 2015, the blends sign-up pattern has noticeable shifted towards the lower blend options."

In Figure 4-1, FEI shows the residential net monthly additions compared to the RNG price. FEI states:

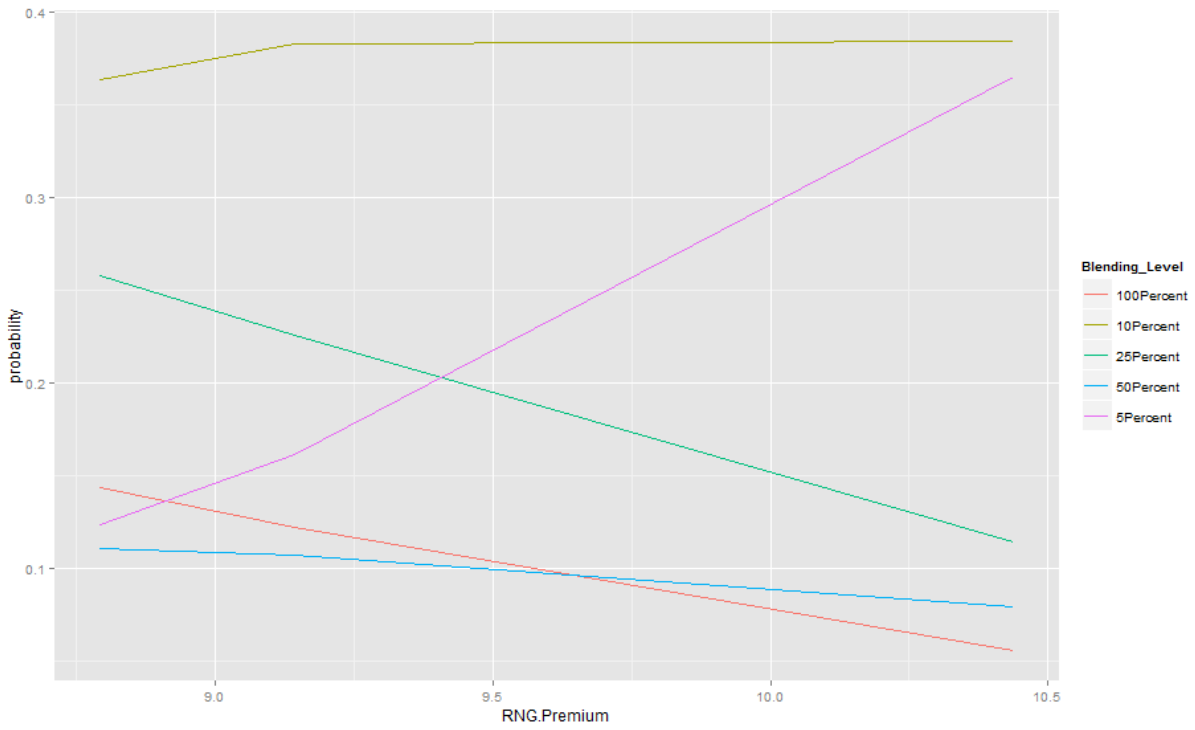
> When monthly customer additions are compared to fluctuations in the BERC rate over time, a correlation can be observed. As seen in Figure 4-1 below, FEI was initially able to add customers to the RNG Program, even with an increasing BERC rate; however, the most recent increases in BERC rate have resulted in a negative trend. As shown in the graph, the recent increases in the BERC have resulted in increased customer losses, which more than offset additions and result in a net customer decrease.

23.1 Given the enrollment data at different blends and the data of RNG price premiums available, to the extent possible, can FEI estimate a RNG demand curve and the elasticity of demand? Please provide the breakdown by rate class if possible.

Response:

Using 2014 and 2015 data and multinomial regression, FEI has been able to estimate a demand curve for RNG for residential customers, and has also been able to determine an estimate of the elasticity of demand based on the relative probability of selecting a certain blend level at varying levels of RNG price premiums. Only residential data were analyzed as it was the only class that had adequate data points to meet the minimum degree of freedom to allow a statistical assessment of demand elasticity.

The RNG demand curve for residential customers is provided below. The relative probabilities of various RNG blends relative to various RNG Premiums are shown below.



The elasticity is not constant across all possible values of RNG premiums as shown in the demand curves. The table below shows the elasticity on average for each blending level.

The analysis suggests that the 10 percent blending option is least elastic to changes in the RNG price premium relative to other options. The 5 percent is the option most elastic to changes relative to other options, indicating that in the case of a price increase beyond the $10.50 per GJ RNG premium, customers are most likely to choose the 5 percent option over other options.

Blending Level	Average Elasticity
100Percent	(3.27)
10Percent	0.31
25Percent	(2.98)
50Percent	(1.50)
5Percent	10.48

Statistical package R was utilized for this analysis and the goodness of fit suggests that the RNG Premium is significant with the Chi square statistic of 71.82 with 4 degrees of freedom.

23.2 Please provide evidence of the observed correlation as indicated in Figure 4-1 for: (i) the entire RNG period since 2011; and to show that (ii) most recent increases in BERC rate have resulted in a negative trend.

Response:

A generalized linear model was fitted to quantify the correlation between the net additions and the BERC rate and the observed correlation between the net additions and the BERC rate is estimated to be -45.12 with a corresponding p value of approximately 0.003.[8]

This suggests that the BERC rate is a significant driver and is negatively correlated with net additions. That is, according to the analysis of the Program experience to date, the corresponding impact associated with a unit increase of $1 per GJ in the BERC rate is a reduction of approximately 45 customer additions.

[8] Please note that the air mile promotion was included as an additional explanatory variable as the promotion resulted in significant changes in the net additions data.

24.0 Reference: PROPOSED MARKET BASED BERC

Exhibit B-1, Section 5, p. 33; Section 7, p. 46

Maximum $7 per GJ premium and reset methodology

On page 33, FEI states: "It can be observed that FEI had its greatest success in attracting and keeping customers when the premium was $7.00 per GJ or less."

On page 46, FEI states:

> FEI proposes that the BERC rate for customers opting for the Short Term Contract service (i.e. all customers who are eligible for the current biomethane Rate Schedules) is equal to the Commission approved January 1st CCRA rate each year plus the approved Carbon Tax rate plus a premium of $7.00 per GJ. The rate would be set once a year regardless of changes to the CCRA rate throughout the year. The use of a January 1st effective date for annual resetting aligns with changes to other rate components for customers such as delivery and storage and transportation rates and provides rate stability, which is expected to encourage customer participation in the program.

24.1 Other than FEI's observation that $7 per GJ premium or less appears to be successful in attracting and keeping RNG customers, does FEI have any other evidence to support its proposed $7 premium?

Response:

As explained in section 5.2 of the Application, the appropriateness of the $7 premium is based on research, interviews with other utility representatives and discussions of RNG pricing with customers. The $7 per GJ premium was also proposed based on enrollment data that shows that it is a price level at which FEI has been successful at attracting and keeping customers. Further, at this level of premium, FEI believes that there is a balance between selling RNG and minimizing the impact on non-RNG customers.

24.2 Please explain why FEI proposes to reset the BERC rate annually, while the CCRA rate is reviewed and could be reset quarterly. If the CCRA rate is reset during the course of the year, would FEI agree that the $7 premium on the CCRA rate will no longer exist, thus customers may opt-in/out depending on the intra-year price differential?

Response:

FEI acknowledges that the BERC premium could vary from quarter to quarter depending on changes to the CCRA rate; however, in FEI's view, stability in the BERC rate (with the premium embedded in the rate) within a given year will generally be more beneficial to customer attraction and retention than maintaining the premium on a quarterly basis. Additionally, quarterly changes may cause delays and challenges in signing long term contracts. Thus, FEI has proposed to set the BERC rate on an annual basis. However, FEI would not be opposed to a quarterly rate change approach, if required by the Commission.

25.0 Reference: PROPOSAL

Exhibit B-1, Section 7.2.1, p. 46

Short Term Contract offering

FEI proposes a BERC rate for customers opting for the Short term Contract service that would include all customers who are eligible for the current biomethane rate schedules.

25.1 Please confirm, or otherwise explain, that FEI does not intend to require sales customers enrolling in the Short Term Contract offering to sign a contract committing them to a fixed term for biomethane sales but rather will rely on the existing terms and conditions for enrolling in biomethane service.

Response:

Confirmed.

As stated in the Application, the service offering under the proposed Short Term Contract represents all of FEI's current RNG service offerings. The Short Term Contract rate, upon approval, will be applicable to these Rate Schedules (1B, 2B, 3B, 5B, and 11B), and other existing terms and conditions under each of these rate schedules, as well as existing applicable FEI General Terms and Conditions, will continue to apply to customers opting for the Short Term Contract service offering.

It is important to note that under the existing terms and conditions of Rate Schedule 5B – General Firm Biomethane Service and Rate Schedule 11B – Biomethane Large Volume Interruptible Sales, customers wishing to take service under each of these rate schedules must also enter into a General Firm Service Agreement (Service Agreement) and Biomethane Large Volume Interruptible Sales Agreement (Sales Agreement) respectively, which both require a specific Commencement Date and Expiry Date.

Please refer to Attachment 4.4, provided in response to BCUC IR 1.4.4 for a copy of FEI Rate Schedules 5B and 11B. FEI is not proposing any amendments to the terms and conditions of Rate Schedules 5B and 11B or the Service and Sales Agreements as part of the Application.

25.1.1 Is the "Short Term Contract" offering more accurately described as month to month? Please discuss.

Response:

The description "Short Term Contract" service is used to differentiate it from the proposed Long Term Contract service, and is comprised of the existing RNG services, i.e. Rate Schedules 1B, 2B, 3B, 5B, and 11B, with a different methodology for setting the BERC rate.

Under Rate Schedules 1B, 2B and 3B, customers are not required to enter into service agreements, and as outlined in FEI's General Terms and Conditions, Section 28.6 (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. Therefore, the Short Term Contract offering applicable to Rate Schedules 1B, 2B and 3B may be described as "month to month" (in contrast to annual).

Under Rate Schedules 5B and 11B, describing the service as a month-to-month service is not accurate. As explained in the response to BCUC IR 1.25.1, under the existing terms and conditions of Rate Schedule 5B – General Firm Biomethane Service and Rate Schedule 11B – Biomethane Large Volume Interruptible Sales, customers wishing to take service under each of these rate schedules must also enter into General Firm Service Agreement (Service Agreement) and Biomethane Large Volume Interruptible Sales Agreement (Sales Agreement) respectively, which both require a specific Commencement Date and Expiry Date.

25.2 Please describe the process regarding the conversion of those customers who are currently enrolled in biomethane to the new Short Term Contract offering including discussion of the timing and the communication regarding the transition.

Response:

There is no process necessary to convert customers who are currently enrolled in the RNG Program to the proposed Short Term Contract offering as the only change (if approved) will be to the charge for the Cost of Biomethane (Biomethane Energy Charge) per Gigajoule in the Table of Charges in Rate Schedules 1B, 2B, 3B, 5B, and 11B upon approval of the effective date.

With respect to customer communication, FEI will utilize bill messages and/or bill inserts at the time of the applicable effective date to communicate details of the Cost of Biomethane rate change to customers, which will include information such as the amount of change to the Cost of Biomethane (per Gigajoule, percentage, or both), the effective date, and the change that was approved by the Commission.

Please refer to the responses to BCUC IRs 1.4.1, 1.4.2 and 1.12.2 for further information.

25.3 Please discuss the merits, costs and benefits of dividing the "Short Term Contract" offering into two offerings based on volume with the higher volume customers offered a discount on the low volume BERC premium but at a level less than that offered to the Long Term Contract offering customers.

Response:

Please also refer to the response to BCUC IR 1.19.1.

If the price point for the higher volume customers was less than the lower volume customers, it may encourage higher volume customers to enter into Short Term contracts. However, adding another price point can lead to confusion in the market, additional marketing requirements and additional administration costs.

If FEI were to add another threshold, it would recommend using 2000 GJ. A 2,000 GJ threshold lines up well with the existing split between Rate Schedule 2 and Rate Schedule 3.

FEI anticipates additional administration costs by dividing the Short Term Contract offering into two further offerings based on volume/consumption (or as FEI recommends by rate class). Two additional firm biomethane rate schedules for Rate Schedules 3B and 5B would need to be developed and administered to support total firm biomethane volumes in these rate classes. FEI would further incur costs associated with the changes to the Customer Information System, billing, customer awareness and communication (website, bill inserts etc).

While providing additional service offerings, FEI is mindful about costs for implementation and intends to keep the offering as simple as possible for customer understandability and administrative efficiency. As noted in the internal research, focus group respondents identified that the existing offering was already complicated enough and required more time and marketing efforts to understand. Thus, while the proposal noted in the question may be feasible, it will add complexity to customer education, it may reduce customer understandability, and will add costs to the Program.

26.0 Reference: PROPOSAL

Exhibit B-1, Section 1.1, Footnote 4, p. 2; Section 7.2, pp.46–47;

FEI Rate Schedule 11B,

Long Term Contract Service offering

In footnote 4 on page 2 of the Application, FEI describes the pricing of the Long Term Contract Offering as follows:

> FEI is not proposing that Long Term Contract rates fluctuate per customer on an annual basis, rather that once a contract is entered into, the Long Term Contract rate in the year of commencement is the rate that applies throughout the life of the contract (subject to contract escalation if applicable).

In Table 7-1 of the Application reproduced below, FEI describes some of the terms and conditions of the Long Term Contract.

Table 7-1: Summary of Long Term Contract Terms and Conditions

Topic	Notes
Contract Length	• 10 year term as standard, with evergreen option (yearly roll over) available at the end of the term subject to approval of both parties • Five year term possible if volume meets or exceeds ten years multiplied by 500GJ per month • Contract term cannot exceed existing FEI supply contracts
Early Termination Provision	• Early termination possible subject to agreement by both parties.[42] • Standard FEI curtailment guidelines set out in Rate11B. • Customer must 'take or pay' to receive lower rate (may be used to prevent any stranded asset cost)
Quantity	• Individual contract quantities will be negotiated based on customer requirements and FEI available supply
Quantity Exceeded or Not Met	• Volumes not met by FEI would be subject to existing R11B curtailment rules; replacement with credits or a penalty as defined by the contract
Rate Escalation	• Rate to increase at 50% of the Canadian General CPI effective January 1 each year.

26.1 Does FEI intend to file each Long Term Contract for approval by the Commission as a tariff supplement or does FEI intend to seek approval of a standard form Long Term Contract? Please explain.

Response:

FEI intends to file each Long Term Contract Agreement for approval by the Commission as a separate Tariff Supplement. Please also refer to the response to BCUC IR 1.4.1.

Table 7-1 in the Application provides a summary of some possible terms and conditions that are expected to be included in Long Term Contract Agreements and the corresponding tariff supplements.

FEI anticipates that the terms and conditions within each negotiated Long Term Contract Agreement and corresponding tariff supplement may differ, and depending on the timing of the signing of the Long Term Contract, the rate for each agreement and corresponding tariff supplement will be equal to the then applicable Long Term Contract rate in the year of commencement. As indicated in the Application, FEI is proposing that the Long Term Contract rate applicable to each agreement and corresponding tariff supplement will not fluctuate on an annual basis throughout the life of the agreement/tariff supplement (subject to contract escalation, if applicable).[9]

26.2 Please confirm that FEI is proposing that the rate in a Long Term Contract not be adjusted, other than the rate escalation based on the Canadian General CPI, in the event either the Commission approves a different premium on the Short Term Contract offering or the carbon tax is changed during the term of such Long Term Contract.

Response:

Confirmed. Please also refer to the response to BCUC IR 1.26.1.

The purpose of the Long Term Contract offering is to provide price certainty for the customer and demand certainty for FEI. If the price were to be tied to changes in the BERC rate methodology and therefore the Short Term Contract price, this would not fulfil the objective of customer price certainty; nor would this approval be helpful to FEI in securing long term contracts with high volume customers, which FEI believes is critical to the long term success of the RNG Program.

26.2.1 If not confirmed in regard to a change in the premium applicable to the Short Term Contact offering, please describe how FEI anticipates the Long Term Contract rate applicable to such contract would be impacted by a change in the BERC rate methodology during the contract term.

[9] Section 1.1: Introduction, Footnote 4, page 2.

Response:

Please refer to the response to BCUC IR 1.26.2.

26.2.2 If not confirmed in regard to a change in the carbon tax, please describe how FEI anticipates the Long Term Contract rate applicable to such contract would be impacted by a change in the carbon tax during the contract term.

Response:

Please refer to the response to BCUC IR 1.26.2.

26.3 Under what circumstances does FEI anticipate it would not agree to the "yearly roll over" at the end of the original contract term?

Response:

When determining whether to agree to a yearly roll over at the end of the contract term, FEI would not agree to a yearly roll over if the calculated LT rate is higher than the contract rate or there are other external factors that generally impact either the RNG Program or the price of RNG. There may be several factors that could impact the market value of RNG and therefore FEI would need to consider these factors prior to rolling over a contract, such as:

1. Market conditions change such that the proposed Long Term rate is no longer relevant. For example, demand for RNG in the future may drive up the price of RNG significantly to a point where FEI can recover more revenue by entering into a contract for a higher price.

2. Government policy changes affect the value of RNG – such as a change to the carbon tax.

3. Market changes for other forms of renewable energy. The relative price of other forms of renewable energy may change the reference price for RNG in the future.

26.3.1 Would FEI agree to extend a Long Term Contract in the event the currently effective Short Term Contract rate was more than $1.00 higher than the Long Term Contract rate either due to a change in the CCRA rate, a decrease in the Carbon Tax or decrease in the Short Term Contract premium of $7.00? Please elaborate.

Response:

No. Please refer to the response to BCUC IR 1.26.3.

26.4 Please describe the conditions under which FEI envisions the parties would agree to early termination taking into account FEI's statement on page 46 of the Application that "The primary requirement to be eligible for a Long Term Contract is the willingness of the purchaser to enter into an agreement representing a minimum time and volume commitment."

Response:

As stated on page 46 of the Application, the primary requirement to be eligible for a Long Term Contract is the willingness of the purchaser to enter into an agreement representing a minimum time and volume commitment; however, FEI recognizes that business circumstances may arise that may make contract termination necessary for some customers. For example, a customer may encounter a situation where the customer's business changes significantly and it no longer makes sense to either purchase RNG or even natural gas. Subject to negotiation with and agreement by customer, some form of early termination penalties may be involved, such as foregone future earnings or potential costs of the utility to cease service. It should also be noted that FEI cannot fully anticipate what terms and conditions may be acceptable to future customers at this time, and the Commission will have the opportunity to review the contract in the form of a tariff supplement

26.5 Please describe or elaborate with regard the specific stranded asset costs that the "take-or-pay" provision is intended to address.

Response:

A take-or-pay provision would serve to mitigate the potential costs in circumstances where FEI is providing a service line to a particular customer interested in RNG, and the customer both terminates the contract and is no longer a natural gas customer.

26.6 Please explain the rationale for choosing an escalation rate based on 50 percent of the Canadian General CPI given changes to the Short Term Contract rate will only occur to the extent either the CCRA rate or Carbon Tax changes.

Response:

Generally, FEI's RNG supply contracts have inflation factors built into the price. The intent of an escalation rate embedded in the long term contract rates will help keep up with the price inflation of supply contracts. In addition, the concept of an escalation helps to mitigate the difference between the Long Term rate in a particular contract with the prevailing Short Term rates over time.

26.6.1 Please confirm, or otherwise explain, that the "CCRA rate" referred to by FEI in reference to the proposed Short Term Contract BERC rate is FEI's Commodity Cost Recovery Charge and that this rate recovers the commodity cost of energy purchases by FEI at natural gas market prices.

Response:

Confirmed. FEI has used the CCRA rate in its proposed BERC rate because this is the "cost" for commodity or the "cost" for natural gas that customers see on their bills. In other words, when customers look at their bills and compare the price of biomethane to natural gas, they are comparing to the CCRA rate. This Application focuses on the premium FEI believes will attract and retain RNG customers, thus FEI has chosen to frame its proposal around what customers see as the "cost" of natural gas.

26.6.2 Please discuss whether it would be more appropriate to tie the escalation rate to a published index for natural gas prices.

Response:

No. FEI believes that a fixed escalation is more appropriate because it is more in line with the concept of limited variability in the future price of RNG for Long Term Contracts. One of the attractive components of the Long Term rate is its predictability for potential customers.

27.0 Reference: PROPOSAL

Exhibit B-1, Section 7.2.2, Table 7-1;

Rate Schedule 11B, Article 4.2; Sales Agreement, Article 2.6;

FEI General Terms and Conditions, Section 28.3

Long Term Contract offering

Table 7-1 of the Application sets out a summary of the possible Long Term Contract terms and conditions. Under the topic "Quantity Exceeded or Not Met" FEI states "Volumes not met by FEI would be subject to existing R11B curtailment rules; replacement with credits or a penalty as defined by the contract."

Article 4.2 of Rate Schedule 11B states that "FortisBC Energy may at any time, for any reason and for any length of time, interrupt or curtail Biomethane sales under this Rate Schedule."

Article 2.6 of the standard form Biomethane Large Volume Interruptible Sales Agreement that is contained within Rate Schedule 11B states "the Customer is able to accommodate interruption or curtailment of Biomehtane sales and releases FortisBC Energy from any liability for the Customer's inability to accommodate an interruption or curtailment of Biomethane sales."

27.1 Please confirm, or otherwise explain, that biomethane sales provided under Rate Schedule 11B are, by definition under the rate schedule, interruptible sales and FEI does not have a firm obligation to deliver biomethane.

Response:

Confirmed.

27.2 Please describe the existing Rate Schedule 11B curtailment rules that FEI intends to include in the terms and conditions of the Long Term Rate offering with specific reference to the applicable sections of Rate Schedule 11B including references to any applicable credits or penalties that would apply in the event FEI does not deliver the requested quantities of biomethane.

Response:

FEI recognizes that curtailment may be a part of a Long Term Contract, subject to negotiation with and circumstances of the customer. Please refer to the response to BCUC IR 1.27.5 for an explanation of why curtailment may occur.

As stated in the Application, FEI has not yet fully negotiated a Long Term Contract and therefore, FEI cannot fully anticipate any terms or conditions that may be acceptable to future customers with respect to FEI having sufficient supply[10]. However, the Commission will have the opportunity to review the terms and conditions for each negotiated Long Term Contract as part of the tariff supplement filing for review and approval with the Commission.

Section 28 of FEI's General Terms and Conditions set out terms and conditions regarding biomethane service and Section 28.3 describes the use of Carbon Offsets to supply customers under Rate Schedules 1B, 2B, 3B and 5B as follows:

> 28.3 **Reduced Supply**
>
> Customers agree and 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 and 5B, agree that in the event that Biomethane production does not provide sufficient gas supply, FortisBC Energy may purchase Carbon Offsets in an amount equivalent to the greenhouse gas reduction that would have been achieved through Biomethane supply, and at a price not to exceed the funding received from Customers registered for Biomethane Service.

27.3 Please discuss whether FEI agrees that FEI has a firm commitment to supply biomethane customers enrolled in Rate Schedules 1B, 2B, 3B and 5B.

Response:

FEI agrees that it has a firm commitment to supply customers enrolled in Rate Schedules 1B, 2B, 3B, and 5B, but subject to reduced supply as specified in section 28.3 of the FEI General Terms and Conditions:

> *Customers agree and 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 and 5B, agree that in the event that Biomethane production does not provide sufficient gas supply, FortisBC*

[10] Section 7.2.2: Long Term Contract, pages 46-47, line 37, 1

Energy may purchase Carbon Offsets in an amount equivalent to the greenhouse gas reduction that would have been achieved through Biomethane supply, and at a price not to exceed the funding received from Customers registered for Biomethane Service.

Additionally, all RNG customers (including those enrolled in Rate Schedules 1B, 2B, 3B, and 5B), are subject to Section 28.6 (h) of the FEI General Terms and Conditions, which states:

(h) ***Program Termination*** *– FortisBC Energy reserves the right to remove and/or terminate Customers from Biomethane Service at any time.*

Therefore, in the event of Program termination, FEI would no longer be obligated to provide firm service to customers enrolled in Rate Schedules 1B, 2B, 3B, and 5B.

27.4 Please confirm that the terms set out in Section 28.3 of the FEI General Terms and Conditions for compensating customers in the event FEI has insufficient Biomethane supply do not apply to Rate Schedule 11B customers.

Response:

Confirmed.

Rate Schedule 11B is a biomethane interruptible sales rate schedule subject to the terms and conditions set out in Rate Schedule 11B and FEI's General Terms and Conditions (if applicable). More specifically, within Rate Schedule 11B, customers are subject to Section 4.2 Curtailment which states:

4.2 ***Curtailment***

FortisBC Energy may at any time, for any reason and for any length of time, interrupt or curtail Biomethane sales under this Rate Schedule.

27.5 Please confirm, or otherwise explain, that the proposed Long Term Contract offering is intended to be a firm sale of biomethane both from the perspective of FEI's obligation as supplier and of the Long Term Contract offering customer's obligation as purchaser.

Response:

This response addresses BCUC IR 1.27.5, 1.27.5.1 and 1.27.5.2.

Confirmed. The proposed Long Term Contract offering is *intended* to be a firm sale of biomethane both from the perspective of FEI's obligation as supplier and of the Long Term Contract offering customer's obligation as purchaser. However, as stated in the Application and the response to BCUC 1.27.2, FEI has not fully negotiated a Long Term Contract; therefore it cannot fully anticipate all of the future terms and conditions for each negotiated contract.

FEI anticipates that it will be required to negotiate terms and conditions in relation to Quantity Exceeded or Not Met[11], and in the event that a particular customer is not willing to accept Carbon Offsets as set forth under Section 28.3 of FEI's General Terms and Conditions and the supply of conventional natural gas in place of biomethane, then curtailment may be required.

27.5.1 If confirmed, please explain why the curtailment terms under Rate Schedule 11B, an interruptible sales tariff, would be applicable to the Long Term Contract offering.

Response:

Please refer to the response to BCUC IR 1.27.5.

27.5.2 If not confirmed as a firm sales obligation for FEI, please explain how the offering will meet the Long Term Contract offering customer's needs.

Response:

Please refer to the response to BCUC IR 1.27.5.

[11] Table 7-1: Summary of Long Term Contract Terms and Conditions, page 47.

28.0 Reference: PROPOSAL

Exhibit B-1, Section 7, pp. 46–48;

FEI General Terms and Conditions, Section 28.3

Biomethane Inventory

Section 28.3 of the FEI General Terms and Conditions sets out that FEI may purchase Carbon Offsets to supply customers enrolled in Rate Schedules 1B, 2B, 3B and 5B in the event Biomethane production does not provide sufficient supply.

> 28.3 **Reduced Supply**
>
> Customers agree and 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 and 5B, agree that in the event that Biomethane production does not provide sufficient gas supply, FortisBC Energy may purchase Carbon Offsets in an amount equivalent to the greenhouse gas reduction that would have been achieved through Biomethane supply, and at a price not to exceed the funding received from Customers registered for Biomethane Service.

On page 48 of the Application, FEI states:

> With respect to the vintage of the RNG inventory, there is not a defined protocol within Canada. However, in the US, Renewable Identification Numbers (RINs) normally expire after two years. Therefore, at this time, FEI believes it is prudent to conceptually align with this generally accepted practice. In order to account for a reasonable period of time in advance of a two-year vintage, FEI propose to transfer inventory that is older than 18 months.
>
> Despite a transfer trigger of 250,000 GJ, FEI may need to keep an additional inventory in order to meet future commitments. Specifically, FEI is now considering the possibility of high-volume, long-term contracts. ….
>
> FEI will continue to monitor the balance between supply and demand of biomethane as a matter of the usual course of business.

28.1 Please discuss the implications for the proposed BERC rate methodology if FEI finds it has a shortfall in biomethane supply. Does it remain appropriate to continue to provide for the purchase of Carbon Offsets?

Response:

Yes, FEI believes it is appropriate to continue to provide the option for the purchase of carbon offsets as a “method of last resort” during a period of shortfall in supply.

In a scenario where projected future demand exceeds projected future supply the transfer of notionally banked biomethane from the BVA would either be reduced or not occur at all to meet the forecast demand for the following twelve month period. If, due to unforeseen circumstances, demand for the twelve month period still outstrips available supply, the option to purchase offsets as a way to satisfy FEI's obligations under customer contracts remains appropriate.

28.1.1 If so, please describe the circumstances under which FEI would purchase Carbon Offsets to make up for the shortfall including the implications with regard to the transfer trigger threshold of 250,000 GJ for transfers of biomethane inventory to the MCRA and/or transfers of biomethane costs to non-RNG customers.

Response:

Please refer to the response to BCUC IR 1.28.1.

On pages 46 and 47 of the Application FEI states, in regard to the Long Term Contract offering, that "[b]ecause FEI has not fully negotiated a Long Term RNG Contract, it cannot anticipate all of the future terms and conditions."

28.2 Does FEI anticipate that some Long Term Contract customers may specify that the age of the biomethane purchased under the Long Term Contract may not exceed a prescribed vintage? If so, please discuss the implications, if any, for the proposed BERC rate methodology including with respect to the proposed transfer triggers.

Response:

Yes. It is possible that Long-Term Contract customers may specify a maximum RNG "vintage" and as such, FEI has used the generally accepted vintage of 2 years as the "stale point" and proposed a transfer of RNG ahead of this point in time.

To the extent that this requirement may lead to a situation where a portion of RNG supply is greater than the generally accepted vintage of 2 years (i.e. if forecast demand for the year requires the older inventory to remain within the RNG supply portfolio), FEI does not foresee an

issue because this older supply could be notionally allocated to meet the demand of Short Term Contract customers.

28.3 Does FEI anticipate that some Long Term Contract customers may specify that FEI may not purchase Carbon Offsets for the purpose of making up shortfalls in biomethane production used to supply them? If so, please discuss the implications, if any, for the proposed BERC rate methodology including with respect to the proposed transfer triggers.

Response:

Yes. It is possible that certain Long Term Contract customers will request and negotiate that FEI not purchase Carbon Offsets. In these cases, FEI may need to keep supply in the portfolio that is greater than 18 months old to ensure that these customers can be supplied RNG rather than offsets.

Further, FEI will consider the relative volume of RNG being produced at any given time in the program before entering into Long Term Contracts.

29.0 Reference: PROPOSAL

Exhibit B-1, Section 7.3, p. 48;

Ministry of Finance Tax Bulletin CT 001 issued June 2014,[12] pp. 4–6

Carbon tax savings related to transfer of inventory

On page 48 of the Application, in reference to the transfer of notional inventory from the BVA to the MCRA, FEI states "to the extent that FEI is able to monetize credits or take advantage of Carbon Tax savings from this transfer, any recoveries will be captured in the Commission approved Emission Regulations deferral account to the benefit of all customers."

Ministry of Finance Tax Bulletin CT 001 in regard to the applicability of the BC carbon tax to biomethane purchases by end users states:

> Carbon tax does not apply to purchases of 100% biomethane or to the portion of biomethane in a blend of biomethane and another fuel if the actual amount of biomethane in the blend is known. If the actual amount of biomethane in the blend cannot be determined, carbon tax at the rate of tax of the other fuel applies to the blended fuel, unless it qualifies for a biomethane credit.
>
> …..
>
> The Biomethane Credit Program provides a benefit to purchasers of biomethane blended with natural gas if the purchase occurs under a qualifying biomethane contract.

Tax Bulletin CT 001 goes on to describe the characteristics of a qualifying biomethane contract and how customers must be invoiced if they are provided with a credit.

29.1 Please describe how FEI might monetize credits in general, how credits arise from a transfer of biomethane from the BVA to the MCRA, and how FEI is able to monetize these credits either before or after the transfer.

Response:

The purpose of the comment referenced in the question preamble was to indicate that if available and economical to do so, FEI will take advantage of carbon credits and tax savings for the benefit of all customers. The comment was not meant to imply that FEI believes that credits or tax savings associated with the transfer are available at this time.

[12] http://www.sbr.gov.bc.ca/documents_library/bulletins/ct_001.pdf

That is, in the event of a transfer, it is unclear if carbon reduction credits related to the quantity of biomethane embedded in the MCRA pool of costs will be available for FEI to capture and monetize. A description and process for the transfer and monetization of carbon credits is provided below. Further, based on the definition of a qualifying biomethane contract in the applicable regulation[13], at this time FEI is only able to apply the biomethane credit for carbon tax to end use purchasers who have explicitly agreed to purchase biomethane as a portion or total amount of the quantity of gas that they consume.

Regulated British Columbia fuel suppliers are required to comply with emission regulation standards, and performance is measured in terms of credits for low carbon fuels and debits for high carbon fuels.[14] At any time, a fuel supplier may agree to transfer validated credits to another fuel supplier. Once an agreement has been reached, the fuel supplier who owns the credits being transferred must request the Ministry of Energy and Mines to make the transfer, using the Request for Transfer of Part 3 (Low Carbon Fuel) Credits form.[15] Upon receipt of the report, the Ministry will adjust the buyer's and seller's account based on the information reported and the agreement will not be considered to be official until the agreement is recorded by the Ministry.

Thus, FEI would expect that, if available, emission reduction credits arising from the displacement of natural gas with biomethane within the overall portfolio would be captured in the pool of credits reported by FEI. FEI may be able to monetize these carbon offsets through the negotiated transfer and sale of these offsets to other parties using the process noted above.

29.2 Please explain how carbon tax savings arise from the transfer of biomethane from the BVA to the MCRA, including which party directly realizes the carbon tax savings and how the savings are realized by the party.

Response:

Please refer to the response to BCUC IR 1.29.1.

Currently carbon tax savings would arise from the transfer of biomethane from the BVA to the MCRA to the extent that biomethane could be identified on a customer's bill as a component of their natural gas consumed. However, it is unclear whether carbon tax credits will apply in a transfer scenario largely due to the nature of being included in a portfolio of supply available to

[13] Part 4.1 of the *Carbon Tax Regulation* made pursuant to the *Carbon Tax Act.*
[14] Ministry of Energy and Mines, Renewable and Low Carbon Fuel Requirements Regulation Validation and Transfer of Part 3 (Low Carbon Fuel) Credits Information Bulletin RLCF-013, August 2015.
[15] www.empr.gov.bc.ca/RET/RLCFRR

many customers, with no direct link between the supply and specific identifiable customers. In this sense, all customers would share in the reduction of carbon by virtue of the displacement of natural gas with biomethane in the supply portfolio and would result in a very small proportion of biomethane per customer and potentially no carbon tax savings as a result.

29.3 Please provide the Commission order and decision that established the Emissions Regulations deferral account mentioned by FEI.

Response:

The Compliance with Emissions Regulations Deferral Account, approved by Commission Order G-44-12, captures potential compliance costs and revenues collected from the sale of carbon credits. On page 111 of the Decision (dated April 12, 2012) (Emissions Regulations Deferral Account, pages 109 to 111), the Commission determined as follows:

> ***The Commission Panel finds that establishment of an Emission Regulations Deferral Account is appropriate given the uncertainties surrounding the costs and revenues that could accrue to the FEU.*** *In the event the FEU determine that costs and/or revenues have occurred that should accrue to the deferral account, they are to provide to the Commission with a detailed description of the accounting methodologies that they are using to track and record such costs and/or revenues.*

Therefore, to the extent that FEI identifies costs or recoveries to this account, FEI will provide the Commission with a detailed description of the accounting methodologies for that particular addition to the account as part of either the Annual Review filing (or Revenue Requirement filing) or as part of a separate filing if necessary.

Thus, as the savings contemplated on page 48 of this Application relate to the monetization of carbon reductions within the supply portfolio of FEI, FEI believes that the inclusion of any recoveries achieved from this type of transaction appropriately fits within the intended purpose of the deferral account as approved in Order G-44-12. To the extent credits are achieved and monetized, FEI would file with the Commission details on the accounting methodologies for the carbon reduction credits associated with the biomethane program in accordance with the Decision accompanying Order G-44-12.

29.3.1 Please explain the purpose of this deferral account and discuss how recording recoveries arising from monetizing credits or taking advantage of carbon tax savings associated with a transfer of biomethane inventory from the BVA to the MCRA is included in the intended purpose for which the deferral account was established.

Response:

Please refer to the response to BCUC IR 1.29.3.

29.4 Please discuss whether, to the extent biomethane volumes are transferred into the MCRA, recovery of the costs associated with the transferred RNG could be considered as a biomethane credit. Would these costs qualify if they were recovered in a rider specific to these costs?

Response:

As discussed in the response to BCUC IR 1.29.1, at this time FEI is only able to apply the biomethane credit for carbon tax to end use purchasers who have explicitly agreed to purchase biomethane as a portion or total amount of the quantity of gas that they consume.

Therefore, regardless of whether the costs were recovered by a rider or amortized through rates, at this time the transfer of biomethane to the MCRA or delivery costs would not be considered as a biomethane credit because in this circumstance a qualifying contract between the end use customer and FEI does not exist.

29.5 Please discuss whether, to the extent biomethane costs are transferred to a deferral account for recovery from all non-bypass ratepayers, recovery of these costs could be considered as a biomethane credit. Would these costs qualify if they were recovered in a rider specific to these costs?

Response:

Please refer to the response to BCUC IR 1.29.4.

30.0 Reference: SUPPLEMENTARY INFORMATION

Exhibit B-3, Attachment C, Tab Backup and COS information

Rate base

30.1 Please provide 2015-2020 continuity schedules for the following:

- Gas plant in service
- Depreciation
- CICA
- Amortization
- Deferred Charges

Please include a fully functional spreadsheet with the response.

Response:

Please refer to Attachment 30.1.

Further, please note that the rate base continuities have been updated to reflect changes identified in the Annual Review for 2016 Rates proceeding.[16] These changes do not have a material impact on the analysis.

[16] Annual Review of 2016 Rates, Exhibit B-5, BCUC IR 1.19.1.

31.0 Reference: SUPPLEMENTARY INFORMATION

Exhibit B-3, Attachment C, Tab Backup and COS information;

Multi-Year Performance Based Ratemaking Plan for 2014 through 2019 approved by Commission Order G-138-14, Annual Review for 2016 Rates (2016 Annual Review), Chapter 11, Section 11, Schedule 26

Cost of service

31.1 Please update the 2016 Capital Structure & Rate of Return to reflect the 2016 Annual Review return on capital.

Response:

Please refer to Attachment 31.1 which is a fully functional excel spreadsheet, reflecting the updated 2016 Capital Structure and Rate of Return from the October 16, 2015 Evidentiary Update of the Annual Review for 2016 Rates.

Further, Attachment C has been updated to reflect changes identified in the Annual Review of 2016 Rates proceeding[17] and the changes to the Status Quo alternative discussed in the response to BCUC IR 1.34.3. These changes do not have a material impact on the analysis.

31.2 Using the format of the table below, please provide a breakdown of the Total Cost of Service per Purchased Volumes for Sale ($/GJ) by year, for 2015-2020. Please include a fully functional spreadsheet with the response.

Total Cost of Service per Purchased Volumes ($/GJ)

	2015
Cost of Biomethane ($/GJ)	$11.19
Total Operating & Maintenance Expense ($/GJ)	$3.46
Remaining Cost of Service ($/GJ)	-$0.39
Total Cost of Service per Purchased Volumes ($/GJ)	$14.26

Response:

The table below provides the cost of service per purchased volumes ($/GJ) broken down into the three components of the cost of service identified in the question. Please refer to Attachment 31.2 for the fully functional spreadsheet.

[17] Annual Review of 2016 Rates, Exhibit B-5, BCUC IR 1.19.1.

Total Cost of Service Per Purchased Volume$/GJ

PARTICULARS	2015	2016	2017	2018	2019	2020
Cost of Biomethane ($/GJ)	$ 11.19	$ 10.56	$ 11.91	$ 12.33	$ 12.47	$ 12.71
Total Operating & Maintenance ($/GJ)	3.46	3.02	2.75	2.18	1.96	1.80
Remaining Cost of Service $/GJ)	(0.40)	2.01	(0.36)	1.91	2.64	2.81
Total Cost of Service per Purchased Volumes ($/GJ)	$ 14.26	$ 15.58	$ 14.29	$ 16.42	$ 17.07	$ 17.33
Total Cost of Service ($ 000)	$ 2,545	$ 4,943	$ 8,545	$ 14,435	$ 17,238	$ 19,624
Purchased Volume for Sale (GJ)	178,536	317,197	597,845	879,185	1,010,105	1,132,670

31.3 For the costs listed below, please explain the cost increase/decrease from 2015-2020 and provide a breakdown of the cost by year for 2015-2020.

- Materials & Supplies
- Marketing
- Administration
- Future Project Development

Response:

The following table provides a breakdown per year of the forecast O&M for 2015-2020. The changes in forecast costs for the period are discussed further below.

($000)	2015	2016	2017	2018	2019	2020
Kelowna Upgrader	$ 109	$ 306	$ 312	$ 318	$ 324	$ 330
Salmon Arm Upgrader	189	125	125	125	129	133
City of Vancouver	-	-	713	951	970	990
City of Surrey	-	-	11	11	11	11
Future Projects	-	-	22	44	67	92
Materials and Supplies	$ 298	$ 431	$ 1,183	$ 1,449	$ 1,502	$ 1,556
Marketing	175	300	306	312	318	325
Administration	145	203	130	133	135	138
Future Project Development	-	25	25	25	25	25
Total	$ 618	$ 959	$ 1,644	$ 1,919	$ 1,980	$ 2,043

- Materials and Supplies: the changes in forecast material and supplies costs are largely related to the timing of the in-service of the supply projects as shown in the above table. Where there is a forecast change year over year for a single project, it is a result of a project being in-service for a full year of operation as compared to a partial year of operation. Please note that FEI has forecast two additional supply projects per year commencing in 2017 and has assumed that these projects are similar in scale to the City of Surrey project.

- Marketing: costs in this category are forecast to increase to $300 thousand in 2016 to reflect resumption to previous spending levels with annual increases of 2% thereafter to reflect inflation.

- Administration: administrative expenses are expected to remain relatively constant with the forecast reflecting annual inflation of 2%. The forecast increase of approximately $75 thousand in 2016 is related to the City of Surrey Application.

- Future Project Development: costs are forecast at $25 thousand annually for project analysis, preliminary project management, legal costs, and technical consultants. Generally, FEI may work on developing biomethane projects which may not go forward and these costs may also be captured in this category.

Notional Biomethane Gas Balance (GJ)	2015	2016	2017	2018	2019	2020
Biomethane Sales (GJ)	156,793	172,806	196,410	212,054	226,499	241,090
Closing Balance (GJ)	101,657	246,048	647,483	1,314,614	1,752,150	1,630,529
Closing Balance as a % of Biomethane sales	65%	142%	330%	620%	774%	676%

31.4 Please calculate the rate impact of writing-off closing balances in greater than 150 percent of a year's biomethane sales in the following year (i.e. an amount equal to 180 percent of the 2017 biomethane sales would be written-off in 2018). Please include a fully functional spreadsheet with the response.

Response:

The impact of writing off a closing balance greater than 150% of the previous year's sales is on average $3.01 per customer, per year, compared to the forecast impact of $2.68 filed in the Application.

Specifically, the approach suggested in this question results in an overall greater transfer of costs from the BVA, approximately $27 million as compared to the total transfer of approximately $22.2 million using the approach proposed by FEI.

Please refer to Attachment 31.4 for the fully functional excel spreadsheet.

32.0 Reference: PROPOSAL

Exhibit B-1, Section 4.2.2, p. 28; Section 7.4, p. 48

Increase in customer education and awareness spending

On page 53 of the Application, FEI states: "Through internal research FEI has identified two barriers to sign up: firstly program awareness and secondly program understanding."

32.1 Please provide the FEI internal research.

Response:

The "internal research" refers to the following:

1. Renewable Natural Gas Monitor, included in Appendix A of the Application;
2. Focus Group Session Research Results, included in response to BCUC IR 1.10.1; and
3. Focus Group Session Research conducted in April 2015, which is included as Attachment 32.1 below.

32.2 Please provide the total customer education expenditures from 2010-2014 and explain why FEI was unsuccessful in developing awareness and understanding of the biomethane program.

Response:

Please refer to Table 4-1 of Exhibit B-1 (page 28) and the response to BCUC IR 1.9.1 for details on the total customer education expenditures for 2010-2014.

Developing awareness and understanding is an ongoing activity of the RNG Program. Given the complexities of the RNG offering, the current RNG price and other external factors, FEI believes that it has done well with the resources it has had to implement the program. While FEI has had some success in developing awareness and understanding, FEI recognizes that the opportunity for improvement in exists and customer communications will continue to be critical to the success of the RNG Program.[18] Please see section 7.4 of the Application and the response to BCUC IR 1.43.4 for a discussion of FEI's future efforts to increase customer awareness and understanding.

[18] FortisBC Renewable Natural Gas Program Focus Groups, May 2015 attached to BCUC IR 1.32.1.

F. POTENTIAL IMPACT ON NON-RNG CUSTOMERS

33.0 Reference: POTENTIAL IMPACT ON NON-RNG CUSTOMERS
Exhibit B-1, Section 8, p. 50; Appendix E, Schedule 2
Exhibit B-3, Attachment B, Tab 1, p. 3; Attachment C
FEI demand model

FEI lists the assumptions it used to develop the analysis of the rate impact on non-RNG customers in Table 8-1 of the Application. With regard to forecast biomethane demand, FEI's stated assumptions are "Based upon FEI demand model for next 10 years assuming the approved price model. Mass market adoption rates."

Commission staff observes that the fully functional spreadsheets provided by FEI in Attachment C of Exhibit B-3 in response to the Commission's request for supplementary information are populated with hard coded sales volumes without underlying formulas, links to input pages in the worksheet or stated assumptions and as a result, staff are unable to gain meaningful insight into FEI's demand model.

33.1 Please describe the FEI "demand model" referenced in Table 8-1.

Response:

Due to the fact that the RNG market is relatively new, FEI has largely relied upon its business knowledge rather than historical and statistical analysis to develop the RNG demand forecast. However, similar to the natural gas demand forecast, to forecast demand for RNG, FEI looks at each rate schedule separately to estimate a projected demand.

For Rate Schedule 1B, 2B and 3B, FEI has used the following approach:

- Identify total customer numbers for eligible regions (excluding Fort Nelson and Revelstoke). The current estimate uses FEI's most recent customer forecasts (filed as part of the Annual Review for 2016 Rates).
- Subtract customers on the Customer Choice Program who are ineligible for RNG.
- Estimate current percentage uptake for RNG based in part on historical uptake and in part on industry norms for green energy. Apply future potential percentage uptake to the total number of eligible customers to arrive at the number of future RNG customers for multiple scenarios. At the high end of demand, FEI has chosen to cap customer participation based on North American industry averages for participation in green energy programs.

- Multiply by the FEI 2015 current average use rates for each rate schedule (the two primary regions of Mainland and Vancouver Island were used).
- Apply an average blend usage of 11% (weighted average based on data to date) across these classes to develop projected demand.

For Rate Schedule 11B and 14A customers, FEI has used its list of known, existing or interested customers as a basis. Where possible, FEI has used either committed or projected volume and applied different probabilities of success. For example, Vancouver Island Health Authority has indicated that it may increase its purchase of RNG in 2016, but because there is no firm commitment, FEI has based its future demand on 50% of the promised increase in volume. Likewise, FEI has projected volume of RNG for other similar customers.

Larger potential customers that may impact future demand significantly, like UBC, who may purchase as much as 1,000,000 GJ annually, are treated separately.

In addition, FEI has seen a slow increase in its customer base where it has not previously expected to see the demand for RNG – such as the addition of the Grand Villa Casino in 2014. Therefore, FEI has projected a further increase in demand based on 'unknown' customers.

For Natural Gas for Transportation customers, FEI has estimated sales volumes based on total projected NGT volumes previously filed with the Commission. FEI has applied a modest participation target (2% and below for the various scenarios) and used the average of 11% as a basis for the potential demand in this category.

Overall, FEI believes it has taken a reasonable approach and FEI continues to develop this model based on the experience gained each year.

33.1.1 Does FEI agree that the demand model for the sale of biomethane is fundamentally different from the demand forecasting models used to develop load forecasts for FEI's overall system throughput and natural gas sales forecasts? For instance, does FEI agree overall system load forecasts typically use inputs such housing starts and the impact of extension policies which would not have the same relevance in this case of notional biomethane sales? Please discuss.

Response:

Yes, FEI agrees that the demand model for biomethane is different. Please refer to the response to BCUC IR 1.33.1.

FEI agrees that the demand for biomethane in relation to the total pool of throughput is driven by factors that are unique to biomethane, such as GHG emission reduction targets, cost relative to natural gas, sustainability, and personal motivation to reduce environmental impact. There is not a direct relationship or correlation between FEI customer additions, housing starts and extension policies and RNG sales.

33.1.2 Please discuss how marketing and customer awareness spending levels are factored into the biomethane program demand model.

Response:

The FEI demand model takes into account many variables as described in BCUC IR 1.33.1. Marketing and customer awareness are discussed in BCUC IR 1.9.1, 1.43.2 and CEC 1.8.1.

The "Status Quo" demand forecasts assume a level of marketing spend in line with 2014 and 2015 levels of approximately $175 thousand per annum[19] and will see demand continuing to fall over the coming years as we have seen through 2015 to date.

The "Market-Based BERC Rate" demand forecasts submitted assume the requested increase in marketing spend to $300 thousand per annum[20] and will see demand rise steadily from the current levels due to a combination of the price decrease and the increased marketing spend to inform customers and potential customers about the program to almost double 'Status Quo" levels by 2020.

33.2 Is the same demand model referenced in Table 8-1 used to generate the biomethane sales forecast in the quarterly BVA reports?

Response:

[19] With 2% inflation applied each year commencing in 2017.
[20] Ibid.

Yes.

33.2.1 If not, explain why not and describe the differences between the two demand models.

Response:

Please refer to the response to BCUC IR 1.33.2.

33.3 Please confirm, or otherwise explain, that in the 2015 Third Quarter BVA report filed August 14, 2015 (2015 Q3 BVA Report) that is Attachment B in the Supplementary Information filing, FEI forecasts demand under the status quo cost-based BERC rate methodology as follows:

2015 Q3 BVA Report - status quo cost -based BERC rate

Sales (GJ)	**2015**	**2016**	**2017**
Residential	55,590	73,719	78,976
Commercial	8,360	6,281	6,561
On/Off System & Other	86,664	91,930	233,129
Total Sales	150,614	171,930	318,666

Response:

Confirmed.

33.3.1 Please confirm, or otherwise explain, that the sales forecast in the 2015 Q3 BVA Report assumes the reduced program marketing spending levels described at page 28 of the Application (i.e. $175,000 for 2015).

Response:

Confirmed.

33.4 Please confirm, or otherwise explain, that as set out in Schedule 2 of Appendix E of the Application, FEI forecasts the following biomethane sales under the proposed BERC rate methodology including increasing the program marketing spend to $300,000 per year.

Application - proposed market BERC rate

Sales (GJ)	**2015**	**2016**	**2017**
Residential	68,058	74,162	86,459
Commercial	11,839	12,995	14,159
On/Off System & Other	76,896	85,649	95,792
Total Sales	156,793	172,806	196,410

Response:

Confirmed.

33.5 Please reconcile and explain the differences in the forecast sales for 2015 as reported in the 2015 Q3 BVA Report and as projected in Schedule 2 in Appendix E of the Application.

Response:

The difference in the forecast sales for 2015 as reported in the 2015 Q3 BVA Report of approximately 150.6 TJ and Schedule 2 of Appendix E of approximately 156.8 TJ is approximately 6.2 TJ.

This difference is attributable to forecast sales volumes for August through December of 2015 held at the forecast level that was provided in the 2015 Q2 BVA Report. At the time of compiling the information for the Q3 BVA Report, FEI was in the process of finalizing its forecasts for use in the BERC Methodology Application. FEI believed that because these forecasts were not yet complete, it was best to maintain the existing Q2 forecast for these months in the BVA report.

The 6.2 TJ variance is attributable to higher than originally forecast demand for Residential and Commercial customers offset by lower demand by other customers.

33.5.1 Please confirm, or otherwise explain, that in both cases the 2015 sales are a combination of actuals and projected sales and are based on the same status quo BERC rate and marketing spend.

Response:

Confirmed.

33.6 For 2016, 2017 and 2018, please explain why sales for the category "On/Off System & Others" decrease when the BERC rate is decreased.

Response:

Generally, FEI took a relatively conservative approach in forecasting this category. However, the largest impact can be attributed to a change in the way FEI forecast future demand from UBC.

FEI thought it was prudent to exclude future demand from the large cogeneration project at UBC (described in its letter) to account for a potential delay in the start date and uncertainty that UBC would purchase the original forecast amount (regardless of a revised rate at the projected level). For 2017, this resulted in a decrease in future demand of approximately 135,000 GJ, which was previously based on a 30% probability for one half year of projected demand (450,000 GJ for ½ year x 30% probability).

In the event that the UBC cogeneration project proceeds, and RNG is chosen as a fuel, the demand for RNG would be even greater than the original forecast as it would account for the full volume, though it may not occur until a later date. Please also refer to the responses to BCUC IR 1.18.1 to 1.18.3.

34.0 Reference: POTENTIAL IMPACT ON NON-RNG CUSTOMERS

Exhibit B-1-1, Appendix E, Schedules 1 and 2

FEI demand model

In Schedule 2 of Appendix E of the Application, FEI forecasts biomethane demand on the basis of customer categories or rate schedules identified by FEI as follows:

- Rate 1: Residential
- Rate 2: Small Commercial
- Rate 3: Large Commercial
- Other On-System Volume/Gas Marketer
- Transportation Sector/CNG
- Large/Fixed Volume/Cogen

34.1 Please describe the key characteristics of each of these customer categories.

Response:

The key characteristics for customers grouped in Rate Schedule 1, 2 and 3 are described in each corresponding individual rate schedule.[21]

Rate 1: Residential

"[S]ingle-family residences and separately metered multi-family residences"

Rate 2: Small Commercial

"Small commercial rate for businesses with consumption of less than 2,000 GJ annually"

Rate 3: Large Commercial

"Large commercial rate for businesses with consumption of greater than 2,000 GJ annually"

Transportation Sector / CNG customers are those customers who would potentially use RNG for transportation applications. These customers may have different rate classes depending upon their consumption at their filling stations. For example, customers that are Rate Schedule 5

21 http://www.fortisbc.com/About/RegulatoryAffairs/GasUtility/NatGasTariffs/FortisBCEnergyInc/Pages/Mainland-VancouverIsland-Whistler.aspx

customers could be served by rate 5B and customers on Rate Schedule 25 could be served by Rate Schedule 11B.

The remaining two categories are used internally by FEI to categorize customers served under Rate Schedule 11B which may include biomethane customers served under an existing transportation agreement with a gas marketer and customers purchasing RNG direct from FEI under Rate Schedule 14A.

34.2 For each of these customer categories, please identify the current biomethane rate schedule that applies before the implementation of the proposed BERC rate methodology (i.e. in 2015) and which proposed BERC rate offering applies after the implementation of the proposed BERC rate methodology.

Response:

Please refer to the table below which outlines the current applicable FEI biomethane rate schedule, the post implementation FEI rate schedule, and the post implementation BERC Rate as per the forecast demand categories/rate schedules identified in Schedule 2 of Appendix E of the Application.

Customer Category	Current FEI Rate Schedule	Post Implementation FEI Rate Schedule	Post Implementation Proposed BERC Rate Methodology
Rate 1B: Residential	FEI Rate Schedule 1B	FEI Rate Schedule 1B	Short Term Market rate
Rate 2B: Small Commercial	FEI Rate Schedule 2B	FEI Rate Schedule 2B	Short Term Market rate
Rate 3B: Large Commercial	FEI Rate Schedule 3B	FEI Rate Schedule 3B	Short Term Market rate
Other On-System Volume/Gas Marketer	FEI Rate Schedule 11B	FEI Rate Schedule 11B	Short Term Market rate
Transportation Sector/CNG	FEI Rate Schedule 11B	FEI Rate Schedule 11B or Separate Tariff Supplements[22]	Short Term Market rate or Long Term Contract rate
Large/Fixed Volume/Cogen	FEI Rate Schedule 11B	Separate Tariff Supplements	Long Term Contract rate

[22] Potential for Long Term Contracts to be negotiated.

34.3 Provide the equivalent versions of Schedules 1 and 2 in Appendix E of the Application and the associated functional spreadsheets for the case where the BERC rate methodology remains unchanged from the current BERC rate methodology.

Response:

The following are the Status Quo schedules 1 and 2, reflecting the current BERC rate methodology. Please note that for comparability with the proposed alternative, this analysis has been updated to reflect the changes noted in the response to BCUC IR 1.31.1.

Further, in reviewing the Status Quo alternative to respond to this information request, FEI identified an oversight in the cost forecast used in the analysis. The marketing forecast was inadvertently overstated at $300 thousand in 2016. FEI has revised the analysis to reflect the status quo level of spending $175 thousand. This change does not have a material impact on the analysis, and as such, does not affect its relative ranking as compared to the other alternatives.

1

FORTISBC ENERGY INC.
2015 BERC Rate Methodology Application
Forecast Biomethane Variance Account- Activity and Closing Balance

Schedule 1 Status Quo

Line No.	Particulars	2015	2016	2017	2018	2019	2020
1							
2	**Biomethane Variance Account**						
3	Opening Balance (after tax)	$ 1,364	$ 1,221	$ 3,234	$ 7,885	$ 17,210	$ 28,803
4							
5	Adjustments needed to opening balance (after tax):						
6	Application costs to be recovered by delivery rates	$ (268)	$ -	$ -	$ -	$ -	$ -
7							
8	Additions - Tax Effected						
9	Cost of Biomethane	1,999	3,349	7,119	10,841	12,594	14,399
10	Operating and Maintenance Expense	618	837	1,520	1,792	1,851	1,912
11	Cost of service - Salmon Arm						
12	Property Tax Expense	13	20	20	23	23	25
13	Earned Return - Debt Component	252	265	293	876	884	892
14	Subtotal	2,881	4,471	8,951	13,533	15,353	17,227
15	Tax Offset	(749)	(1,163)	(2,327)	(3,519)	(3,992)	(4,479)
16	Total Additions - Tax Effected	2,132	3,309	6,624	10,014	11,361	12,748
17	Additions - Non-Tax Effected						
18	Depreciation	133	372	398	1,173	1,212	1,251
19	Negative Salvage Provision Expense	-	-	1	4	5	6
20	General O&M Trf from 18546 PY (after tax)	-	-	-	-	-	-
21	Notional Income Tax	(701)	(274)	(1,208)	(1,233)	(305)	156
22	Earned Return - Equity Component	233	253	279	834	843	849
23	Subtotal	(335)	350	(530)	779	1,755	2,263
24	Total Additions	1,796	3,659	6,094	10,793	13,116	15,010
25							
26	BERC Recoveries	(2,260)	(2,224)	(1,950)	(1,983)	(2,059)	(2,105)
27	Tax Offset	588	578	507	516	535	547
28	Net Recoveries	(1,672)	(1,646)	(1,443)	(1,467)	(1,524)	(1,558)
29							
30	**BVA Closing Balance (after tax)**	**$ 1,221**	**$ 3,234**	**$ 7,885**	**$ 17,210**	**$ 28,803**	**$ 42,256**

2

FORTISBC ENERGY INC.
2015 BERC Rate Methodology Application
Forecast Demand and Recoveries by Rate Schedule at Market-Based BERC Rate

Schedule 2 Status Quo

Line No.	Particulars	2015	2016	2017	2018	2019	2020
1	**BERC Recoveries/Sales**						
2	**Rate 1:** Residential Volume (GJ)	68,058	64,628	57,454	53,313	52,000	50,840
3	BERC Rate $ /GJ	$ 14.414	$ 15.450	$ 14.657	$ 15.422	$ 16.143	$ 16.663
4	Recovery from Residential	$ 981	$ 999	$ 842	$ 822	$ 839	$ 847
5							
6	**Rate 2:** Small Commercial Volume	5,390	5,434	4,903	4,548	4,409	4,277
7	BERC Rate	$ 14.414	$ 15.450	$ 14.657	$ 15.422	$ 16.143	$ 16.663
8	Recovery from Small Commercial	78	84	72	70	71	71
9							
10	**Rate 3:** Large Commercial Volume	6,449	6,043	5,278	4,843	4,603	4,359
11	BERC Rate	$ 14.414	$ 15.450	$ 14.657	$ 15.422	$ 16.143	$ 16.663
12	Recovery from Large Commercial	93	93	77	75	74	73
13							
14	**Other On-System Volume (Gas marketer)**	6,716	6,733	6,750	6,766	6,783	6,800
15	BERC Rate	$ 14.414	$ 15.450	$ 14.657	$ 15.422	$ 16.143	$ 16.663
16	Recovery from Other On-System	97	104	99	104	110	113
17							
18	**Transportation Sector/CNG**	-	293	500	750	1,250	1,441
19	BERC Rate	$ 14.414	$ 15.450	$ 14.657	$ 15.422	$ 16.143	$ 16.663
20	Recovery from Other Off-System	-	5	7	12	20	24
21							
22	**Large/Fixed Volume / Cogen**	70,180	60,843	58,139	58,364	58,489	58,614
23	BERC Rate	$ 14.414	$ 15.450	$ 14.657	$ 15.422	$ 16.143	$ 16.663
24	Recovery from Other Off-System	1,012	940	852	900	944	977
25							
26	**Other off system sales**	-	-	-	-	-	-
27	BERC Rate	$ 14.414	$ 15.450	$ 14.657	$ 15.422	$ 16.143	$ 16.663
28	Recovery from Other Off-System	-	-	-	-	-	-
29							
30	Total Sales Volumes (GJ)	156,793	143,974	133,024	128,584	127,534	126,331
31	**Total Recoveries**	$ 2,260	$ 2,224	$ 1,950	$ 1,983	$ 2,059	$ 2,105

Please refer to Attachment 34.3 for a functional excel workbook for the Status Quo financial analysis.

35.0 Reference: POTENTIAL IMPACT ON NON-RNG CUSTOMERS

Exhibit B-1, Section 8, Table 8-1, p. 50;

Exhibit B-3, Attachment A, Live Spreadsheet tabs "Figure 8-2" and "Figure 8-3"

Sensitivities of rate impact on non-RNG customers

Table 8-1 in the Application presents a summary of the assumptions FEI used in analyzing the rate impact on non-RNG customers.

35.1 To better illustrate the impact on non-RNG customers of varying the assumptions, please provide a revised version of Figure 8-2 and Figure 8-3 and Schedules 1 through 3 in Appendix E of the Application for each of the following sensitivity cases. Please also provide fully functional spreadsheets for each sensitivity case and state all assumptions. For reference purposes in running the sensitivity cases, the "Base Case" is the proposed BERC rate as described in Application (i.e. premium of $8.50 for Short Term Contract and $7.50 for Long Term Contract) and the assumptions as set out in Table 8-1.

Response:

Please refer to fully functional excel spreadsheets included as Attachment 35.1 for Scenario 1 through 11.

No.	Sensitivity Case Name	Description
1	Premium $1.00 higher	Premium of $9.50 for Short Term Contract and $8.50 for Long Term Contract
2	Premium $1.00 lower	Premium of $7.50 for Short Term Contract and $6.50 for Long Term Contract
3	Premium equal to UBC cost of carbon	Premium of $3.75 for Short term Contract and $2.75 for Long Term Contract (i.e. set Long Term Contract premium to be equivalent to $55.00/tonne cost of carbon for public institutions such as UBC)
4	Premium equal to carbon tax	Set both premiums at $1.4898 (i.e. current carbon tax)

No.	Sensitivity Case Name	Description
5	Two Short Term Contract volume based offerings	Split the Short Term Contract into two offerings based on volume with the premium set at $8.50 for a Low Volume Short Term Contract offering (less than 2000 GJ per year), at $7.50 for a High Volume Short Term Contract offering (higher than 2000 GJ per year) and at $6.50 for the Long Term Contract offering
6	Lower natural gas commodity prices	Decrease forecast of natural gas commodity price to be 10 percent less than Base Case at 2020
7	Higher natural gas commodity prices	Increase forecast of natural gas commodity price to be 30 percent higher than Base Case at 2020
8	Lower forecast deliveries on FEI system	Decrease forecast deliveries to be 10 percent less than Base Case at 2020
9	Higher forecast deliveries on FEI system	Decrease forecast deliveries to be 10 percent less than Base Case at 2020
10	Increased customer awareness spend	Increase customer awareness and education spend from $300,000 to $400,000 per year
11	Decreased customer awareness spend	Decrease customer awareness and education spend from $300,000 to $100,000 per year with focus on large commercial and institutional customers

35.2 Provide an updated version of Schedule 5 of Appendix E summarizing the customer impact for each of the sensitivity cases in the table above.

Response:

Please refer to Attachment 35.2.

36.0 Reference: INTRODUCTION AND APPROVALS SOUGHT

Exhibit B-1 Section 1.2, p. 3;

Exhibit B-3, Attachment C, Tab BVA Forecast;

2013 Biomethane Decision, Table 5, p. 70

Approvals sought

On page 2 of the Application, FEI states:

> 4. FEI may apply to transfer unsold biomethane supply that is greater than 18 months in age and/or 250,000 GJs in the BVA to the MCRA at the prevailing CCRA rate on January 1 each year; and,
>
> 5. Approval to amortize the forecast December 31 balance in the BVA, net of the transfer of unsold inventory and remaining supply costs, through the delivery rates of all non-bypass customers effective January 1 of the subsequent year.

36.1 Please revise Table 5, Biomethane Service Offering Cost Recovery Model – Going Forward, in the 2013 Biomethane Decision, to reflect the changes proposed in the Application.

Response:

Table 3-1 from page 8 of the Application (Exhibit B-1) is expanded below to include information on the proposed transfer mechanisms. To clarify, and consistent with Table 5 of the 2013 Biomethane Decision, FEI is not proposing changes to the allocation of costs to the BVA. Further, the adoption of the MCRA transfer as outlined by the Commission in Order G-210-13 and the proposed recovery through delivery rates of any applicable remaining balance in the BVA maintains the current approach of recovering costs from voluntary RNG customers before recovery from other non-bypass customers occurs.

Expanded Table 3-1: RNG Program Costs and the BVA[23]

Biomethane Variance Account (BVA)	Primary Recovery From	Secondary Recovery From
• Cost of procuring biogas	Biomethane Customer	All non-bypass sales customers
• Cost of upgrading	Biomethane Customer	All non-bypass sales and transportation customers
• Interconnection costs including the pipe	Biomethane Customer shared with Supplier based on Interconnection Test	
• Biomethane Program Overhead Costs	Biomethane Customer	
LESS		
• REVENUES collected through BERC rates	Biomethane Customer	
= Variance may be transferred to MCRA and delivery rates for recovery from all non - bypass customers on the terms directed by the Commission Panel		
Secondary MCRA/Delivery Rate Cost Recovery Mechanisms		
• Variance from BVA due to difference between cost of supply and selling price		
• Secondary method for the cost recovery of Biomethane that cannot be sold at the BERC rate within a specified timeframe (i.e. cost of procuring biogas greater than 18 months of age and or 250,000 GJs and all other unrecovered costs on an annual basis)		
• MCRA transfer is valued at the inventory greater than 18 months at the prevailing Commodity Cost Recovery Charge and is subject to the availability of supply that can be transferred		
• The result is that at the start of each year, the BVA balance would reflect the cost of RNG supply that is available for sale (i.e. supply excluding the aged inventory)		
• Subject to separate BCUC approval through the Quarterly Gas Cost Process for any transfer and recovery of costs through the Storage and Transportation Rates (i.e. MCRA transfer) and Annual Review or Revenue Requirement Applications for any recovery of costs through Delivery Rates		

36.2 How will FEI recover/refund the difference between the prevailing CCRA rate and the BERC rate for the unsold biomethane supply that is greater than 18 months in age and/or 250,000 GJs?

Response:

Please refer to Section 9, page 53 of Exhibit B-1. FEI proposes to amortize the difference between the prevailing Commodity Cost Recovery Charge and the BERC rate through the delivery rates of non-bypass customers. That is, when the delivery rates are recalculated, the

[23] 2013 Biomethane Decision, p. 70.

cost of service will include amortization of this amount and as such, will be embedded in the delivery rates for all non-bypass customers.

36.3 How will FEI recover/refund the difference between the market-based BERC rate and the cost of the biomethane for the biomethane that is sold?

Response:

The BVA will continue to capture all costs of the RNG Program and the recoveries of biomethane sold at the BERC rate as outlined in Table 3-1 of the Application. To the extent that the recoveries in a given year do not offset or are greater than the costs embedded in the account, a balance in the BVA will remain. FEI has proposed two transfer mechanisms to address this balance on an annual basis:

1. Cost of Procuring Biomethane- FEI has proposed that inventory that is equal or greater than 18 months of age and/or 250,000 GJs is transferred to the MCRA at the prevailing Commodity Cost Recovery Charge, and as such, is recovered through the Storage and Transportation Rates of all non-bypass sales customers; and,

2. All of Other- FEI has proposed that, after accounting for the inventory transfer above as well as the cost of supply that will remain in the account, any remaining balance in the BVA be amortized through the delivery rates of all non-bypass sales and transportation customers.

The result is that at the start of each year, the BVA balance would reflect the cost of RNG supply that is available for sale (i.e. supply excluding the aged inventory).

Please also refer to the response to BCUC IR 1.36.1.

36.4 Please explain how the December 31 BVA Closing Balance (after tax) in the BVA Forecast tab is being amortized through the delivery rates of all non-bypass customers effective January 1 of the subsequent year, as requested in the approval sought in Item 5.

Response:

Please refer to the response to BCUC IR 1.36.2. When the delivery rates are recalculated for the upcoming year, the cost of service will include amortization of this amount and as such, will be embedded in the delivery rates of all non-bypass customers.

37.0 Reference: SUPPLEMENTARY INFORMATION

Exhibit B-3, Attachment C, Tab Forecast Impacts

Forecast impacts at market-based BERC rate

	2015	2016	2017	2018	2019	2020
Aged Inventory Transfer to Storage and Transport Rates IMPACT % of delivery margin	0.00%	0.00%	0.00%	0.15%	0.46%	0.69%
Transfer to Delivery Rates IMPACT % of delivery margin	0.00%	0.10%	0.02%	0.01%	0.36%	1.32%
Total Impact Non-bypass Sales Volume	0.00%	0.10%	0.02%	0.16%	0.82%	2.01%

37.1 Does FEI consider the2020 forecast 2.01 percent rate impact on Non-bypass Sales Volume customers in significant? Please explain why, or why not.

Response:

Based on the current annual bill of a residential customer of approximately $806[24], a 1.32% increase to delivery rates represents approximately $6 per year or approximately $0.50 per month, and a 0.69% increase to storage and transport rates represents approximately $0.83 per year.[25] Whether or not this is considered significant, FEI believes that it is also necessary to maintain a reasonable balance in the BVA to mitigate potential future significant rate impacts to customers.

37.1.1 FEI proposes to commence the write-off aged inventory in 2019, would commencing the write-off aged inventory in 2017 reduce 2.01 percent rate impact on Non-bypass Sales Volume customers in 2020?

Response:

To clarify, FEI has proposed to commence the transfer of inventory subject to age and quantity parameters rather than commence the transfer at a fixed point in time.

In the financial analysis, the transfer of inventory older than 18 months commences in 2019 because, on a forecast basis, it is the first point when the parameters are met and there is

[24] Lower mainland residential customer consuming 90 GJ per year. Please refer to CEC IR 1.7.3.

[25] Of the annual bill of approximately $806, approximately $462 is attributable to delivery charges: $462 x 1.32% = $6.10 per year. Further, approximately $120 of the annual bill is attributable to storage and transport charges: $120 * 0.69% = $0.83 per year.

inventory that has an age that is greater than 18 months. Prior to 2019, the age of inventory is within 18 months or less.

Thus, FEI is unable to answer the question because more information is required with respect to the parameters and amount of inventory that would be transferred in 2017.

37.2 Please provide a breakdown of the "Transfer all costs except Supply ending balance" by cost type (unsold biomethane, sold biomethane CCRA/BERC rate variance, marketing, and O&M) and year for 2015-2020. Please include a fully functional spreadsheet with the response.

Response:

There is no breakdown of costs for the "Transfer all costs except Supply ending balance". The closing BVA balance for each year is comprised of the ending inventory less than 18 months at the forecast BERC rate. Prior to this transfer, the residual costs left in the BVA would be a combination of all costs, including any residual costs associated with the transfer of inventory greater than 18 months to the MCRA account, net of recoveries that have flown through the BVA account.

That is, in order to identify the nature of specific costs remaining in the BVA account, FEI would have to allocate the recoveries to the various cost items. This allocation would be arbitrary because the proposed BERC rate is market based. Alternatively, a calculation of the average percent of the cost of service per cost type could be applied to the balance. Although this would also be an arbitrary calculation, it may provide a reasonable view of a potential profile of the remaining costs.

Thus, in absence of precise breakdown of the balance to be transferred, the following table provides the average percent of the cost of service per cost type applied to the balance transferred for recovery through delivery rates for the 2015-2020 forecast period. Please refer to Attachment 37.2 for the fully functional electronic spreadsheet.

$000s	**2015-2020 Total**		
Delivery Transfer			**12,851**
Cost of Service	Forecast Cost	Cost Type as % of Total	Allocated Portion of Transfer
Cost of Biomethane	$ 50,299	75%	$ 9,600
O&M	$ 9,162	14%	$ 1,749
Property Taxes	$ 127	0%	$ 24
Depreciation Expense	$ 4,539	7%	$ 866
Negative Salvage	$ 16	0%	$ 3
Income Tax	$ (3,565)	-5%	$ (680)
Earned Return	$ 6,752	10%	$ 1,289
Total Cost of Service	**$ 67,331**	**100%**	**$ 12,851**

1

2

G. ACCOUNTING TREATMENT AND RATE SETTING

38.0 Reference: PROPOSAL

Exhibit B-1, Section 7.4, p. 48;

2013 Biomethane Decision, p. 100

Upgrader costs

Page 100 of the 2013 Biomethane Decision states:

> Accordingly, the Commission Panel finds that in those circumstances where Fortis will be building, owning and operating an upgrader, it should reside inside FEI. Consequently, FEI is directed to continue to track capital and operating costs of an upgrader separately.

38.1 Please provide the capital and operating costs of the FEI upgraders by upgrader and year for 2015-2020. Please include a fully functional spreadsheet with the response.

Response:

Please refer to the response to BCUC IR 1.30.1 for details of the upgrader and interconnect capital costs for the years 2015 – 2020.

Please refer to the response to BCUC IR 1.31.3 for details of the upgrader and post 2014 interconnect operating cost for the years 2015 – 2020.

39.0 Reference: SUPPLEMENTARY INFORMATION

Exhibit B-3, Attachment C, Tab Backup and COS information

Biomethane cost

39.1 Please explain why the Notional Gas Balance ($) is equal to the Closing Balance (GJ) multiplied by the current BERC rate ($/GJ) is this a proxy for valuing inventory at the lower of cost or market? Please explain.

Response:

The notional gas balance value ($), which is equal to the closing balance (GJ's) multiplied by the current BERC rate, is used as a proxy for valuing the inventory at the lower of cost or market as further explained below.

The basic formula for the notional balance calculation is as follows:

Notional Gas Balance	
Opening Balance ($ & GJ)	+
Additions	+
Less: Sales (BERC Recoveries) ($ & GJ)	-
Less: Write- off – aged Inventory to MCRA (impairment) ($ & GJ)	-
Less: Transfers – formulaically derived ($)	-
Ending Balance ($ & GJ)	=

1. Each year the current years' supply costs and corresponding supply volumes are added as **additions,** creating a total supply available for sale with associated costs;

2. Annual sales (BERC recoveries), both dollars and volumes are then deducted from the total available for sales; and,

3. The account is adjusted for any transfers of inventory to the MCRA and the amortization of applicable costs through delivery rates.

Thus, the balance of the ending BVA is the net realizable value that would be achieved by selling to prospective customers, minus reasonably predictable cost of completion, disposal and transportation.

39.2 Please provide the average cost ($/GJ) of the 2015 opening balance of 79,914 GJ.

Response:

The average cost of supply for the opening balance of 2015 inventory is approximately $13.57 per GJ. The total average cost for the opening balance (i.e., including all program costs) is approximately $16.88[26] per GJ.

[26] $1,735,758 (total program costs from Restated 2015 Q1 BVA report) divided by 103,971GJs = $16.69, weighted for 79,914 is approximately $1,084K and $16.88 per GJ.

40.0 Reference: ACCOUNTING TREATMENT AND RATE SETTING

Exhibit B-1, Section 9, p. 53;

Exhibit B-3, Attachment C, Tab BVA Forecast;

2013 Biomethane Decision, pp. 53, 70

Accounting Treatment

On page 53 of the Application, FEI states:

> The 2013 Decision suggested that this amount should be captured in a separate deferral account and recovered from all customers via a rate rider. Rather than shift these costs to another deferral account and use a rate rider for recovery, FEI proposes to simply amortize this amount directly from the BVA into the delivery rates of non-bypass customers.

Page 53 of the 2013 Biomethane Decision states: "Nonetheless, the Commission Panel considers the need for transparency and an understanding of the true cost of the program to be of utmost importance."

40.1 Is the FEI proposal to transfer the difference between the average cost of the RNG supply and the CCRA rate multiplied by the volume of inventory directly from the BVA into the delivery rates of non-bypass customers, inconsistent with need for transparency? Please explain why, or why not.

Response:

FEI believes that this transfer is consistent with the need for transparency as outlined on Page 53 of the decision. That is, FEI will maintain the allocation of all costs associated with the program to the BVA account, which provides a true picture and understanding of the costs of the program as defined by the Commission. With respect to costs that may ultimately be transferred for recovery from non-RNG customers, the amortization of any amount from the BVA through delivery rates will be clearly identified on the financial schedules that support the calculation of delivery rates and will be reviewed by the Commission.

From a customer perspective, transparency does not present an issue regardless of whether there is a separate rate rider or the costs are recovered through amortization expense. This is because a rate rider is not typically a separate line item on the bill and is instead embedded in the applicable rate (i.e. Delivery Charge, Commodity Cost Recovery Charge or Storage and Transportation Charge) that appears on the customer's bill.

40.2 If the Commission directs FEI to comply with the directive to capture the difference between the average cost of the RNG supply and the CCRA rate multiplied by the volume of inventory in a separate deferral account to be recovered from all customers via a rate rider, please provide the following information: the carrying cost, amortization period, and the expiration date of the "Unsold Biomethane Premium" deferral account (UBPDA).

Response:

If the Commission were to direct the use of a separate deferral account and rate rider mechanism, FEI would propose a rate base deferral account with an amortization period of one year. To the extent that the RNG Program remains in place, this would be an ongoing account and thus there would not be an expiration date for this account.

40.2.1 Please calculate the 2015-2020 rate rider that would result from the amortization of the UBPDA. Please include a fully functional spreadsheet with the response.

Response:

As noted in the Application, a balance transferred to the UBPDA account from the BVA would be the result of any transfer of RNG supply to the MCRA. The volume of inventory would be transferred to the MCRA at the prevailing CCRA rate and would be recovered through Storage and Transport charges. Thus, the difference between the BERC rate and the CCRA rate associated with this transferred volume would still need to be recovered. In the Application, and as noted in the question preamble, FEI has proposed that this balance can simply be recovered through amortization expense which results in the same net effect of a rate rider while providing customers and the Commission with the transparency desired.

However, FEI has provided a forecast rate rider calculation below based on the forecast 2016 gross margin and volume forecasts from the Evidentiary Update to the Annual Review for 2016 Rates, which are subject to change. Please note that the rider is assumed not to apply in 2015 and that 2016, 2017 and 2018 riders are forecast to be zero as FEI has t forecast the first inventory transfer to occur on January 1, 2018. For purposes of this analysis, FEI has assumed that a one year lag may be appropriate such that the rate rider would be based on actual transfers rather than a forecast transfer. Please refer to Attachment 40.2.1 for the fully functional electronic excel spreadsheet.

Further, please also refer to the responses to BCOAPO 1.3.1 and 1.3.2 regarding the methodology for determining the potential rate rider.

Line	Particular	2016	2017	2018	2019	2020	Reference
1	Previous Year Quantity for Transfer to MCRA (GJ)	-	-	-	346,070	1,013,201	Appendix E, Schedule 3, Line 3
2	Proposed BERC rate	11.33	11.47	11.60	11.77	11.93	Appendix E, Schedule 2, Line 10
3	Forecast CCRA Rate ($/GJ)	2.83	2.97	3.10	3.27	3.43	Appendix E, Schedule 3, Line 4
4	Forecast Premium ($/GJ)	8.50	8.50	8.50	8.50	8.50	Line 2 - Line 3
5	Forecast Transfer to UBPDA ($000s)	-	-	-	2,942	8,612	Line 1 x Line 4
6	Tax Gross Up	-	-	-	1,034	3,026	When using a rate rider, must adjust for tax
7	Balance to be recovered via Rate Rider($000s)	-	-	-	3,975	11,638	

		2016 Non-Bypass Forecast								
8	Description	Gross Margin ($million)	Allocation % by Gross Margin	Volume (TJ)	2016 Forecast Rider ($/GJ)	2017 Forecast Rider ($/GJ)	2018 Forecast Rider ($/GJ)	2019 Forecast Rider ($/GJ)	2020 Forecast Rider ($/GJ)	
9	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
10		[1]		[1]						
11	Rate 1, 1B, 1U, 1X	446.966	60.8%	72,466.1	-	-	-	0.033	0.098	Column 3 x Line 5 / column 4
12	Rate 2, 2B, 2U, 2X	125.158	17.0%	28,012.1	-	-	-	0.024	0.071	Column 3 x Line 5 / column 4
13	Rate 3/23, 3B, 3U, 3X	92.558	12.6%	27,090.1	-	-	-	0.018	0.054	Column 3 x Line 5 / column 4
14	Rate 4	0.263	0.0%	129.9	-	-	-	0.011	0.032	Column 3 x Line 5 / column 4
15	Rate 5/25	37.055	5.0%	15,662.9	-	-	-	0.013	0.037	Column 3 x Line 5 / column 4
16	Rate 6	0.225	0.0%	46.8	-	-	-	0.026	0.076	Column 3 x Line 5 / column 4
17	Rate 7/27	10.314	1.4%	6,691.3	-	-	-	0.008	0.024	Column 3 x Line 5 / column 4
18	Rate 22	22.679	3.1%	25,117.8	-	-	-	0.005	0.014	Column 3 x Line 5 / column 4
19	Total	735.218	100.0%	175,217.0						

[1] Please note that the 2016 non-bypass forecast gross margin and volume in TJs has been adjusted to agree to the Evidentiary Update to the Annual Review for 2016 Rates

On page 53 of the Application, FEI states:

> Following the transfer of the notional aged inventory, depending on the level of demand, there may be unrecovered capital and operating costs for FEI-owned equipment and program overhead costs that remain in the BVA. As such, FEI proposes that to the extent prior year costs remain in the account they should be amortized through the delivery rates of non-bypass customers in the subsequent year.

40.3 Given that the 2013 Biomethane Decision directed that capital and operating costs for FEI-owned equipment and program overhead costs be recovered from biomethane customers, should the BERC recoveries be allocated first to capital and operating costs for FEI-owned equipment and program overhead costs and second to the unsold biomethane inventory? Please explain why or why not.

Response:

This response also addresses BCUC IR 1.40.3.1.

Amongst other items, the Commission in the 2013 Decision directed that, to the extent possible, all costs of the program be recovered from RNG customers.[27] Based on FEI's understanding, the Decision did not make a distinction as to the ranking of costs and their recovery.

FEI believes that allocating recoveries to offset capital and operating costs would not impact the potential balance in the BVA recovered from non-RNG customers. This is because the transfer and recovery through Storage and Transport rates is effectively limited by the quantity of notional inventory that is greater than 18 months old and the prevailing Commodity Cost Recovery Charge consistent with principles as outlined in Order G-210-13. However, if the intent of the proposed approach in the question was to disregard the limit that is placed on the transfer to the MCRA and instead limit the amount recovered from delivery rates in a given year to the net additions from operating and capital costs net of recoveries, the result would be to shift the recovery of costs from delivery rates to storage and transportation rates by approximately $7.4 million over the 2016-2020 period.

While FEI is open to either approach for the allocation of the remaining balance in the BVA, FEI notes that the MCRA is recovered from non-bypass sales customers, while any balance recovered through amortization expense (or rate riders) embedded in delivery rates is recovered from a larger pool of customers (i.e. non-bypass sales and transportation customers). Further, as shown in Line 30 below, the approach suggested in the question may result in biomethane costs transferred to the MCRA without any corresponding quantity of notional supply transferred.

Please refer to the table below and the fully functioning Excel spreadsheet included as Attachment 40.3. For purposes of this analysis, FEI has denoted costs into two categories - Non-Procurement and Procurement reflecting the operating, capital and other costs and the cost of the supply contracts respectively. Further, FEI has based the calculation on the updated financial analysis provided in the response to BCUC IR 1.31.1.

[27] Reasons for Decision Order G-210-13, Page iii, "The Panel is of the view that the fully allocated cost of the Biomethane Program should, where possible, be recovered through sales of biomethane at the BERC rate" and page 65 "Recording these costs in the BVA provides FEI with the opportunity to recover all of the Biomethane Program costs from biomethane customers and the Panel expects it will make every effort to do so."

$ Thousands unless otherwise stated

Line	Particular	2016	2017	2018	2019	2020	*Total*	Reference
1	Forecast Net of Tax Recoveries	1,391	1,603	1,755	1,905	2,060		Appendix E, Schedule 1, Line 21
2								
3	Opening BVA Balance (after-tax)	$ 1,221	$ 2,821	$ 7,511	$ 15,467	$ 20,896		Previous year, Line 18
4								
5	Non-Procurement Additions	1,869	2,634	4,827	4,949	5,069		Appendix E, Schedule 1 (Lines 5-7, 12, 13 and 15)
6	Tax Offset	(598)	(1,717)	(1,965)	(1,056)	(614)		Appendix E, Schedule 1 (Lines 5-7 x Tax Rate + Line 14)
7		1,271	918	2,862	3,893	4,455		Line 5 + Line 6
8	Less Recovery Offset	1,271	918	1,755	1,905	2,060		Max amount of Line 1 available to offset
9	Net Non-Procurement Additions	-	-	1,107	1,988	2,395		Line 7 - Line 8
10								
11	Procurement Additions	3,349	7,119	10,841	12,594	14,399		Appendix E, Schedule 1, Line 4
12	Tax Offset	(871)	(1,851)	(2,819)	(3,274)	(3,744)		Line 11 x Tax Rate
13		2,478	5,268	8,023	9,319	10,655		Line 11 + Line 12
14	Less Recovery Offset	120	685	-	-	-		Line 1 - Line 8
15	Net Procurement Additions	2,358	4,583	8,023	9,319	10,655		Line 13 - Line 14
16								
17	Closing BVA Balance (before Transfer)	$ 3,578	$ 7,404	$ 16,641	$ 26,774	$ 33,946		Line 3 + Line 9 + Line 15
18	Required Closing BVA Balance	$ 2,821	$ 7,511	$ 15,467	$ 20,896	$ 19,446		Appendix E, Schedule 1, Line 26
19	Balance Available for Transfer	$ 757	$ (107)	$ 1,174	$ 5,878	$ 14,500	***$ 22,202***	Line 17 - Line 18
20								
21	Inventory Available for Transfer (GJ)	-	-	346,070	1,013,201	1,450,737		Appendix E, Schedule 3, Line 3
22	Value of Inventory Available for Transfer	$ -	$ -	$ 1,073	$ 3,308	$ 4,970		Appendix E, Schedule 3, Line 5
23								
24	Allocation of Transfer as Proposed							
25	Delivery	$ 757	$ (107)	$ 101	$ 2,569	$ 9,530	***$ 12,851***	Line 19 - Line 26
26	Storage & Transportation	$ -	$ -	$ 1,073	$ 3,308	$ 4,970	***$ 9,352***	Line 22
27								
28	Allocation of Transfer with Delivery Limited and Offset by Recoveries							
29	Delivery	$ -	$ -	$ 1,107	$ 1,988	$ 2,395	***$ 5,490***	Line 9
30	Storage & Transportation	$ 757	$ (107)	$ 67	$ 3,890	$ 12,106	***$ 16,712***	Line 19 - Line 29
31								

40.3.1 Please revise Exhibit B-3, Attachment C, Tab BVA Forecast to allocate the BERC recoveries first to capital and operating costs for FEI-owned equipment and program overhead costs, and second to the unsold biomethane inventory. Please include a fully functional spreadsheet with the response.

Response:

Please refer to Attachment 40.3 provided in the response to BCUC IR 1.40.3.

40.4 Please explain how FEI proposes to collect and transfer the unrecovered capital and operating costs for FEI-owned equipment and program overhead costs that remain in the BVA (new deferral account/rate rider, manual journal entries, etc.).

Response:

Please refer to the response to BCUC IR 1.36.3.

The BVA would be credited by the amount to be recovered from all customers and correspondingly, the amortization expense embedded in the revenue requirement would be debited by the same amount for recovery through the delivery rates of all non-bypass customers.

This is the same approach that was taken for the recovery of the 2013 Biomethane Application costs that were recorded in the BVA and approved for recovery through the delivery rates of all customers.

40.4.1 Please calculate the rate rider that would be required to amortize the prior year costs that remain in the BVA account through the delivery rates of non-bypass customers in the subsequent year, for 2015-2020, by year. Please include a fully functional spreadsheet with the response.

Response:

FEI believes that the most efficient approach for recovery of this balance is amortization through delivery rates and, as discussed in the response to BCUC IR 1.40.1, FEI does not believe that use of a rate rider is necessary in this case.

However, FEI has provided forecast rate rider calculations below based on the forecast 2016 gross margin and volume forecasts from the Evidentiary Update to the Annual Review for 2016 Rates, which are subject to change. Please note that the rider is assumed not to apply in 2015. Please refer to Attachment 40.4.1 for the fully functional electronic excel spreadsheet.

1

Line	Particular	2016	2017	2018	2019	2020	Reference
1	Forecast Transfer to Delivery Rates($000s)	757	(107)	101	2,569	9,530	Appendix E, Schedule 1, Line 24
2	Tax Gross Up	266	(38)	36	903	3,348	When using a rate rider, must adjust for tax
3	Balance to be recovered via Rate Rider($000s)	1,023	(144)	137	3,472	12,879	
4							
5							

		2016 Non-Bypass Forecast								
6	Description	Gross Margin ($million)	Allocation % by Gross Margin	Volume (TJ)	2016 Forecast Rider ($/GJ)	2017 Forecast Rider ($/GJ)	2018 Forecast Rider ($/GJ)	2019 Forecast Rider ($/GJ)	2020 Forecast Rider ($/GJ)	
7	(1)	(2)	(3)	(4)	(3)	(4)	(5)	(6)	(7)	
8		[1]		[1]						
9	Rate 1, 1B, 1U, 1X	446.966	60.8%	72,466.1	0.009	(0.001)	0.001	0.029	0.108	Column 3 x Line 5 / column 4
10	Rate 2, 2B, 2U, 2X	125.158	17.0%	28,012.1	0.006	(0.001)	0.001	0.021	0.078	Column 3 x Line 5 / column 4
11	Rate 3/23, 3B, 3U, 3X	92.558	12.6%	27,090.1	0.005	(0.001)	0.001	0.016	0.060	Column 3 x Line 5 / column 4
12	Rate 4	0.263	0.0%	129.9	0.003	(0.000)	0.000	0.010	0.035	Column 3 x Line 5 / column 4
13	Rate 5/25	37.055	5.0%	15,662.9	0.003	(0.000)	0.000	0.011	0.041	Column 3 x Line 5 / column 4
14	Rate 6	0.225	0.0%	46.8	0.007	(0.001)	0.001	0.023	0.084	Column 3 x Line 5 / column 4
15	Rate 7/27	10.314	1.4%	6,691.3	0.002	(0.000)	0.000	0.007	0.027	Column 3 x Line 5 / column 4
16	Rate 22	22.679	3.1%	25,117.8	0.001	(0.000)	0.000	0.004	0.016	Column 3 x Line 5 / column 4
17	Total	735.218	100.0%	175,217.0						

[1] Please note that the 2016 non-bypass forecast gross margin and volume in TJs has been adjusted to agree to the Evidentiary Update to the Annual Review for 2016 Rates

2

3

H. CONTINUED OVERSIGHT OF THE RNG PROGRAM

41.0 Reference: PROPOSAL

Exhibit B-1, Section 1.2, p. 3; Section 7.3, p. 48;

2013 Biomethane Decision, p. 68

Regulatory review process

Included as item 3 on the list of approvals sought on page 3 of the Application is the following:

> Approval to discontinue the quarterly BERC and BVA report and replace it with a single annual report in conjunction with the Fourth Quarter CCRA & MCRA report.

Item 5 in this list describes the possible transfer of volumes from the BVA to the MCRA.

On page 48 of the Application, FEI discusses the possible need for additional mid-year transfers of inventory from the BVA to the MCRA and notes that FEI would make application to the Commission for approval to do so stating in a footnote that "[t]his may be in the form of a letter to the Commission or as part of the Quarterly Gas Cost Review Process."

In the 2013 Biomethane Decision on page 68, the Commission discusses the reporting and regulatory approval process and states:

> The Panel is of the view the BVA review and rate setting process should not be included as part of the quarterly gas cost reporting and rate setting for the MCRA as these are reviewed on an expedited basis to accommodate the inclusion of timely forward market price information in the CCRA and MCRA. **Accordingly, the Panel directs FEI to file the quarterly BVA Report by the 15th of the month preceding the final month of the quarter.**

41.1 When FEI describes reporting or applications for approval as being "in conjunction with the Fourth Quarter CCRA &MCRA report" or "as part of the Quarterly Gas Cost Review Process", does FEI intend that the subject BVA and BERC report or inventory transfer application would be filed at the same time as the quarterly CCRA and MCRA gas cost reports and be reviewed on the same expedited timeline?

Response:

This response also addresses BCUC IR 1.41.1.1 and 1.41.1.2.

As the proposed BERC rate setting methodology is linked to the CCRA rate, and because the inventory transfer affects the forecast MCRA costs for the upcoming year, it is FEI's intention to file for approval of the BERC rate at the same time as the fourth quarter CCRA and MCRA gas cost reports.

The Decision that the quarterly BVA Report was to be filed by the 15th day of the month preceding the final month of the quarter was made in consideration of a BERC rate that was cost based. Thus, a full review of the forecast costs and expected supply projects would be required in advance of approval of the rate, which may not be possible in the time frame set out for the Quarterly Gas Cost Review Process.

If the proposal is approved as applied for, FEI believes that it would not hamper the Fourth Quarter Gas Cost Review Process because FEI expects that the approvals sought related to the BERC rate in the quarterly proceeding will be relatively straightforward. That is, the BERC rate effective January 1 would simply become the approved Commodity Cost Recovery Charge plus the approved BERC premium. Further, the transfer to the MCRA would be approved in principle with the value of the transfer calculated in accordance with the Commission's Decision in this proceeding. With respect to the relative impact on the MCRA balance and the magnitude of the change in the Storage and Transportation rate that arises from the fourth quarter review of the MCRA, the average forecast impact over the five year period of the proposed transfer is approximately $0.02 per GJ which compares to the current approved Storage and Transport Charge for a Residential customer of $1.398 (or approximately 1.4% of the Storage and Transport Charge).

Finally, FEI will continue to file the annual status report for the BVA, which will include details on the costs and recoveries recorded in the BVA.

41.1.1 If so, please reconcile this with the views expressed by the Commission in the 2013 Biomethane Decision and explain the need for combining the subject BERC rate report and/or inventory transfer application with the subject CCRA/MCRA quarterly gas cost report rather than filing separately and in advance of the CCRA/MCRA quarterly gas cost report.

Response:

Please refer to the response to BCUC IR 1.41.1.

41.1.2 Please discuss the timing of the review and approval of transfers of inventory from the BVA to the MCRA taking into account the information included in the MCRA report in regard to the transfer of biomethane inventory, the relative impact on the MCRA balance and the magnitude of the change in the Storage and Transportation rate that arises from the fourth quarter review of the MCRA.

Response:

Please refer to the response to BCUC IR 1.41.1.

41.1.2.1 Please discuss the merits of filing reports on the BVA and BERC at other times of the year including April 30 with the annual BVA Status Report, mid-year and a specified length of time such as one month in advance of the fourth quarter CCRA/MCRA gas cost report.

Response:

For the reasons outlined in the response to BCUC IR 1.41.1, FEI believes that the most efficient approach is to set the BERC rate in conjunction with the Fourth Quarter Gas Cost Reporting Process. However, FEI is amenable to other timing for the annual resetting of the BERC rate with a preference for the rate to be set once a year, and because of the relationship with the Commodity Cost Recovery Charge, aligned as much as possible with the timing of one of the Quarterly Gas Cost Review Processes.

41.1.3 Given that RNG customers are impacted by the transfer of inventory, please discuss the need to provide the opportunity for a broader public review of a request to transfer inventory than is afforded when the approval is sought in “the form of a letter to the Commission or as part of the Quarterly Gas Cost Review Process.”

Response:

FEI believes that the broader public review occurring as a part of this proceeding is the opportunity for those impacted by the potential transfer of notional inventory to provide their input. As discussed in the response to BCUC IR 1.41.1, FEI believes that through this Application the Commission will set the parameters for this transfer and FEI will conduct the MCRA transfer in accordance with the Commission's decision.

FEI does not expect the need to conduct a mid-year transfer; however, if such a transfer was required it would also meet the parameters set in accordance with the Commission's decision.

FEI believes that this provides for an efficient regulatory review of the potential MCRA transfer(s) while maintaining Commission oversight.

42.0 Reference: CONCLUSION AND CONTINUED OVERSIGHT OF THE RNG PROGRAM

Exhibit B-1, Section 10, p. 54;

Ongoing evaluation and potential off-ramps

FEI states it will continue to seek approval of the BERC rates through its fourth quarter gas cost reports but does not appear to specifically contemplate a broader review of the effectiveness of the approved market rate with regard to achieving the stated objectives.

42.1 Please discuss the means by which FEI will determine that the premiums approved for the new BERC rate methodology have been effective in achieving the objectives of this Application.

Response:

FEI believes that there are three key factors to monitor.

First, FEI intends to continue to monitor customer enrollment and RNG demand. If enrollment reaches FEI's original goals of approximately a 2% customer uptake, FEI would consider the methodology as effective.

Second, securing a minimum of one Long Term Contract and entering into negotiations for more contracts would also indicate that the new methodology has been successful.

Thirdly, FEI will monitor the requirement for transfers of unsold RNG to the MCRA. In the event that transfers are not required, this would be another indication that the revisions to the rate methodology have been effective.

42.2 Please describe the merits of a scheduled reporting and/or review of to evaluate the effectiveness of the approved market BERC rate with regard to achieving the stated objectives at a pre-determined date in the future such as two years after implementation.

Response:

For clarity, FEI is not proposing to eliminate an annual report. Instead, FEI is proposing that the BERC rate setting be done in conjunction with the fourth quarter gas cost reports and that the annual BVA Status Report continues. Thus, FEI does not believe that a pre-determined date in the future to review the RNG Program as suggested in the question is necessary at this time.

42.3 Please describe the criteria that should be used to determine when a re-evaluation of the approved market BERC rate should be undertaken.

Response:

FEI would consider a potential change to the BERC rate under circumstances including (but not limited to):

1. Continued and persistent customer de-enrollment
2. Continued and persistent over-demand (enrollment beyond current supply levels)
3. Significantly lower supply costs
4. Relative price of alternative energy is significantly reduced or increased

42.4 Please discuss the extent to which certain events should trigger an automatic review of the approved market BERC rate, including a discussion of each of the following:

Response:

FEI does not believe that an automatic review mechanism is required. There are many factors that can or may influence the success of the RNG Program, including (but not limited to) the factors listed in the questions in BCUC IR 1.42.4.1, 42.4.2, 42.4.3, and 42.4.4, and it is therefore difficult to predict what future event would require a Commission review of the BERC rate , beyond the quarterly rate review and the annual review as proposed in the Application. If and when such an event occurs, FEI will analyze and if appropriate apply to the Commission for a change in the RNG Program, as the Company did in this Application.

42.4.1 A change in the carbon tax

Response:

Please refer to the response to BCUC IR 1.42.4.

42.4.2 A change in the carbon tax program

Response:

Please refer to the response to BCUC IR 1.42.4.

42.4.3 An inability for FEI to contract sufficient RNG supply to meet demand

Response:

Please refer to the response to BCUC IR 1.42.4.

42.4.4 A level of uptake of RNG by customers outside a pre-determined band with a thresholds on either or both the low end and the high end

Response:

Please refer to the response to BCUC IR 1.42.4.

43.0 Reference: PROPOSAL

Exhibit B-1, Section 7.4, p. 48;

2013 Biomethane Decision, p. 93

Increase in customer education and awareness spending

On page 48 of the Application, FEI states: "Thus, FEI will resume customer awareness and education spending to $300 thousand per year, commencing January 1, 2016."

Page 93 of the 2013 Biomethane Decision states:

> …an additional 8,423 customers are added as has been projected (13,200 projected customers – 4,777 existing customers) over the next five years at a cost of $1.5 million ($300,000 x 5), the average cost per acquisition would be $178.08 per customer.
>
> … If a private enterprise faced such conversion costs, it would likely withdraw from the business. Greater focus on more productive customer segments like those of emerging markets will likely produce far more cost effective results.

43.1 For 2015-2020, please provide a breakdown of the increased awareness and education spending by year and rate class. Please include a fully functional spreadsheet with the response.

Response:

The 2015 projected total and 2016-2020 increase in awareness and education spending of $125 thousand is shown below. Consistent with BCUC IR 1.9.1, 60% of spend is allocated to residential and 40% is allocated to commercial. Please refer to the following table and Attachment 43.1 for the fully functional spreadsheet. Each of the years 2016 to 2020 is the increase to the base of 2015.

Increase in RNG Program Marketing Costs

Spend Category	2015 (Total Projected)	2016 Increase	2017 Increase	2018 Increase	2019 increase	2020 increase
Customer Education - Residential	$ 105,000	$ 180,000	$ 183,600	$ 187,200	$ 190,800	$ 195,000
Custome Education - Commercial	$ 70,000	$ 120,000	$ 122,400	$ 124,800	$ 127,200	$ 130,000
RNG Program Marketing - Total	$ 175,000	$ 300,000	$ 306,000	$ 312,000	$ 318,000	$ 325,000

43.2 For 2015-2020, please provide the expected increase in customer additions resulting from the increased awareness and education spending, and the

average cost per customer acquisition by year and rate class. Please include a fully functional spreadsheet with the response.

Response:

As noted in BCUC IR 1.8.1, customer awareness and education serves a number of purposes including informing and educating FEI's existing nearly one million customers of the RNG offering, retaining existing RNG customers, increasing RNG consumption from existing RNG customers and lastly acquiring new RNG customers. As shown in the customer addition charts included in the Application, customers are also affected by price when considering participating in the program. Therefore marketing expenditures should not be considered as the sole means to impact customer additions.

As such, it is difficult to directly attribute additional customer acquisition to additional marketing spend or to arrive at an acquisition cost per customer.

Please also refer to the response to CEC IR 1.3.1.

Awareness & Education Spend - Customer Additions

Customer Category	Year					
Residential	2015 (Total Projected)	2016	2017	2018	2019	2020
Increase in Customer Additions	886	1200	1200	1200	1400	1400
Customer Education ($)	$105,000	$180,000	$183,600	$187,200	$190,800	$195,000

Customer Category	Year					
Commercial	2015 (Total Projected)	2016	2017	2018	2019	2020
Increase in Customer Additions	17	30	20	20	20	20
Customer Education ($)	$ 70,000	$120,000	$122,400	$124,800	$127,200	$130,000

FEI assumes the following:

- Allocation between Residential and Commercial customers based on the approximate split of 60/40 as discussed in the response to BCUC IR 1.9.1
- The increase in customer additions is based on the approval of the proposed BERC rate methodology
- As a reference point, 2015 total additions are included in the tables.

43.3 For 2015-2020, please provide the expected increase in sales (GJ) resulting from the increased awareness and education spending, and the average cost per GJ acquired by year and rate class. Please include a fully functional spreadsheet with the response.

Response:

The increase in volume assumed in the Application is a result of both price changes and an expected increase in customer awareness and education spending. It is not possible to determine the increase in volume attributable to customer awareness alone as noted in BCUC IR 1.43.2. Please see Schedule 2 of the Evidentiary Update for expected sales volumes as a result of the change proposed in the application.

43.4 For 2015-2020, please discuss FEI's plans, if any, to focus on more productive customer segments like those of emerging markets.

Response:

FEI will continue broadly educate and inform the market as well as target customer segments within the residential, commercial and industrial rate classes as is already the current approach with customers. In addition, FEI will focus on large commercial customers with interest in Long Term Contracts.

More specifically, within the commercial and industrial rate classes, FEI intends to continue to target companies and organizations that:

1. Have an internal sustainable agenda or mandate such as companies selling or promoting green products and services, or those voluntarily trying to reduce their greenhouse gas emissions.
2. Are mandated to reduce their greenhouse gas emissions such as public sector organizations, universities and municipalities.
3. Want to produce their own green power (such as UBC).

FEI also intends to put further resources into exploring new commercial markets, specifically:

1. The natural gas for transportation market.
2. The green building market.

43.5 How does FEI measure the cost effectiveness of its Customer Education and Awareness Spending?

Response:

FEI looks at cost effectiveness based on the total cost of each wave of marketing and the website traffic flows and the number of customer acquisitions during that period and the following few months. To understand whether customers are becoming more aware of the program, survey research included in the Application and focus group research included in response to BCUC IR 1.10.1 provide some insight into customer awareness levels.

43.6 Given the concerns regarding the average cost per customer acquisition, should a maximum threshold for customer acquisition costs be established? Please explain why, or why not.

Response:

FEI does not believe that there are or should be concerns regarding the costs to acquire customer and does not believe that a maximum threshold for customer acquisition costs should be established.

FEI's customer education and awareness spending levels since 2011 have been relatively modest and consistent and do not indicate any pattern of overspending. As FEI has consistently emphasized, customer communications is critical to the success of the RNG Program. Educating and informing approximately one million customers about a new program requires resources. Given the complexities of the RNG offering, the current RNG price and other external factors, FEI believes that it has done well with the resources it has had to implement the program. Further, FEI has demonstrated that it appropriately considers the costs and impacts of its customer education and awareness spending, having reduced its spending in 2014 due to the impacts on the BERC rate.

Pursuant to current practice, customer awareness and education spending will continue to be captured in the BVA on an as-spent basis, the total forecast O&M associated with the RNG

Program will continue to be identified in the Annual Review for delivery rates[28] and the actual additions to the BVA will be reviewed in the Annual Status Report pertaining to the BVA. FEI believes these mechanisms provide the appropriate mechanisms for the Commission to review and approve customer education and awareness spending. The mechanisms will allow the appropriate level of spending to be reviewed based on the most recent information available, which is superior to predetermining a cap at this time. As such, FEI sees no need for the Commission to set a maximum threshold for customer acquisition costs.

[28] FEI Annual Review for 2016 Rates, Section 6.3.3 and Section 11, Schedule 21.

44.0 Reference: CURRENT CHALLENGES

Exhibit B-1, Section 4.1.2, p. 24

Increase in customer education and awareness spending

On page 24 of the Application, FEI states:

> The notable spike in sales in the final quarter of 2013 is attributable to FEI temporarily allocating a sales person to undertake a commercial sales push, indicating that the additional expenditure may have had a positive impact on demand.

44.1 Please provide the cost of sales person to conduct the commercial sales push.

Response:

The cost of the salesperson for a 6 month contract was approximately $40,000.

44.2 Given the success of the 2013 commercial sales push, has FEI considered conducting another commercial sales push in the future? Please explain why, or why not.

Response:

The initial sales push was successful as noted in the question. The initial push was a concentrated effort through one primary staff member. FEI has continued its "sales push" efforts with its commercial customers since that time. That is, since that effort, all Commercial and Industrial Account Managers are now responsible for attracting RNG customers.

Attachment 4.1.1

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 Fee	Means the applicable fees as set out in the Standard Fees and 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 down 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,11B for Large Volume Interruptible Biomethane Service, 30 for Off-System Interruptible Biomethane Sales, or applicable tariff supplement.
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 (a) any commission that is a successor to such commission, and (b) any commission that is constituted pursuant to any statute that may be passed which supplements or supersedes the *Utilities Commission Act* of British Columbia
Carbon Offsets	Means what FortisBC Energy will purchase as a mechanism to balance demand-supply for Biomethane in the event of an undersupply of Biomethane in order to retain the greenhouse gas reductions that Customers would have received from Biomethane supply. One Carbon Offset represents the reduction of one metric ton of carbon dioxide or its equivalent in other greenhouse gases.

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28. Biomethane Service

28.1 Notional Gas

Customers agree and 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 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 agree and 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 and 5B, agree that in the event that Biomethane production does not provide sufficient gas supply, FortisBC Energy may purchase Carbon Offsets in an amount equivalent to the greenhouse gas reduction that would have been achieved through Biomethane supply, and 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 tariff supplement.

(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 and Rate Schedule 5B, the cost of Biomethane will be the sum of:

(i) the applicable British Columbia Utilities Commission approved Commodity Cost Recovery Charge per Gigajoule;

(ii) the current applicable British Columbia carbon tax applicable to Gas per Gigajoule; and

(iii) a premium of $7.00 per Gigajoule.

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(b) For those Customers who have entered into a Service Agreement with FortisBC Energy for Biomethane under an applicable tariff supplement, the cost of Biomethane will be the sum of:

(i) the applicable British Columbia Utilities Commission approved Commodity Cost Recovery Charge per Gigajoule;

(ii) the current applicable British Columbia carbon tax applicable to Gas per Gigajoule; and

(iii) a premium of $6.00 per Gigajoule.

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 conventionally sourced Gas elected by the Customer and determined by FortisBC Energy. Applicable Rate Schedules will be reviewed and updated quarterly with regard to the price of both conventionally sourced Gas and 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 or Rate Schedule 5B, the following terms and conditions will apply:

(a) **Notice** – the Customer will 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.

(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 or Rate Schedule 5B. FortisBC Energy will use reasonable efforts to switch Customers to Rate Schedule 1B, Rate Schedule 2B, Rate Schedule 3B or Rate Schedule 5B in a timely manner. However, Rate Schedule 1B, Rate Schedule 2B, Rate Schedule 3B or Rate Schedule 5B 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 or Rate Schedule 5B until five (5) weeks after their registration date.

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(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 shall 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.

(h) **Program Termination** – FortisBC Energy reserves the right to remove and/or terminate Customers from Biomethane Service at any time.

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Attachment 4.4

28. Biomethane Service

28.1 Notional Gas

Customers agree and 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 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 agree and 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 and 5B, agree that in the event that Biomethane production does not provide sufficient gas supply, FortisBC Energy may purchase Carbon Offsets in an amount equivalent to the greenhouse gas reduction that would have been achieved through Biomethane supply, and 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. The cost of Biomethane will be based on the cost of acquiring Biomethane, including, but not limited to commodity, production, infrastructure, equipment and operating costs required to deliver pipeline quality Gas.

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 conventionally sourced Gas elected by the Customer and determined by FortisBC Energy. Applicable Rate Schedules will be reviewed and updated quarterly with regard to the price of both conventionally sourced Gas and 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 or Rate Schedule 5B, the following terms and conditions will apply:

(a) **Notice** – the Customer will 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.

(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 or Rate Schedule 5B. FortisBC Energy will use reasonable efforts to switch Customers to Rate Schedule 1B, Rate Schedule 2B, Rate Schedule 3B or Rate Schedule 5B in a timely manner. However, Rate Schedule 1B, Rate Schedule 2B, Rate Schedule 3B or Rate Schedule 5B 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 or Rate Schedule 5B 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 shall 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.

(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 1B

RESIDENTIAL BIOMETHANE SERVICE

Rate Schedule 1B: Residential Biomethane Service

Available

This Rate Schedule is available in all territory served by FortisBC Energy, with the exception of the Municipality of Revelstoke, provided adequate capacity exists in FortisBC Energy's system. C/O

Applicable

This Rate Schedule is applicable to firm Gas supplied at one 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. Customers who are currently enrolled in Commodity Unbundling Service under Rate Schedule 1U are ineligible to enrol until their existing contract term with their gas marketer expires.

Table of Charges

	Mainland Service Area	Vancouver Island Service Area	Whistler Service Area	
Delivery Margin Related Charges				
1. **Basic Charge** per Day	**$ 0.3890**	**$ 0.3890**	**$ 0.3890**	
2. Delivery Charge per Gigajoule	$ 4.258	$ 4.258	$ 4.258	A
3. Rider 2 per Gigajoule	$ (0.265)	$ 2.525	$ 4.771	
4. Rider 3 per Gigajoule	$ (0.030)	$ 0.000	$ 0.000	N
5. Rider 4 per Gigajoule	$ (0.347)	$ 0.000	$ 0.000	
6. Rider 5 per Gigajoule	$ (0.057)	$ (0.057)	$ (0.057)	
Subtotal of per Gigajoule **Delivery** Margin Related Charges	**$ 3.559**	**$ 6.726**	**$ 8.972**	A
Commodity Related Charges				
7. Storage and Transport per Gigajoule	$ 1.398	$ 1.398	$ 1.398	
8. Rider 6 per Gigajoule	$ (0.064)	$ (0.064)	$ (0.064)	
Subtotal of per Gigajoule **Storage and Transport** Related Charges	**$ 1.334**	**$ 1.334**	**$ 1.334**	
9. **Cost of Gas**[1] (Commodity Cost Recovery Charge) per Gigajoule	**$ 2.486**	**$ 2.486**	**$ 2.486**	
10. **Cost of Biomethane**[2] (Biomethane Energy Recovery Charge) per Gigajoule	**$ 14.414**	**$ 14.414**	**$ 14.414**	

Delivery Margin Related Riders

Rider 2 **Phase-in Rider Balancing Account** - Applicable to Mainland, Vancouver Island and Whistler Service Area Customers for the Year ending December 31, 2015.

Rider 3 **Earnings Sharing Mechanism** - Applicable to Mainland Service Area Customers for the Year ending December 31, 2015. C/N

Rider 4 **Rate Stabilization Deferral Account** - Applicable to Mainland Service Area Customers for the Year ending December 31, 2015.

Rider 5 **Revenue Stabilization Adjustment Charge** - Applicable to Mainland, Vancouver Island and Whistler Service Area Customers for the Year ending December 31, 2015.

Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland, Vancouver Island and Whistler Service Area Customers, excluding Revelstoke, for the Year ending December 31, 2015.

Rider 8 (Reserved for future use.)

Franchise Fee Charge

A Franchise Fee Charge of 3.09% of the aggregate of the above charges, including the Commodity Cost Recovery 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*) to which FortisBC Energy pays Franchise Fees.

Minimum Charge per Month

The minimum charge per Month will be the aggregate of the Basic Charge and the Franchise Fee Charge.

Permanent Rate Establishment

Pursuant to British Columbia Utilities Commission Order G-178-14, FortisBC Energy Inc. delivery rates were made interim effective January 1, 2015. Pursuant to British Columbia Utilities Commission Orders G-86-15 and G-106-15, the FortisBC Energy Inc. interim delivery rates are made permanent effective January 1, 2015 and implemented August 1, 2015. The difference between interim and permanent rates that occurred between January 1, 2015 and July 31, 2015 will be dealt with by way of a bill adjustment. C/N

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 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 based 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%.

2. Biomethane is acquired from a variety of sources and the Cost of Biomethane includes costs of acquiring Biomethane, including commodity, production, infrastructure, equipment and operating costs required to delivery system-quality methane gas. 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.

FORTISBC ENERGY INC.

RATE SCHEDULE 2B

SMALL COMMERCIAL BIOMETHANE SERVICE

Rate Schedule 2B: Small Commercial Biomethane Service

Available

This Rate Schedule is available in all territory served by FortisBC Energy, with the exception of the Municipality of Revelstoke, provided adequate capacity exists in FortisBC Energy's system. C/O

Applicable

This Rate Schedule is applicable to Customers 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. 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 gas marketer expires.

Table of Charges

	Mainland Service Area	Vancouver Island Service Area	Whistler Service Area	
Delivery Margin Related Charges				
1. **Basic Charge** per Day	**$ 0.8161**	**$ 0.8161**	**$ 0.8161**	
2. Delivery Charge per Gigajoule	$ 3.442	$ 3.442	$ 3.442	A
3. Rider 2 per Gigajoule	$ (0.191)	$ 2.867	$ 5.254	
4. Rider 3 per Gigajoule	$ (0.022)	$ 0.000	$ 0.000	N
5. Rider 4 per Gigajoule	$ (0.251)	$ 0.000	$ 0.000	
6. Rider 5 per Gigajoule	$ (0.057)	$ (0.057)	$ (0.057)	
Subtotal of per Gigajoule **Delivery** Margin Related Charges	**$ 2.921**	**$ 6.252**	**$ 8.639**	A
Commodity Related Charges				
7. Storage and Transport per Gigajoule	$ 1.397	$ 1.397	$ 1.397	
8. Rider 6 per Gigajoule	$ (0.063)	$ (0.063)	$ (0.063)	
Subtotal of per Gigajoule **Storage and Transport** Related Charges	**$ 1.334**	**$ 1.334**	**$ 1.334**	
9. **Cost of Gas**[1] (Commodity Cost Recovery Charge) per Gigajoule	$ 2.486	$ 2.486	$ 2.486	
10. **Cost of Biomethane**[2] (Biomethane Energy Recovery Charge) per Gigajoule	$ 14.414	$ 14.414	$ 14.414	

Delivery Margin Related Riders

Rider 2 **Phase-in Rider Balancing Account** - Applicable to Mainland, Vancouver Island and Whistler Service Area Customers for the Year ending December 31, 2015.

Rider 3 **Earnings Sharing Mechanism** - Applicable to Mainland Service Area Customers for the Year ending December 31, 2015. C/N

Rider 4 **Rate Stabilization Deferral Account** - Applicable to Mainland Service Area Customers for the Year ending December 31, 2015.

Rider 5 **Revenue Stabilization Adjustment Charge** - Applicable to Mainland, Vancouver Island and Whistler Service Area Customers for the Year ending December 31, 2015.

Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland, Vancouver Island and Whistler Service Area Customers, excluding Revelstoke, for the Year ending December 31, 2015.

Rider 8 (Reserved for future use.)

Franchise Fee Charge

A Franchise Fee Charge of 3.09% of the aggregate of the above charges, including the Commodity Cost Recovery 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*) to which FortisBC Energy pays Franchise Fees.

Minimum Charge per Month

The minimum charge per Month will be the aggregate of the Basic Charge and the Franchise Fee Charge.

Permanent Rate Establishment

Pursuant to British Columbia Utilities Commission Order G-178-14, FortisBC Energy Inc. delivery rates were made interim effective January 1, 2015. Pursuant to British Columbia Utilities Commission Orders G-86-15 and G-106-15, the FortisBC Energy Inc. interim delivery rates are made permanent effective January 1, 2015 and implemented August 1, 2015. The difference between interim and permanent rates that occurred between January 1, 2015 and July 31, 2015 will be dealt with by way of a bill adjustment. C/N

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 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%.

2. Biomethane is acquired from a variety of sources and the Cost of Biomethane includes costs of acquiring Biomethane, including commodity, production, infrastructure, equipment and operating costs required to delivery system-quality methane gas. 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.

FORTISBC ENERGY INC.

RATE SCHEDULE 3B

LARGE COMMERCIAL BIOMETHANE SERVICE

Rate Schedule 3B: Large Commercial Biomethane Service

Available

This Rate Schedule is available in all territory served by FortisBC Energy, with the exception of the Municipality of Revelstoke, provided adequate capacity exists in FortisBC Energy system. C/O

Applicable

This Rate Schedule is applicable to Customers 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. 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 gas marketer expires.

Table of Charges

	Mainland Service Area	Vancouver Island Service Area	Whistler Service Area	
Delivery Margin Related Charges				
1. **Basic Charge** per Day	**$ 4.3538**	**$ 4.3538**	**$ 4.3538**	
2. Delivery Charge per Gigajoule	$ 2.877	$ 2.877	$ 2.877	A
3. Rider 2 per Gigajoule	$ (0.159)	$ 1.617	$ 4.204	
4. Rider 3 per Gigajoule	$ (0.017)	$ 0.000	$ 0.000	N
5. Rider 4 per Gigajoule	$ (0.208)	$ 0.000	$ 0.000	
6. Rider 5 per Gigajoule	$ (0.057)	$ (0.057)	$ (0.057)	
Subtotal of per Gigajoule **Delivery** Margin Related Charges	**$ 2.436**	**$ 4.437**	**$ 7.024**	A
Commodity Related Charges				
7. Storage and Transport per Gigajoule	$ 1.167	$ 1.167	$ 1.167	
8. Rider 6 per Gigajoule	$ (0.053)	$ (0.053)	$ (0.053)	
Subtotal of per Gigajoule **Storage and Transport** Related Charges	**$ 1.114**	**$ 1.114**	**$ 1.114**	
9. **Cost of Gas**[1] (Commodity Cost Recovery Charge) per Gigajoule	$ 2.486	$ 2.486	$ 2.486	
10. **Cost of Biomethane**[2] (Biomethane Energy Recovery Charge) per Gigajoule	$ 14.414	$ 14.414	$ 14.414	

Delivery Margin Related Riders

Rider 2 **Phase-in Rider Balancing Account** - Applicable to Mainland, Vancouver Island and Whistler Service Area Customers for the Year ending December 31, 2015.

Rider 3 **Earnings Sharing Mechanism** - Applicable to Mainland Service Area Customers for the Year ending December 31, 2015. C/N

Rider 4 **Rate Stabilization Deferral Account** - Applicable to Mainland Service Area Customers for the Year ending December 31, 2015.

Rider 5 **Revenue Stabilization Adjustment Charge** - Applicable to Mainland, Vancouver Island and Whistler Service Area Customers for the Year ending December 31, 2015.

Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland, Vancouver Island and Whistler Service Area Customers, excluding Revelstoke, for the Year ending December 31, 2015.

Rider 8 (Reserved for future use.)

Franchise Fee Charge

A Franchise Fee Charge of 3.09% of the aggregate of the above charges, including the Commodity Cost Recovery 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*) to which FortisBC Energy pays Franchise Fees.

Minimum Charge per Month

The minimum charge per Month will be the aggregate of the Basic Charge and the Franchise Fee Charge.

Permanent Rate Establishment

Pursuant to British Columbia Utilities Commission Order G-178-14, FortisBC Energy Inc. delivery rates were made interim effective January 1, 2015. Pursuant to British Columbia Utilities Commission Orders G-86-15 and G-106-15, the FortisBC Energy Inc. interim delivery rates are made permanent effective January 1, 2015 and implemented August 1, 2015. The difference between interim and permanent rates that occurred between January 1, 2015 and July 31, 2015 will be dealt with by way of a bill adjustment. C/N

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 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 based 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%.

2. Biomethane is acquired from a variety of sources and the Cost of Biomethane includes costs of acquiring Biomethane, including commodity, production, infrastructure, equipment and operating costs required to delivery system-quality methane gas. 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.

FORTISBC ENERGY INC.

RATE SCHEDULE 5B

GENERAL FIRM BIOMETHANE SERVICE

Effective August 1, 2014

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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) **Commencement Date** - means the day specified as the Commencement Date in the Service Agreement.

(b) **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.

(c) **Customer** - means a person who enters into a Service Agreement with FortisBC Energy.

(d) **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.

(e) **Delivery Point** - means the point specified in a Service Agreement where FortisBC Energy delivers Gas to a Customer.

(f) **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.

(g) **Month** - means, subject to any changes from time to time required by FortisBC Energy, the period beginning at 7:00 a.m. Pacific Standard Time on the first day of the calendar month and ending at 7:00 a.m. Pacific Standard Time on the first day of the next succeeding calendar month.

(h) **Pacific Clock Time** - means Pacific Standard Time or Daylight Savings Time as it applies in Surrey, British Columbia.

(i) **Rate Schedule 5B 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.

(j) **Service Agreement** - means an agreement between FortisBC Energy and a Customer to provide service pursuant to this Rate Schedule.

(k) **Supplier** - means a party who sells Gas to FortisBC Energy.

(l) **Table of Charges** - means the table of prices, fees and charges, as amended from time to time by FortisBC Energy with the consent of the British Columbia Utilities Commission, appended to this Rate Schedule.

(m) **Transporter** - means, in the case of the Columbia service area, TransCanada PipeLines Limited, B.C. System, and Nova Gas Transmission Ltd., and in the case of the Inland and Lower Mainland service areas, Westcoast Energy Inc., FortisBC Huntingdon Inc., and any other gas pipeline transportation company connected to the facilities of FortisBC Energy from which FortisBC Energy receives Gas for the purposes of Gas service or resale.

(n) **Transporter's Service Terms** - means the general terms and conditions of the applicable Transporter, as filed with and approved from time to time by the National Energy Board or other applicable governmental authority.

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 term of the Service Agreement will be similarly adjusted.

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. 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), 13 (Force Majeure) and the General Terms and Conditions of FortisBC Energy.

2.2 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 Service

3.1 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

(a) the Customer has entered into a General Firm Service Agreement (Service Agreement);

(b) adequate Gas volumes for such service are available;

(c) adequate capacity exists on the FortisBC Energy System;

(d) the Customer purchases under this Rate Schedule all of the Gas required for its facilities specified in the Service Agreement; and

(e) FortisBC Energy has installed at the Delivery Point the facilities and equipment referred to in section 8.1 (Facilities and Equipment).

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Customers who are currently disconnected are not eligible to enrol.

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 Service 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 Service 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.

3.3 **Warning Relating to Interruptible Transportation Service or Interruptible Sales**

A Customer wishing to switch at the end of the term of an interruptible Transportation Agreement or an interruptible Gas Service Agreement to firm Gas service under this Rate Schedule must

(a) give 12 months prior notice to FortisBC Energy of the Customer's desire to do so; and

(b) after receiving an estimate from FortisBC Energy of costs FortisBC Energy will reasonably incur to provide such service, agree to reimburse FortisBC Energy for any such cost.

Notwithstanding section 3.3(a), FortisBC Energy will make reasonable efforts to accommodate a Customer on less than 12 months prior notice if FortisBC Energy is able, with such shorter notice, to arrange for the firm purchase and transportation of Gas for sales under this Rate Schedule.

4. Sales

4.1 **Sale of Gas**

Subject to section 13 of the General Terms and Conditions of FortisBC Energy (Interruption of Service), FortisBC Energy will sell to the Customer and the Customer will buy from FortisBC Energy at the Delivery Point such quantity of Gas as is required by the Customer for the operation of the Customer's facilities specified in the Service Agreement, estimated to be the maximum quantity per Day set out in the Service Agreement, for the charges and on all of the terms and conditions set out in either this Rate Schedule or the Service Agreement.

4.2 **Maximum Hourly Quantities**

FortisBC Energy will not be obliged to deliver in any one Hour more than 5% of the maximum quantity per Day set out in the Service Agreement.

4.3 **Gas Pressure**

Where specifically requested by the Customer, FortisBC Energy may agree to deliver Gas to the Customer at the Delivery Point at a minimum pressure specified in the Customer's Service Agreement. The Customer will reimburse FortisBC Energy for costs it reasonably incurs in maintaining such minimum pressure above that set out in the General Terms and Conditions of FortisBC Energy. FortisBC Energy's ability to maintain a minimum pressure at the Delivery Point is subject to FortisBC Energy receiving Gas from the Transporter at the pressure specified in the Transporter's Service Terms.

5. Table of Charges

5.1 **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.

6. Term of Service Agreement

6.1 **Term**

The initial term of the Service Agreement will begin on the Commencement Date and will expire at 7:00 a.m. Pacific Standard Time on the November 1 next following, provided that if the foregoing would result in the initial term being for a period of less than one year, then the initial term will instead expire at the end of one further Contract Year.

6.2 **Automatic Renewal**

Except as specified in the Service Agreement, the term of the Service Agreement will continue from year to year after the expiry of the initial term unless cancelled by either FortisBC Energy or the Customer subject to section 3.3 upon not less than 2 months notice prior to the end of the Contract year then in effect.

6.3 **Early Termination**

The term of the Service Agreement is subject to early termination in accordance with section 10 (Default or Bankruptcy). The Customer will reimburse FortisBC Energy for any net incremental utility Gas supply costs incurred by FortisBC Energy as a result of the Customer cancelling the Service Agreement prior to the end of the Contract Year then in effect. This reimbursement will include only those costs which are approved by the British Columbia Utilities Commission, and were unavoidable and could not be reduced by mitigation.

6.4 **Survival of Covenants**

Upon the termination of the Service Agreement, whether pursuant to section 10 (Default or Bankruptcy) or otherwise,

(a) all claims, causes of action or other outstanding obligations remaining or being unfulfilled as at the date of termination; and

(b) all of the provisions in this Rate Schedule and in the Service 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 Service Agreement,

will survive such termination.

7. Statement and Payments

7.1 **Statements to be Provided**

FortisBC Energy will, each month, deliver to the Customer a statement for the preceding month showing the Gas quantities delivered to the Customer and the amount due. 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 Service 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.

7.2 **Payment and Late Payment Charge**

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 21st 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, FortisBC Energy will include in the next bill to the Customer a late payment charge of 1½% per month (19.56% per annum) on the outstanding amount.

7.3 **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 Service Agreement.

8. Measuring Equipment

8.1 **Facilities and Equipment**

FortisBC Energy will install, maintain and operate at the Delivery Point such metering and communications facilities and equipment as FortisBC Energy determines are necessary or desirable for measuring the quantity of Gas delivered pursuant to this Rate Schedule to the Customer and the Customer will permit FortisBC Energy, without cost to FortisBC Energy, to use the Customer's communications lines and power for the purpose of installing, maintaining and operating the measuring equipment of FortisBC Energy. Communication facilities and equipment will be installed at the cost of the Customer.

8.2 **Measuring Site**

If FortisBC Energy reasonably determines that it is necessary to install the facilities and equipment referred to in section 8.1 (Facilities and Equipment) on the Customer's property, the Customer will, without charge, provide a suitable site along with utilities and enclosures for the installation of the facilities and equipment of FortisBC Energy. FortisBC Energy will at all times have clear access to the site and to all of its facilities and equipment. All facilities and equipment installed by FortisBC Energy on the Customer's property will remain the property of FortisBC Energy and may be removed by FortisBC Energy upon termination of the Service Agreement.

8.3 **Calibration and Test of Measuring Equipment**

The accuracy of the measuring equipment of FortisBC Energy will be verified by standard tests and methods at regular intervals and at other times at the initiative of FortisBC Energy or upon the reasonable request of the Customer. Notice of the time and nature of each test conducted in response to communications with or at the request of the Customer will be given by FortisBC Energy to the Customer sufficiently in advance to permit a representative of the Customer to be present. If during a test the measuring equipment is found to be registering inaccurately, it will be adjusted at once to read as accurately as possible. The results of each test and adjustment, if any, made by FortisBC Energy, whether or not the Customer is present for such test, will be accepted until the next test. All tests of such measuring equipment of FortisBC Energy will be made at the expense of FortisBC Energy, except that the Customer will bear the expense of tests made at its request if the measuring equipment is found to be inaccurate by an amount equal to 2% or less.

8.4 **Inaccuracy Exceeding 2%**

If upon any test the measuring equipment is found to be inaccurate by an amount exceeding 2%, any previous readings of such equipment will be corrected to zero error for any period during which it is definitely known or is agreed upon that the error existed. If the period is not definitely known or is not agreed upon, such correction will be for a period covering the last half of the time elapsed since the date of the last test. Provided that under no circumstances will an adjustment be made for a period of more than the preceding 12 months.

8.5 **Correction of Measuring Errors**

If the measuring equipment is out of service or out of repair so that the quantity of Gas delivered cannot be correctly determined by the reading thereof, the Gas delivered during the period such measuring equipment is out of service or out of repair will be estimated on the basis of the best available data, using the first of the following methods which is feasible

(a) by correcting the error if the percentage of error is ascertained by calibration test or mathematical calculation;

(b) by using the registration of any check measuring equipment if installed and accurately registering; and

(c) by estimating the quantity of Gas delivered to the Customer during the preceding periods under similar conditions when the meter was registering accurately.

8.6 **Customer's Equipment**

The Customer may at its own expense install, maintain and operate its own measuring equipment for the purposes of monitoring or checking the measuring equipment of FortisBC Energy, provided that the Customer will install such equipment so as not to interfere with the operation of the measuring equipment of FortisBC Energy.

8.7 **Right to be Present**

FortisBC Energy and the Customer will have the right to inspect all equipment installed or furnished by the other and the charts and other measurement or test data of the other at all times during business hours, and to be present at the time of any installing, testing, cleaning, changing, repairing, calibrating or adjusting done in connection with the measuring equipment of the other party, but all such activities will be performed by the party furnishing the measuring equipment.

8.8 **Preservation of Records**

Both parties will cause to be preserved each test datum, chart and other record of Gas measurement for a period of 2 years.

9. Measurement

9.1 **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.

9.2 **Determination of Volume**

Gas delivered hereunder will be metered using metering apparatus approved by the Standards Division, Industry Canada, Office of Consumer Affairs 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.

9.3 **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. Default or Bankruptcy

10.1 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 Service Agreement within 30 days after payment is due; or

(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 Service 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, at its option and without liability therefore

(a) suspend further 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 Service Agreement; or

(b) terminate the Service Agreement, and no such termination of the Service 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 Service Agreement.

10.2 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 Service 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 Service Agreement will immediately be due and payable by the Customer.

11. Notice

11.1 Notice

Any notice, request, statement or bill that is required to be given or that may be given under this Rate Schedule or under the Service Agreement will, unless otherwise specified, be in writing and will be considered as fully delivered when mailed, personally delivered or sent by fax to the other in accordance with the following:

If to FortisBC Energy	FORTISBC ENERGY INC.	
MAILING ADDRESS:	16705 Fraser Highway Surrey, B.C. V4N 0E8	
BILLING AND PAYMENT:	Attention: Telephone: Fax:	Industrial Billing 1-855-873-8773 (604) 293-2920
CUSTOMER RELATIONS:	Attention: Telephone: Fax:	Commercial & Industrial Energy Solutions (604) 592-7843 (604) 592-7894
LEGAL AND OTHER:	Attention: Telephone: Fax:	Director, Legal Services (604) 443-6512 (604) 443-6540

If to the Customer, then as set out in the Service Agreement.

11.2 Specific Notices

Notwithstanding section 11.1 (Notice), notices with respect to Force Majeure will be sufficient if:

(a) given by FortisBC Energy in writing by fax, or orally in person, or by telephone (to be confirmed in writing) to the person or persons designated from time to time by the Customer as authorized to receive such notices; or

(b) given by the Customer by telephone (to be confirmed by fax) in the following manner:

To claim Force Majeure…"Please be advised that (name of company and location of plant) has (reason for claiming Force Majeure as provided in section 13) and hereby claims suspension by reason of Force Majeure in accordance with the terms of Rate Schedule 5B effective 7:00 a.m. Pacific Standard Time (date Force Majeure suspension to become effective, but not to be retroactive)."

To terminate Force Majeure…"Please be advised that (name of Company and location of plant) requests a return to normal natural gas service in accordance with Rate Schedule 5B and the Service Agreement effective 7:00 a.m. Pacific Standard Time (date Force Majeure suspension to end, but not to be retroactive) whereby the suspension by reason of Force Majeure currently in force will be terminated."

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 Gas Service permitted under the General Terms and Conditions of FortisBC Energy, or this Rate Schedule.

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) Franchise 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 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.

13. Force Majeure

13.1 Force Majeure

Subject to the other provisions of this section 13, 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.

13.2 Curtailment Notice

If FortisBC Energy claims suspension pursuant to this section 13, 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 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,

(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 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.

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, 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.

13.6 **No Exemption for Payments**

Notwithstanding any of the provisions of this section 13, 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 replacements to minimize interruption of Gas service to the Customer and to restore service as quickly as possible.

13.8 **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. Arbitration

14.1 **Arbitration**

Any dispute between the parties arising from this Rate Schedule or the Service Agreement will be resolved by a single arbitrator pursuant to the *Commercial Arbitration Act* of British Columbia or successor legislation, save as expressly provided herein.

14.2 **Demand for Arbitration**

Either party may commence arbitration proceedings by sending to the other party a demand for arbitration setting forth the nature of the dispute.

14.3 **Arbitrator**

The parties will have 10 days from receipt of the demand referred to in section 14.2 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 Customer or FortisBC Energy.

14.4 **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 arbitrator appointed in like manner as if none had previously been appointed.

14.5 **Decision**

The decision of the arbitrator will be final and binding upon the parties and the parties will abide by the decision and perform the terms and conditions thereof.

15. Interpretation

15.1 **Interpretation**

Except where the context requires otherwise or except as otherwise expressly provided, in this Rate Schedule or in a Service Agreement

(a) all references to a designated section are to the designated section of this Rate Schedule unless otherwise specifically stated;

(b) the singular of any term includes the plural, and vice versa, and the use of any term is equally applicable to any gender and, where applicable, body corporate;

(c) any reference to a corporate entity includes and is also a reference to any corporate entity that is a successor to such entity;

(d) all words, phrases and expressions used in this Rate Schedule or in a Service Agreement that have a common usage in the gas industry and that are not defined in the General Terms and Conditions of FortisBC Energy, the definitions or in the Service Agreement have the meanings commonly ascribed thereto in the gas industry; and

(e) the headings of the sections set forth in this Rate Schedule or in the Service Agreement are for convenience of reference only and will not be considered in any interpretation of this Rate Schedule or the Service Agreement.

16. Miscellaneous

16.1 Waiver

No waiver by either FortisBC Energy or the Customer of any default by the other in the performance of any of the provisions of this Rate Schedule or the Service Agreement will operate or be construed as a waiver of any other or future default or defaults, whether of a like or different character.

16.2 Enurement

The Service Agreement will enure to the benefit of and be binding upon the parties and their respective successors and permitted assigns, including without limitation successors by merger, amalgamation or consolidation.

16.3 Assignment

The Customer will not assign the Service Agreement or any of its rights or obligations thereunder without the prior written consent of FortisBC Energy which consent will not be unreasonably withheld or delayed. No assignment will release the Customer from its obligations under this Rate Schedule or under the Service Agreement that existed prior to the date on which the assignment takes effect. This provision applies to every proposed assignment by the Customer.

16.4 Amendments to be in Writing

Except as set out in this Rate Schedule, no amendment or variation of the Service Agreement will be effective or binding upon the parties unless such amendment or variation is set out in writing and duly executed by the parties.

16.5 **Proper Law**

The Service Agreement will be construed and interpreted in accordance with the laws of the Province of British Columbia and the laws of Canada applicable therein.

16.6 **Time is of Essence**

Time is of the essence of this Rate Schedule, the Service Agreement and of the terms and conditions thereof.

16.7 **Subject to Legislation**

Notwithstanding any other provision hereof, this Rate Schedule and the Service Agreement and the rights and obligations of FortisBC Energy and the Customer under this Rate Schedule and the Service Agreement are subject to all present and future laws, rules, regulations and orders of any legislative body, governmental agency or duly constituted authority now or hereafter having jurisdiction over FortisBC Energy or the Customer.

16.8 **Further Assurances**

Each of FortisBC Energy and the Customer will, on demand by the other, execute and deliver or cause to be executed and delivered all such further documents and instruments and do all such further acts and things as the other may reasonably require to evidence, carry out and give full effect to the terms, conditions, intent and meaning of this Rate Schedule and the Service Agreement and to assure the completion of the transactions contemplated hereby.

16.9 **Form of Payments**

All payments required to be made under statements and invoices rendered pursuant to this Rate Schedule or the Service Agreement will be made by wire transfer to, or cheque or bank cashier's cheque drawn on a Canadian chartered bank or trust company, payable in lawful money of Canada at par in immediately available funds in Vancouver, British Columbia.

Table of Charges

	Mainland Service Area	Vancouver Island Service Area	Whistler Service Area	
Delivery Margin Related Charges				
1. **Basic Charge** per Month	$ 587.00	$ 587.00	$ 587.00	
2. **Delivery Charge** per Month per Gigajoule of Daily Demand[1]	$ 19.910	$ 19.910	$ 19.910	A
3. **Delivery Charge** per Gigajoule	$ 0.819	$ 0.819	$ 0.819	A
4. **Rider 2** per Gigajoule	$ (0.111)	$ 1.815	$ 4.204	
5. **Rider 3** per Gigajoule	$ (0.015)	$ 0.000	$ 0.000	N
6. **Rider 4** per Gigajoule	$ (0.145)	$ 0.000	$ 0.000	
Commodity Related Charges				
7. **Storage and Transport** per Gigajoule	$ 0.837	$ 0.837	$ 0.837	
8. **Rider 6** per Gigajoule	$ (0.038)	$ (0.038)	$ (0.038)	
Subtotal of per Gigajoule **Storage and Transport** Related Charges	**$ 0.799**	**$ 0.799**	**$ 0.799**	
9. **Cost of Gas**[2] (Commodity Cost Recovery Charge) per Gigajoule	$ 2.486	$ 2.486	$ 2.486	
10. **Cost of Biomethane**[3] (Biomethane Energy Recovery Charge) per Gigajoule	$ 14.414	$ 14.414	$ 14.414	

Delivery Margin Related Riders

Rider 2 **Phase-in Rider Balancing Account** - Applicable to Mainland, Vancouver Island and Whistler Service Area Customers for the Year ending December 31, 2015.

Rider 3 **Earnings Sharing Mechanism** - Applicable to Mainland Service Area Customers for the Year ending December 31, 2015. C/N

Rider 4 **Rate Stabilization Deferral Account** - Applicable to Mainland Service Area Customers for the Year ending December 31, 2015.

Rider 5 **Revenue Stabilization Adjustment Charge** - Not applicable.

Commodity Cost Recovery Related Riders

Rider 1 Propane Surcharge - Not applicable.

Storage and Transport Related Riders

Rider 6 **Midstream Cost Reconciliation Account** - Applicable to Mainland, Vancouver Island and Whistler Service Area Customers, excluding Revelstoke, for the Year ending December 31, 2015.

Notes:

1. Daily Demand is equal to 1.25 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 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%.

3. Biomethane is acquired from a variety of sources and the Cost of Biomethane includes costs of acquiring Biomethane, including commodity, production, infrastructure, equipment and operating costs required to delivery system-quality methane gas. 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.

Franchise Fee Charge

3.09% of the aggregate of the above charges 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*) to which FortisBC Energy pays Franchise Fees.

Minimum Charge per Month

The minimum charge per Month will be the aggregate of the Basic Charge, Demand Charges and the Franchise Fee Charge.

Permanent Rate Establishment

Pursuant to British Columbia Utilities Commission Order G-178-14, FortisBC Energy Inc. delivery rates were made interim effective January 1, 2015. Pursuant to British Columbia Utilities Commission Orders G-86-15 and G-106-15, the FortisBC Energy Inc. interim delivery rates are made permanent effective January 1, 2015 and implemented August 1, 2015. The difference between interim and permanent rates that occurred between January 1, 2015 and July 31, 2015 will be dealt with by way of a bill adjustment. C/N

GENERAL FIRM SERVICE AGREEMENT

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 5B 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 5B)

Biomethane Percentage _____

Delivery Point: _____

_____

_____

Pressure at the Delivery Point: _____
(only specify where applicable as set out in section 4.3 of Rate Schedule 5B)

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 5B to any such information is to the information set out above.

2. Rate Schedule 5B

2.1 Additional Terms

All rates, terms and conditions set out in Rate Schedule 5B and the General Terms and Conditions of FortisBC Energy, as either 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 herein.

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 5B for the services provided under that Rate Schedule and this Service Agreement.

2.3 **Conflict**

Where anything in either Rate Schedule 5B 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 5B conflicts with any of the rates, terms and conditions set out in the General Terms and Conditions of FortisBC Energy, Rate Schedule 5B governs.

2.4 **Acknowledgement**

The Customer acknowledges receiving and reading a copy of Rate Schedule 5B 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: _____

Attachment 8.1

REFER TO LIVE SPREADSHEET MODELS

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)

Attachment 9.1

REFER TO LIVE SPREADSHEET MODELS

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)

Attachment 10.1

Participant RESEARCH

FortisBC: Renewable Natural Gas Focus Groups

Report on Findings

August 15, 2013

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Executive Summary and Recommendations

Executive Summary

The following summarizes the results of two focus groups held with FortisBC customers who self-identified as environmentally conscious. The groups were held in the Lower Mainland of B.C. on June 20, 2013. The primary discussion topic was their reaction to the current Renewable Natural Gas (RNG) Program offered by FortisBC. . Respondents were recruited from contacts provided by FortisBC and given a $125 honorarium to encourage participation. The discussion followed a guide developed in conjunction with FortisBC.

1. Focus group respondents for this project represented so-called light and dark green consumers, or, those that have an environmental predisposition. As a function of this, many were suspicious of large organizations offering sustainable programs and services because it may only represent lip service or corporate spin.
2. Beyond the FortisBC name, respondents knew little about the company and as a result they held no significant impressions of FortisBC as a brand. This lack of basic knowledge meant that they were more questioning of the motivations of FortisBC and the validity of the RNG program. As a result, they wanted more detailed information about the program than is provided in the current marketing material as a way of ensuring it's "authenticity".
3. Notwithstanding their green orientation, respondents did not distinguish between energy types (i.e. gas or electric) but rather by sources of production. Most alternative methods produced electricity but two participants spontaneously brought up methane capture and use.
4. Overall awareness of the RNG Program was non-existent. That said, one respondent did recall seeing methane capture equipment at her local landfill site. On a positive note, respondents said that they capture and use of methane was a great idea whose time had come.
5. Still, they remained cautious about RNG overall, expressing significant concern over its safety and environmental effects. Much of this concern arose not from using RNG itself but the infrastructure and processing required to produce it.

6. The average cost of five dollars per month to participate was a major barrier to signing up for the program and also coloured program perceptions. This concern arose from significant misconceptions of the program and a lack of reassurance of RNG viability. Based on what they were told and what they read, they assumed that using RNG was untested and untried and that FortisBC was using the $5 as a means of simply generating greater revenue.
7. Rightly or wrongly, the common assumption that the technology is untested and untried tainted every perception of the program. It wasn't until they learned that collection and refinement processes are in use elsewhere in the world that they felt reassured it was safe and effective. Given that they saw the RNG initiative as experimental, it makes sense then that they had an inherent caution about the process (developing the technology to use RNG) but not the spirit (using waste matter to create energy).
8. After reviewing program communication materials, respondents were suspicious because the material comes at them from a product orientation that encourages them to subscribe for a service of some kind. This contradicts respondent opinions of the program as similar to being asked to donate towards a civic project such as a new art gallery or revitalized park space.

   To make this clearer, their view of the RNG Program is more akin to fundraising than it is to purchasing. In other words, respondents read the material with a view to funding or "investing in" the infrastructure necessary to use RNG in the FortisBC system rather than simply purchasing it for their homes.

9. When asked what themes should be used to tell them about the program, they described the following:
   - More about getting the 10% carbon tax credit
   - Program goals (e.g. displace X amount of natural gas consumed)
   - What the $5 will be used for
   - Uses existing technology that is used in other areas and countries
   - Safety; in terms of RNG in people's homes, the communities where it is produced and environmental safeguards
10. Despite awareness of the Air Miles® program, everyone was unaware of the Air Miles My Planet® feature. Unfortunately, this feature was only mildly attractive to a few respondents while many considered the offer as devaluing to the program.
11. Current communications materials failed to instill interest in the program unless the testimonials used provided reassurance of the program's efficiency and safety. Interestingly, pictures that emphasized

the proven nature of the technology to capture methane and refine it for use were welcomed because it made the concept appear tangible; that their five dollars would contribute to something for the greater good. The FortisBC Web site headline for RNG that says "*Join Us To Stop Waste From Going To Waste*" effectively captured the true spirit of the program, describing its benefits and piquing the curiosity of the reader.

12. Last, providing a social media platform for program members to interact upon received a lukewarm reaction but creating a competition between neighbouring districts or municipalities stirred greater interest.

Recommendations

1. **Consider repositioning the program more as sponsorship rather than as a product.**

   Currently, program materials and descriptions emphasize signing up rather than describing the program and seeking support for it. Green customers appear to respond better to such requests rather than features. In other words, they are more interested in learning about an initiative and providing support for a good idea. They want to be perceived as moving an environmental issue forward rather than simply purchasing RNG.

   As an example only, people who subscribe to the RNG program could have their name put on a wall of supporters at a RNG plant.

2. **Seek greater use of earned media to promote RNG.**

   Respondents generally had no prior knowledge of RNG or FortisBC. As a result, they were mistrustful of the concept and the organization behind it. Any messages offered, then, were met with skepticism. If the public had prior knowledge of RNG as a concept and more knowledge of FortisBC, the likelihood of wider program acceptance will increase. Earned media can bestow needed credibility and create a softer landing when seeking support.

3. **Revisit program communications with a view to looking behind the program and its inner workings.**

   Respondents wanted to know that the five dollar investment they make will be going towards a viable idea. Providing insight into what the program will achieve, the overall safety of RNG and how RNG is used in other jurisdictions will likely enhance enrollment among green consumers.

Background and Objectives

Background

Renewable Natural Gas (RNG) has been available to FortisBC mainland residential customers since 2010 and mainland commercial customers since 2011. RNG is produced by capturing and cleaning methane gas from decomposing animal waste and landfill sites. Once processed, FortisBC injects the gas into its natural gas transmission system. Methane is twenty times more potent as a greenhouse gas (GHG) than carbon dioxide and without collection; the gas would discharge into the atmosphere. RNG also provides income to municipalities and local farmers.

Customers who participate in the RNG program pay about five dollars more per month to purchase RNG and equals about 10% of their consumption. Research conducted in 2009, prior to product approval by the British Columbia Utilities Commission (BCUC), indicated that up to 16% of residential customers would be interested in participating at $6 per month level. In 2012, a follow-up report suggested that up to one-in-four customers would be open to participating in a RNG program at the $6 level. These percentages represent the market potential in a perfect market where all participants have complete understanding of the product and will act upon that information. Research participants, feeling social pressure to answer the survey questions the "right" way, likely inflated the market size.

FortisBC in its submission to the BCUC argued that a level of participation more in line with industry norms for green energy offerings (1-2%) was likely. After one year, approximately 2500 customers had signed up for the program. This represented 0.3% of eligible customers. After the introduction of Air Miles Rewards®, enrolment doubled. However, it has once again stalled with new participants offsetting existing customers dropping out of the program.

Objectives

This study:

- Level of awareness and knowledge of the RNG program
- Likely motivators for participation
- Barriers to participation
- Effectiveness of existing and potential marketing material

Methodology

Focus Groups

Focus groups were used to address the research objectives because they allow respondents to expand on their answers and work with each other to develop comprehensive answers to open-ended questions.

Recruitment
The 2010 Biogas Study segmented customers by lifestyle. That study found that customers classified as "Dark Green" or "Light Green" are more likely participants in the program. As a result, this research project specifically used participants drawn from these psychographic segments.

Research Process
Participant Research conducted two focus groups on June 22, 2013 at 5:30pm and 7:30pm with program non-participants who demonstrated "green" sensibilities.

The groups took place in hotel meeting rooms in Burnaby, B.C. A closed circuit television link connected the two rooms allowing FortisBC representatives to view the discussion. Participating respondents were recruited according to a screener developed in conjunction with FortisBC and those that attended received $125 for their time.

The discussion followed a guide that developed with input from FortisBC personnel.

Research Limitations

In General

The normal limitations of qualitative research must be kept in mind. Respondents were selected non-randomly and as such, their views cannot be regarded as quantifiable or projectable to any specific population cohort.

The information obtained may be viewed as an indication of existing attitudes but not the extent to which such attitudes are represented in any defined population.

Finally, in-depth interviews are not "unreliable surveys." Rather, they are idea-generating vehicles where any avenue of information that appears to evoke useful ideas or problem solving suggestions is pursued and reported.

The results from this research should be considered as directional.

Key Findings

The following sections address these findings:

1. Perspective on Respondents
2. Reaction to Renewable Natural Gas Program
3. Conceptual Difficulties
4. Program Communications

Perspective on Respondents

Green Orientation

As mentioned earlier, respondents were recruited for their disposition towards environmentalism. As such, they brought some interesting personal characteristics into the discussion.

Corporate Skepticism
In general, respondents were suspicious of large organizations. Their general view was that organizations seek to make money at all costs and that they often create green programs to appear as responsible or as a means of charging more for a given service. Women tended to be more questioning than men in that regard.

With a fundamental lack of awareness of FortisBC, many participants were very suspicious of FortisBC's intentions with the program and assumed that the five dollar charge was actually a rate increase achieved by "going in through the back door."

Information Needs
As a function of their skepticism, their information needs were high and as such, their interest in participating seemed contingent on accessing more detailed RNG information.

Awareness of Other Energy Sources

As with most people, participants don't distinguish between energy types (i.e. gas and electricity) but rather how energy is produced. When asked to name alternative energies, responses included:

- Solar
- Wind
- Nuclear (only one mention)
- Geothermal
- Waste heat capture from compost (one mention)
- Methane capture (two spontaneous mentions)

When a respondent mentioned methane collection it captured the attention of respondents and they were intrigued by the concept of its collection and use but in doing so revealed little if any awareness of the process. While one respondent mentioned seeing methane collection infrastructure at a landfill site, another believed that landfill material is processed to produce methane rather than it being a natural by-product of the decaying organic material.

Reaction to Renewable Natural Gas Program

Overall Awareness of FortisBC

Awareness and understanding of FortisBC among respondents was relatively low. Many were aware that the name had changed from Terasen and that it is a monopoly that sells natural gas; however, there was no evidence among respondents of a comprehensive understanding of the company and its services. For example, one person knew that Fortis is publically traded on the stock market while another knew that FortisBC had programs aimed at reducing carbon dioxide (EEC). Yet another knew that the company acted as a deliverer of natural gas rather than a producer but unaware of other factors.

Unfortunately, participants tended to fill in the blanks of their understanding with speculation. These included:

- FortisBC had recently installed smart meters
- Is a crown corporation (like BC Hydro)
- Provides electricity in the Lower Mainland

Overall Awareness and Perception of RNG Program

Unprompted and prompted, no respondent was aware of the RNG Program even after reviewing existing communications materials.

In fact, the idea and the program seemed so new that most respondents assumed it was completely new technology and that the idea is largely untried and untested - anywhere. As a result, they said that the idea holds promise and agreed that the spirit of the RNG program is a good if not overdue. Specific positive perceptions included:

- Capture of something useful (methane) before it goes to waste
- Diversion of harmful gas from causing damage
- Displacement of existing natural gas (less exploration and drilling)

Notwithstanding their upbeat regard, they remained cautious about its implementation. This finding is important because it fostered a great deal of concern over RNG development. Of particular concern was:

- Safety, particularly regarding health matters
- Environmental effects
- Effects on local areas where collection and cleaning take place
- Damaging effects of having to create duplicate infrastructure to carry RNG
- Potential damage to customer's appliances

Conceptual Difficulties

Inherent Apprehension

As mentioned, respondents had many concerns about developing RNG services. Much of the concern wasn't about RNG itself but rather about building infrastructure to create it from methane.

The Five Dollar Barrier

Nothing in the program interfered with any positive perception more than the cost to participate in the program. The additional cost, which was estimated to be $5 per month, was seen as a significant barrier to participation. Respondents were quick to assume the worst when it comes to the additional cost and for some it was cause for outright anger. Some of the misperceptions and concerns raised were:

- The additional cost would levied on everyone – it was not voluntary
- Assumption that the additional cost would be levied in perpetuity.
- The concept is risky and they might be contributing to something that is inherently unsafe to community health and to the environment

Even telling respondents that FortisBC is required by the BCUC to recover the cost of the program from participants failed to alleviate their concerns to the point that any explanation was considered as a "scam."

> '[FortisBC] *can't raise its rates so they go in through the back door* [and charge $5.00]*."*

> *"It's just like carbon taxes. Where is the money [spent]? Why do we have to pay this money when we have already paid out for it? It's ridiculous."*

> *"Fortis is so rich. Why can't they pay for this themselves?"*

Such consternation was borne out of an assumption that tax money or FortisBC customer's money has already been used to develop methane collection systems and that they were being asked to double pay for it.

Other Concerns and Assumptions

Rightly or wrongly, the common assumption that the technology is untested and untried tainted every perception of the program. It wasn't until they learned that collection and refinement processes are in use elsewhere in the world that they felt reassured it was safe and effective. Given that they saw the RNG initiative as experimental, it makes sense then that they had concerns about the process (developing the technology to use RNG) but not the spirit (using waste matter to create energy).

> *"It's something they* [FortisBC] *is trying out. How will we know that it works?"*

> *"It's just like carbon taxes. Where is the money* [spent]*? Why do we have to pay this money when we have already paid out for it? It's ridiculous."*

> *"I have children. How do I know that having this in my home won't be harmful?"*

> *"Will these plants have a negative impact on the local communities?"*

When respondents learned that other jurisdictions and countries use RNG, such knowledge tempered their concerns to the point of acceptance. As a case in point, a picture in their communications materials of a RNG upgrader provided reassurance that the process is indeed safe and proven. Therefore, creating fundamental comfort around capturing methane and its use is an important factor in developing longer-term program acceptance.

> *"We already paid into this program* [to start it off]; *why do you have to continue to pay for it now?"*

Program Communications

Respondents were provided with a package of communication materials outlining the program. It contained:

- Current bill inserts
- A copy of a recent email newsletter
- A paper brochure outlining the program
- The Web pages devoted to the program

A Product or A Program?

When asked to comment on the materials overall, participants responded unfavourably. While they saw bits and pieces of useful information, they said that the main purpose of the materials was to get them to enroll in the RNG program rather than understand it. In fact, most respondents asked for detailed program data.

A Matter of Definition

Why then were they so adamant about having more information? It was difficult to believe that people were looking for such a high level of detail on RNG until the discussion turned to how respondents were defining RNG.

In fact, they categorized RNG as they would public funding initiatives for art galleries or community improvement initiatives rather than as something they would purchase.

To make this clearer, their view of the RNG Program is more akin to fundraising than it is to purchasing. In other words, respondents read the material with a view to funding or "investing in" the infrastructure necessary to use RNG in the FortisBC system.

The way the RNG program materials describe the program creates suspicion because it comes at it from a product base that encourages them to subscribe for a service of some kind. This contradicts respondent views of the program as similar to being asked to donate towards a civic project such as a new art gallery or revitalized park space.

> *"Money-wise, $5 per month doesn't seem like a lot to me… but I need to know how the $5 is making a positive impact."*

"This is not cost-effective. It is an additional expense, so sell its benefits."

"I need to know what I'm being asked to invest in."

Given that these groups were composed of environmentally oriented and likely charitable people, it stands to reason why they would become so terse when presented with the program offer that treats RNG as a purchase rather than as an innovation in energy development. In other words, altruism has been lost in the pitch.

"*These* [materials] *are not explaining the big picture."*

Communication Themes

When asked what themes are important to tell them about respondents came back with the following topics:

- More about getting the 10% carbon tax credit
- Program goals (e.g. displace X amount of natural gas consumed)
- What the $5 will be used for
- Uses existing technology that is used in other areas and countries
- Safety; in terms of RNG in people's homes, the communities where it is produced and environmental safeguards

In addition, some level of awareness about FortisBC and the kind of company it is would set some context on which the program could rest.

Air Miles My Planet®

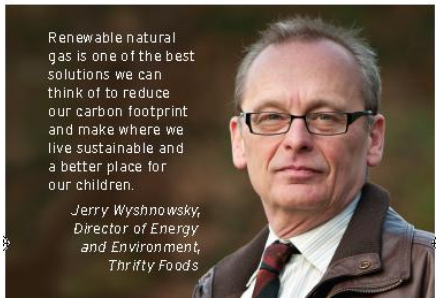
All discussion participants were aware of Air Miles® but unaware of its My Planet feature. Reaction was mixed as to whether or not it was an attractive offer but avid point collectors obviously expressed greater interest.

However, they generally agreed that this feature takes up too much prominence in the existing materials and for some, the offer tended to devalue the overall program.

Specific Executions

Bill Inserts

Opinion was divided on the effectiveness of the bill inserts. Some liked the liked the testimonials that said the program was worthwhile but detractors of it said that it fails to address the overall concerns they had with the program. In other words, it's not the testimonial that is a problem but rather the nature of their testimony. Participants recommended to keep the general idea but to change their comments to address the viability, safety and benefits of RNG production.



E-Mail Newsletter

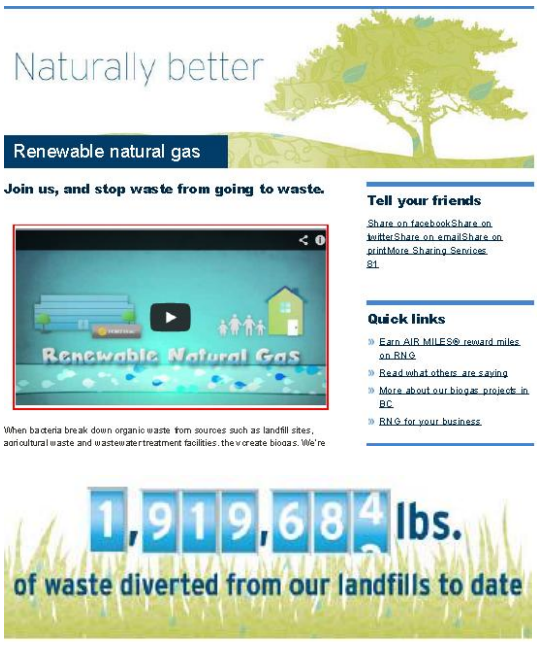
B.C. landfills get innovative

Interestingly, this industrial picture was chosen as a positive program image. Its implication is that the program exists and that it is effective, safe and tangible. Respondents also liked that the headline refers to the concept as state-of-the-art. The implication being that their participation will represent a real process rather than speculation.

FortisBC Website

Two aspects to the web site grabbed respondent attention. The first feature was the headline "Join us, and stop waste from going to waste." They said that it effectively captures what the program does, describes the program's benefits and stimulates curiosity to learn more. Although unstated, the line also contains a call to action.

The other effective piece was the diverted waste meter. Participants said that it demonstrates a major benefit to using RNG.



Future Engagement Initiatives

Social Networking

Respondents were presented with the idea of using a social networking platform to communicate and interact with other program members. Their response was generally indifferent except for one or two respondents who said that they would occasionally review what was being said but little more than that. They added that such an initiative would not influence their decision to enroll.

Community Challenge

The community challenge idea received more interest, however. Respondents thought that setting up friendly competition between municipalities or districts was an interesting way of not only doing good but contributing to civic pride.

Appendix

1. Recruitment Screener
2. Discussion Guide
3. Program Description

Participant RESEARCH

FortisBC –Focus Group Screener
Participant Research: RNG Focus Groups

Date:	**Interviewer:**	**ID#:**
Respondent Name:	**Gender:**	
Address:		
City:	**Prov.: B.C.**	**Postal:**
Daytime Phone:	**Evening Phone:**	
E-Mail / Fax:		

RECRUIT 10 FOR 8 TO SHOW
Try for a mix of Lower Mainland cities (listed on sample)

Location: TBD **Date: June 20, 2013**
Group 1 – 5:30pm
Group 2 – 7:30pm

Please follow these guidelines when recruiting for focus groups:

- Complete recruiting grid and send an update via email gerry.keane@participantresearch.ca the next day.
- Please call, confirm and re-screen ALL respondents a day or two before the focus group.

INTRODUCTION

Hello my name is _____ _, with Participant Research an independent marketing research firm. We are conducting market research in your area regarding FortisBC [Location – DATE: June 20] for this study. May I please speak to [**NAME ON LIST**]?

We are very interested in your opinions about the types of energy BC households use to heat water and home. Therefore, we'd like to invite you to an informal discussion, the results of which will be used to shape BC's future energy needs.

Are you the person who would be either responsible or jointly responsible for making decisions about energy choices in your home?

Yes **CONTINUE**
No **ASK TO SPEAK TO THAT PERSON AND RESTART RECRUITMENT SCREENER OTHERWISE THANK AND TERMINATE**

If you attend one of the sessions, you will receive a cash thank-you of $125. To ensure we get the right individuals, I'd to ask you a few questions. Please be assured that I am NOT trying to sell you anything and no one from FortisBC will contact you after the focus group. We are just interested in hearing your opinions.

[**IF NECESSARY:** The Group will only last one and a half hours and participants will informally exchange ideas and opinions with a group of about 7 others.

The groups will be held on **June 20, 2013** in the evening, is this something you would be interested in?

Yes **CONTINUE**
No **THANK AND TERMINATE**

DISABILITY

Sometimes, participants in these groups are asked to watch or listen to a video or sound recording. Is there anything that would prevent you from participating in this activity?

Yes – Hearing impaired ok with hearing aids. If visually impaired ask if they would be able to see a television screen from a reasonable distance. If not, thank and terminate **carefully**.

No – CONTINUE

CONTACT if needed:

Please use a RECRUITMENT telephone number to take cancellations.

Participant Research: Gerry Keane 604-339-8620 (Evening & Weekend calls OK)
FortisBC: Walter Wright 604-592-7653 (RESEARCH VERIFICATION ONLY)

BACKGROUND

1. Do you or does any member of your household or immediate family work or have ever worked in the following? **[READ LIST]**

	Yes
A) Marketing or market research	☐
B) Advertising, communications or public relations	☐
C) Media (including newspapers, magazines, radio, TV, etc.)	☐
D) FortisBC, BC Hydro or any other energy provider	☐
E) An environmental agency, advocate or government department dealing with energy or the environment	☐

IF "YES" TO A, B, C, D or E THANK & TERMINATE

2. Which one of the following age categories do you fit into?

18-34 **THANK AND TERMINATE**
35-45
46-55
55 -65
66+ **THANK AND TERMINATE**

OBTAIN A GOOD MIX OF AGES BETWEEN 35 TO 65

3. Gender **OBSERVE – RECRUIT 2/3 FEMALE AND 1/3 MALE SPLIT FOR EACH GROUP**

Male
Female

4. How positive or negative do you feel about the following companies?

	Very Positive	Somewhat Positive	Somewhat Negative	Very Negative
BC Hydro				
FortisBC				

THANK AND TERMINATE IF "FortisBC" = Very Negative MAXIMUM OF TWO PER GROUP = "Somewhat Negative"

5. Do you receive a natural gas bill directly from FortisBC?

Yes **CONTINUE**
No **THANK AND TERMINATE**

6. What kind of home do you live in? **READ LIST**

High-rise or low-rise apartment or condominium **CONTINUE**
Single detached home **CONTINUE**
Duplex, triplex **CONTINUE**
Town or Row home **CONTINUE**
Mobile home **CONTINUE**

7. We know that different people have different lifestyles. How negative or positive is **your general impression** of the following lifestyle description? Please choose a number from 1 to 10, where '1' means you feel extremely negative and '10' means extremely positive.

1 – Extremely negative 10 – Extremely positive

A lifestyle in which people consider the environmental impact in almost everything they do.										**Score**
1	2	3	4	5	6	7	8	9	10	

8. How well does the same statement describe **your own** day-to-day lifestyle? *(select one only)*

1 – Doesn't Describe Me At All 10 – Describes Me Extremely Well

A lifestyle in which you consider the environmental impact in almost everything you do.										**Score**
1	2	3	4	5	6	7	8	9	10	

Total Score (Q8+Q9) If the total score is less than 14, thank and terminate)	

9. During the past 2 years, have you or a member of your family purchased a "green" product or service valued at over $100? For example, carbon offsets for travel, a hybrid or electric car, home appliances etc.

_____

THANK AND TERMINATE IF NONE

Finally, we have a few questions just for clarification purposes.

10. What is your employment status?

Unemployed **THANK AND TERMINATE**
Homemaker **MAXIMUM 1 PER GROUP**
Full/Part time student **THANK AND TERMINATE**
Part-time employed **MAXIMUM 2 PER GROUP**
Retired **CONTINUE**
Full-time employed **CONTINUE**

12. What is your occupation or job function?

IF ENERGY RELATED IN ANY WAY, THANK AND TERMINATE

13. What was the household income for all members of your household in 2009, before taxes?

Under $25,000	**THANK AND TERMINATE**
$25,000 to less than $65,000	**THANK AND TERMINATE**
$66,000 to less than $100,000	**CONTINUE**
$100,000 or more	**CONTINUE**

THANK AND TERMINATE IF LESS THAN $65,000

14. What is the last level of formal education that you have completed?

Some High School	**THANK AND TERMINATE**
Completed High School	**THANK AND TERMINATE**
Some Community College/Technical School	**CONTINUE**
Completed Community College/Technical School	**CONTINUE**
Some University	**CONTINUE**
Completed University	**CONTINUE**
DK/REF	**THANK AND TERMINATE**

RECRUIT A MIX OF EDUCATION LEVELS: NO HARD QUOTAS

15. What language did you learn to speak as a child and still speak today?

South Asian (Hindi, Urdu)
Chinese (Mandarin or Cantonese)
Other

OBTAIN AT LEAST ONE SOUTH ASIAN AND CHINESE PER GROUP

16. Have you ever participated in a discussion group for research purposes for which you were paid for your time?

Yes	**CONTINUE**
No	**SKIP TO Q19**
DK/REF	**SKIP TO Q19**

17. When was the last time that you participated in one of these groups?

Within the past 6 months	**THANK AND TERMINATE**
6 months to a year	**CONTINUE**
More than a year ago	**CONTINUE**

18. What are the topics or areas you have discussed in focus groups?

_____

IF ENERGY SERVICES THANK AND TERMINATE

ARTICULATION

19. I have one last fun question for you; be as creative as you can. If you were to be on the cover of any magazine, which magazine would it be and what would the caption under your picture say?

_____

_____

ALL MUST SPEAK CLEAR ENGLISH, NO OVERLY-HEAVY ACCENTS. ALL MUST BE ABLE AND WILLING TO ANSWER THIS QUESTION CLEARLY AND EASILY. IF NOT THANK AND TERMINATE.

INVITATION

As mentioned earlier, we are inviting a group of people such as you to participate in a round table discussion regarding energy services. This discussion is held for research purposes only; we would very much like your insight and opinions.

Let me assure you that absolutely no attempt will be made to sell you any types of products or services. We'd just like to hear your honest opinions. The group will be relaxed and informal, and you will simply be involved in an exchange of ideas and opinions with about eight to ten others like you.

The discussion will be held at **[CHECK MATRIX BELOW]** on **[CHECK MATRIX BELOW]**. It will last approximately no longer than two hours and refreshments will be served. At the conclusion of the discussion, we will be pleased to present you with $125 in appreciation of your time and opinions. Would you be interested in participating in this research project?

Yes **[CHECK APPROPRIATE GROUP AND RECRUIT]**

No **[THANK & TERMINATE]**

Location: TBD **Date: June 20, 2013**
Group 1 – 5:30pm
Group 2 – 7:30pm

[READ TO ALL:]

You will need to bring picture ID to the groups.

THERE WILL BE VISUALS IN THE GROUPS. IF YOU REGULARLY WEAR READING GLASSES, PLEASE BE SURE TO BRING THEM WITH YOU AS WELL.

We'll also be sending you an e-mail to confirm this invitation, along with a map to the facility if you need it. May I please have the correct spelling of your name and an e-mail address? **[RECORD ON FRONT PAGE]**

For this project, it is very important that we are able to count on your attendance. **If, for any reason, you find yourself unable to join us, please call us at *INSERT RECRUITER PHONE NUMBER HERE* as soon as possible. This will, hopefully, enable us to find a replacement for you.**

Participant RESEARCH

FortisBC RNG Focus Groups
Discussion Guide – FINAL
June 20, 2013

Objectives

- Assess the effectiveness of existing and potential marketing materials.
- Assess the level of knowledge and awareness of the RNG Program
- Determine what factors motivate people to sign up for the program
- Itemize the barriers to program participation

Discussion Guide

1) Introduction (10 minutes)

a) Explanation of facilities, assurance of confidentiality

b) Discussion guidelines

c) Round table introduction of participants, where they live and what kind of home they live in and where.

d) What kinds of things do you currently do to benefit/protect the environment?

2) Warm-up (5 Minutes)

a) What alternative energies are you aware of?

i) **Prompts**: wind, solar, geothermal, biogas/biomethane/renewable natural gas

b) For those that are not aware of RNG have group define it, discuss and **then** moderator corrects any misperceptions.

c) Do you buy carbon credits? If so, when and what kinds?

3) **RNG Program Explanation/Materials (20 Minutes)**

a) Has anyone heard of anyone selling RNG to homeowners? Who offers it and how? *IF NO ONE IS AWARE, ASK*: Has anyone heard of the FortisBC Renewable Natural Gas Program? Probe awareness of FortisBC

b) Moderator hands out program summary that explains the program that respondents review individually, marking up the material with questions or concerns they might have about it. Moderator has respondents finish by writing down if they would or would not sign up to participate in the program.

c) What was the main idea that the program summary was trying to tell you? Moderator looks for and prompts if necessary for the main USP (and others).

d) What aspects of the summary stood out for you? Which aspects made you want to sign up and what aspects were barriers to signing up? Moderator writes down all comments on a flip chart. Which aspects make you think most about working towards the "greater good"?

e) What aspects of the program would motivate you to sign up for the program? What aspects do you still need to know about or know more about as a result of the summary?

Participant RESEARCH

f) What are the most important points to address in this program? Moderator creates list on flipchart.

g) Where would you anticipate learning about this program? If necessary prompt for: Mass Media, social media, Internet options.

4) Marketing Materials (40 Minutes)

a) I have some marketing materials relating to the RNG program. (*MODERATOR DISTRIBUTES A PACKAGE OF MATERIALS TO EACH RESPONDENT*) Using paper and pencil, please write down:

i) What is the main message being communicated?

ii) How clearly it communicates that message to you (scale of 1-4, 4 being best)?

b) Are there any messages missing (if any) in the materials? Round table review of initial reactions to materials (brief)

i) Does the material motivate you to participate – what piques your interest? (Ask if price is a barrier) So would the messages being conveyed override the price barrier?

ii) How would you describe its look and feel? Which pieces do you think are most memorable? Why?

c) Is there anything missing? Would you change anything – add or subtract?

d) How well do these materials communicate important aspects of the program? Is there anything that would make these pieces more effective? Why?

5) Future Customer Engagement (10 Minutes)

a) How important is the inclusion of Air Miles in this program? Why? Why not? Is a motivating force in signing up?

i) What if there was bonus offers upon sign-up, would that help? (e.g. 2 times the Air Miles, etc.)

ii) Are there alternative ways that Fortis could promote RNG? Prompts:

(1) If Fortis were to offer a social network platform that allowed you to communicate and interact with other subscribers as well as recognize you for taking different action. How much more would you be inclined to be on the system?

(2) What if FortisBC created games that started you off with "points" to start with and then depending on subsequent actions or response to certain "challenges," you would receive additional rewards such as Air Miles or gifts from commercial subscribers?

(3) What if there was potential to earn additional points for a community challenge. The challenge could include contributing towards building a new supply facility, or taking xxx cars of the road or a new park, for example.

(4) Do personal testimonials make a difference?

FortisBC Renewable Natural Gas Program

When bacteria break down organic waste from sources such as landfill sites, agricultural waste and wastewater treatment facilities, they create biogas (methane). FortisBC captures and purifies this biogas into pipeline quality natural gas and injects it into its system. Once upgraded, it is called renewable natural gas and is a locally produced, carbon neutral source of energy.

For about $5 more per month for an average home, you can designate 10 per cent of the natural gas you use as renewable natural gas. FortisBC then puts the equivalent amount of renewable natural gas into its system. It helps reduce your carbon footprint and supports sustainable energy made here in BC.

Also, FortisBC has partnered with AIR MILES My Planet, so you can earn up to 120 Air Miles reward miles per year (10 reward miles per month) when you sign up for renewable natural gas.

Participant RESEARCH

FortisBC RNG Focus Groups
Discussion Guide – FINAL
June 20, 2013

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e) What aspects of the program would motivate you to sign up for the program? What aspects do you still need to know about or know more about as a result of the summary?

Participant RESEARCH

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(2) What if FortisBC created games that started you off with "points" to start with and then depending on subsequent actions or response to certain "challenges," you would receive additional rewards such as Air Miles or gifts from commercial subscribers?

(3) What if there was potential to earn additional points for a community challenge. The challenge could include contributing towards building a new supply facility, or taking xxx cars of the road or a new park, for example.

(4) Do personal testimonials make a difference?

Attachment 10.2

Marketing Report

Team 8:

Derek Schiissler,
Junie Wu,
Marian Schole,
Natasha Lee,
Rebecca Hughes

Comm: 468 Marketing Applications

Section 101

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EXECUTIVE SUMMARY

Fortis BC is an energy utility company that recently introduced a Renewable Natural Gas program for residential customers. This report assesses the most optimal strategy to continue this program into the commercial sector.

The report will first assess the current situation for Fortis BC. The company has an opportunity in the energy and gas segment that is significant in the province of British Columbia. Fortis has recently introduced the biogas program to residential customers in British Columbia; however, it has had its difficulties, and sign-ups have not been at a desirable level.

This report will analyze the industry and competition, which will be essential in determining the most effective marketing strategy to pursue. The industry consists of many different types of energy such as sunlight, hydro, wind, and electric, to name a few. In terms of competition, Fortis faces competitive forces from other energy companies such as BC Hydro, as well as other companies offering "green" initiatives such as Green Sky Thinking.

By understanding competition, the top segments will be analyzed and targeted. These segments will be primary target segments. These segments include the hotels, commercial office buildings, and wholesalers/retailers. Secondary segments will include restaurants, apartment/condos, and education/government.

Product strategy and pricing strategy will be discussed as well. Both the product strategy and pricing strategy are dependant on a three-tier membership structure, that will create incentives for commercial companies to sign-up within the RNG program. Sign-up projections are parallel with marketing objectives, which will be discussed in detail. The marketing objectives are focused mainly on building awareness, educating customers, and driving sign-ups in rate 2 and rate 3 categories.

Marketing recommendations focus on creating benefits for customers through an annual green event, PR activities, and green communications.

Lastly, monitors and controls will focus on tracking sign-ups as well as identifying optimal promotional strategies. Contingency plans will focus on altering potential pricing structures to a one-tier system, which may be more attractive for potential customers.

SITUATIONAL ANALYSIS

Company Analysis

Company Background

Fortis Inc. is an energy and utility distribution company, providing its customers with natural gas, piped propane, electricity, and alternative energy solutions to homes and businesses throughout British Columbia. FortisBC recently purchased Terasen Gas Inc, making it the largest energy provider in British Columbia, providing the province with 21% of all the energy consumed. The British Columbia Utilities Commission currently regulates FortisBC by setting the rates based on cost of service and performance.

FortisBC is the largest investor-owned distribution utility company, with $6.4 billion in assets and growing. Fortis continues to construct new electricity plants and make improvement to existing facilities and pipelines in the Fraser Valley and the Okanagan. Specifically, the Waneta expansion project aims to provide Fortis customers with reliable clean electricity, Fortis' main objective. Fortis aims to provide energy efficient and clean solutions through new innovations and programs. Fortis uses its PowerSense program to educate its customers on how to conserve electricity and save money. The Energy Efficiency and Conservation initiative aims to reduce greenhouse gas emissions by saving 15.5 million gigajoules (GJ) of natural gas.

Fortis delivers new energy solutions in its natural gas sector such as geoexchange and district energy systems. Fortis recently introduced its biogas program, which meets customers' demand for alternative energy solution and complies with the BC Government Energy goals to reduce greenhouse gas emissions.

The most prominent of Fortis' new energy developments is its renewable natural gas (RNG or biogas) program. RNG is generated from broken down organic material, such as landfill gas and anaerobic digester gas (emissions from agriculture). The gas emitted from the broken down material consists of 50-60% methane. Fortis captures these emissions and cleans out the carbon dioxide to produce biomethane gas, which is a renewable and carbon neutral form of energy. When this renewable natural gas is used in replace of natural gas, there is a reduction of greenhouse gas emissions. Fortis is the first company in North America to develop and distribute carbon neutral renewable natural gas. Fortis received the rights to distribute RNG to residential and commercial customers with a supply cap of 250,000 GJ per year for the first two-years of this test period. Fortis must prove there is sufficient demand to run the program to receive approval for a larger supply in future years.

Current Biogas Program – Residential

Fortis began its distribution of RNG to its residential customers in June 2011. The current offering is rate schedule 1B, which allows residential customers to sign up to contribute 10% RNG to their gas usage. This creates a price increase on their monthly bill by $4 to $5 based on their consumption levels. RNG is an open program tariff that allows customers to opt in and out at any time. The program was targeted at "practical environmentalists"; these customers are committed to a practical environmentalist lifestyle, taking into account the current and future state of the environment in their decisions. This segment tends to be primarily females between the ages of 25 to 54, with a college or university education. Through bill inserts and traditional print advertisements, the program currently has 1044 subscribers, 62% of which are in the lower mainland.

SWOT Analysis

The strengths (S), weakness (W), opportunities (O) and threats (T) analysis is completed on FortisBC's RNG green initiative to rate how it holds up within the company and how it may compare with its competitors, such as other green strategies utilizing the commercial sector's resources (money and time).

Strengths

FortisBC is the largest distributor of natural gas in the Pacific Northwest and supplies gas to almost 920,000 customers in 125 communities. With its sheer size and large percentage of

market share, the company is a recognized gas provider. As the Renewable Natural Gas product is developed, this creates jobs for members in the community and together with the company moving towards conserving the environment; FortisBC improves its image perceived with its customers. Additionally, by already establishing a good business relationship with many customers, it gives FortisBC a 'foot in the door' to sell this new product.

As a green concept, RNG has a list of strengths. In order to produce the good, RNG utilizes waste- a resource that is in abundance, is relatively unlimited and is reusing something that would otherwise would be thrown away. Secondly, to take part in such a program will require little effort and time as opposed to many other green initatives requiring people to change habits or reorganize work processes. Thirdly, the Energy Efficiency and Conservation Group is a program that helps residents and businesses to reduce the amount of gas consumed and to save money on their gas bill. This program is established in the community and has helped to identify potential customers for RNG.

Weaknesses

In the past, FortisBC outsourced its billing services and has recently taken steps to move it in-house. As a result, much customer information is unavailable making product development difficult to be tailored to the specific needs and wants of its customers. With the new FortisBC name, many customers are unaware of who exactly is FortisBC, as many still perceive Terasen Gas as the gas provider. With those who are aware of FortisBC, the name change will have caused some confusion as to why it was changed and trust with the company may have potentially been lost.

Gas is a resource used to help run the business; often working in the background. It is important to note the keyword is background. As a result, it becomes something that is not an apparent part of a business' process and less important in their priority list (because the link is indirect, it becomes harder to communicate to their own customers). For example, an office building may implement a paperless policy, but rarely do people think of gas used to heat the building. Another example is a restaurant using local produce can market their green actions to their customers with ease.

Although RNG is made simple to take part, it is not without costs. It will increase the amount the customer has to pay at the end of every gas bill. The product is distributed to everyone using FortisBC gas and works in the exact same way as natural gas. If individuals utilizing

RNG and natural gas are not able to differentiate the goods, potential awareness that is usually created by the use of green products is lost.

Opportunities

The change in the name and company structure may allow for a new branding opportunity for FortisBC in the community. FortisBC may be positioned as being more conscious of its community impact on both the employees and the environment.

As an environmentally friendly product, the British Columbian government plays a large role in creating opportunities for FortisBC. Standards such as the following are set to"[reduce] greenhouse gas emissions by at least 33 per cent below current levels by 2020 (Vancouver Sun, 2007)." FortisBC targets two areas of concern with its RNG program: reducing greenhouse gas emissions to 2000 levels by 2016 and by putting landfills to use.
As the trend towards being environmentally-friendly grows, many certifications such as Leadership in Energy and Environmental Design (LEED), Green Seal, Energy Star and Every Blue have popped out onto the market. These certifications help to spread a general awareness of being green in British Columbia and help to increase the awareness of green initiatives companies are taking.

Threats

As mentioned before, with the increase in number of certifications given for being eco-friendly, this can become a threat to the integrity of FortisBC's green initiative. Once the market becomes convoluted with many certifications, the next question is the legitimacy of each one of these. FortisBC must now compete with numerous green options that are available to commercial companies. Additionally, many green initiatives are positioned as a way to save the environment as well as their pocketbooks. Because companies are profit maximizing, FortisBC's RNG may encounter difficulty in competition.

Category Definition

Green/Renewable Energy

Green or renewable energy can be defined as energy that is derived from renewable resources such as wind, sunlight, biogas, hydro, geothermal heat, rain, etc. Currently, about 16% of global energy consumption consists of renewable energy (NREL, 2011). Renewable energy replaces conventional fuels in four distinct areas: power generation, hot water/space heating, transport fuels, and rural (off-grid) energy services. Specifically, renewable natural gas or "biogas" is a type of renewable energy that is generated from organic material that typically consists of 50-60% methane gas (Fortis, 2011). In terms of potential sources of this renewable natural gas, anaerobic digesters and landfills show promise at this point in time within Canada.

Competitor Definition

The renewable energy industry is becoming increasingly competitive as the global "Green" phenomenon continues to grow. In terms of a Biogas program that would be implemented by Fortis, competition can be divided into two distinct categories:

i. ***Direct Competitors:*** These competitors consist of companies or programs that have similar renewable energy programs. These programs could consist of biogas, wind, hydro, sunlight, or any other type of renewable energy program. For Fortis, the strongest competition will most likely be from other biogas programs or hydro electricity companies.

ii. ***Indirect Competitors:*** These competitors consist of companies or programs that are promoting the "green" image. Since Fortis is essentially selling the "green" image to consumers, other companies that offer similar ways for companies to become more socially responsible or "green" should be considered indirect competitors.

CUSTOMER ANALYSIS

FortisBC has over 940,000 customers in 125 communities and is responsible for 95% of natural gas delivered to the consumers in BC. The company segments its customers in four rates by usage of natural gas per year. Rate 1 represents all residential customers, Rate 2 and Rate 3

include all commercial customers and Rate 4 stands for industrial customers. Our marketing plan will be targeting Fortis' commercial clients in Rate 2 and Rate 3. The difference between a Rate 2 and Rate 3 commercial client is simply the level of gas consumption the customer uses – a Rate 3 commercial client uses more gas than a Rate 2 commercial client. See Appendix 1 and 2 for the top consuming sectors in Rate 2 and Rate 3. In the segment of commercial customers, we have identified hotels, commercial/office buildings, and wholesalers/retailers to be the major focus of our marketing plan for the RNG program of FortisBC; therefore these three segments will be the primary target market segments for the RNG program.

Primary Segments

Hotel Segment Analysis

Hotels are using four percent of the energy supplied to large commercial customers of FortisBC. We predict companies in the hotel industry to be very inclined to sign up for the RNG program based on the following reasons.

The majority of hotels in North America already have some kind of corporate social responsibility or environmental program in place. Based on the research from Teresan, the companies that are already engaged in green initiatives are the ones most likely to sign up for this type of RNG program. Hotels are very concerned about being recognized as green businesses and the majority of bigger hotels in Vancouver state their green initiatives to the public through websites and other media. We have identified the recognition for being environmentally responsible as the major selling point of the FortisBC's RNG program. Since there is an apparent trend towards committing to green initiatives and being publically recognized for it, we predict the hotel industry to be a very suitable platform for a large number of sign-ups for this program.

Academic research has shown that hotel guests are increasingly concerned about the contribution of hotels towards green initiatives (Lee, J., Hsu, J., 2010). There are already several channels in place, which publicize green initiatives of hotels or rank hotels in terms of their green involvements (Wolfe, K., Shanklin, C. 2001). The Green Hotel Association (www.greenhotels.com/members.php) and The Green Key Initiative (www.greenkeyglobal.com/greenkey.asp) are two examples of programs that reward hotels engaging I green initiatives by recognizing them on their websites and referring them to consumers.

One major drawback in focusing on the hotel industry is that with four percent of the energy supplied, it represents a relatively small portion of the top large commercial customers of FortisBC. Another potential limitation could be, that bigger hotel chains already have independent green initiatives in place and therefore would not be likely to sign up for additional programs that are not tied into these internal programs.

Commercial/Office Building Segment Analysis

Small Commercial (Rate 2)

In the small commercial sector, commercial/office buildings account for 11% of this rate's consumption. The small commercial segment is typically comprised of small to mid-size stand-alone office buildings and strip malls.

In analyzing the smaller stand-alone office buildings, we feel that these buildings would mostly be located in more industrialized areas with lower density. Since these industrial areas would be experiencing less traffic, we feel that smaller commercial/office buildings may not be so inclined to invest in RNG because they would have less opportunity to advertise their involvement in the program.

However, we believe that strip malls may turn out to be a lucrative sub-segment of the small commercial/office buildings for the RNG program. Strip malls are often located on street corners and typically include a grocery store, small restaurant, video rental store, etcetera and operated by a building manager. These strip malls experience a higher volume of visitors than stand alone commercial/office spaces. The incentive for the building manager to participate in the RNG program would be to add value to his complex. Often times, these building managers are part of a larger building management company who operate several strip malls. Participating in the RNG program will add value to their building portfolio. When in need of recruiting a new tenant or replacing an existing tenant, the building manager can use the building's participation in the RNG program as a selling point to the potential new tenant. This may be useful because the tenant's corporate social responsibility goals may be in line with what the building manager is offering. Furthermore, advertising the building's participation in RNG on the windows of the strip mall complex may be more effective because of the high volume of customers that go through the area.

Dealing with a single building manager who manages the utilities bill for several tenants is a

lot easier than trying to convince multiple stand-alone commercial/office buildings. However, unless the building manager feels that the benefits he can gain from participation in the RNG program does outweigh his cost to invest in it, the building manager probably will not get involved.

Large Commercial (Rate 3)

In the large commercial sector, commercial/office buildings account for 6% of this rate's consumption. The large commercial segment is typically comprised of large high-rise commercial buildings with multiple tenants.

Since these buildings are usually located in high-density urban areas, there is much opportunity to display one's affiliation with the RNG program and receive recognition for it by consumers. Furthermore, the tenants of these large office buildings are generally mid-to-large size firms because they would need to be able to afford the high rent that these buildings charge. The fact that tenants are larger firms than in the small commercial sector, these firms often have an inclination towards becoming green. Being green has become a mandate for many larger firms and they incorporate their green mission into corporate policies. For example, there is a growing trend that companies are seeking to locate their offices in buildings that have minimal impact to the environment. Likewise, the trend that the number of LEED (Leadership in Energy and Environmental Design) certifications have been increasing is another signal that the importance of green buildings is catching on.

We feel that the large commercial sector is a very promising area because of the growth in green initiatives these buildings have undergone in the last 5 years. For example, in 2008, 25% of BC projects sought green certification (Vancouver Economic Development Commission, 2009). Participating in the RNG program is another way a building can seek to become more environmentally-friendly and enhance its building's green credibility. As the above-mentioned trends have shown, companies are increasingly looking to ways in which they can decrease their carbon footprint; especially in those larger corporations who typically occupy large commercial buildings. It is beneficial for the building manager to invest in the RNG program because there is demand for becoming green by its building tenants and it can become a point of differentiation when the building manager needs to seek new tenants.

Wholesaler/Retailer Segment Analysis

The wholesaler/retailer customers form a significant portion of natural gas consumption in both the Rate 2 and Rate 3 categories. For Rate 2, this segment consists of smaller stand-along wholesalers and retailers. This segment is a top consumer of natural gas at about 17% of total consumption; however, it should be noted that this segment's consumption is projected to decline moderately in the next few years, mostly due to the state of the current economy (Terasen Gas Incorporated, 2009). In Rate 3, the portion is smaller, but still significant, with total consumption at about 9%. This segment consists of mid to large sized wholesalers and retailers, with projected growth to remain stable in the upcoming years (Terasen Gas Incorporated, 2009).

Both the Rate 2 and Rate 3 wholesale/retail customers would be strong segments to target for the RNG program. The wholesaler/retail market is extremely competitive. These companies are constantly looking for new ways to differentiate from other similar companies. Currently, one common way that these companies are doing this is through CSR or "green" initiatives. Companies such as Wal-Mart with its 100 percent renewable energy policy and Home Depot with its Sustainability Strategy are two examples of large retailers that are finding ways to improve their sustainability practices. This is only a growing trend in this market; therefore, this is one major reason that Fortis should be able to attract a significant number of wholesalers and retailers that would be interested in the RNG program.

In a similar way, these types of businesses are now often required to keep up with "green" initiative, since consumers are becoming more demanding that companies do so. In a recent study done by MC Market Research, it was found that over 60% of consumers feel that retailers need to be sustainable in their practices (MC, 2007). This illustrates that this segment needs to increasingly find was to become more environmentally friendly in order to satisfy consumers; therefore, this segment will most likely find value in the proposed RNG program.

Lastly, a recent study done by the Ecopreneurist indicates six major trends on how retailers are going green. The most important trend for the purpose of this report is that 35% of retailers are currently redesigning store infrastructure in order to become more sustainable (Ecopreneurist, 2011). This illustrates that there is a market for the RNG program for retailers, since a significant number of retailers are looking for ways to make their facilities more sustainable.

The only limitation of this segment is the fact that the Rate 2 customers are projected to decrease their consumption habits in the short-run. Due to the current economic situation, the Rate 2 customers may be less inclined to sign-up with the RNG program compared to Rate 3 customers; however, since Rate 2 has a consumption pattern that is still a large contributor towards overall gas consumption, it should still be targeted. Another possible limitation of this market is that a significant number of these companies already have "green" initiatives; however, the TNS market research indicates that customers that already have these types of programs or initiatives in place are actually *more* likely to sign up; therefore, the wholesaler/retailer market should be a strong target market.

Secondary Segments

Apartment/Condo Segment Analysis

By definition from page 281, in the Terasen Gas Inc. 2010-2011 Revenue Requirements Application, apartments and condominiums are multi-family dwellings, smaller/midsize apartment or condominium buildings. In 2008, apartments and condos represented 25 percent of natural gas consumption in the Rate 2 category and 43 percent in Rate 3; a relatively substantial quantity. Targeting this group would be beneficial because with a small change in percentage to RNG, the total quantity would be large and help to prove demand to achieve the 250,000 GJ.

The trend in consumption within this segment is stable, especially when compared to the other segments. Additionally with a stable trend, the increase in cost associated with RNG will at least be a consistent premium that can allow for easy forecasting for the upcoming months as well as allow for manageability of resources needed to cover the costs. Whereas if the customer is increasing their gas consumption, the change in costs will be less predictable and more difficult to foresee the manageability of exact resources needed thus leading to hesitation for signups. On the opposite spectrum, if a customer is decreasing their gas consumption, they will have experienced a decrease in their bill and to then bring an increase without a physical benefit directly to the consumer will be a more difficult sell.

According to the definition, in one building there are multiple families. With multiple families utilizing gas, there will be several decision makers. In order to sign an apartment/condo, the majority if not all decision makers must agree. This would prove difficulty with vying for each of their attention to then educate and persuade. Numerous people involved, would result in a more diverse pool of opinions and values. Thus, targeting this segment and convince the

majority would be less probable and an inefficient use of resources.

Restaurant Segment Analysis

Restaurants in this segment include smaller/larger restaurants, delis and coffee shops. In 2008, restaurants represented 11% in Rate 2 and 6% in Rate 3 consumption.

Research states that in the United States[1], "69 percent of adults are more likely to visit a restaurant that offers food grown or raised in an organic or environmentally-friendly way" (Facts at a Glance, 2011) along with websites such as Green Table Network (www.**greentable**.net/) that allow consumers to search for green restaurants. This underlying concept has sparked a trend to become green in order to cater to its customers and to stay competitive. As a result, many restaurants are beginning to take that green step and thus may be more likely to sign up for the RNG program.

This sector is seeing a trend moderately declining in gas consumption. As mentioned before, a customer seeing an overall decreasing gas bill will be more reluctant to once again increase the bill with RNG. Additionally, the green trend has affected restaurants in the sense that they are changing the source of their food or supplies such as take-out boxes to more eco-friendly materials. On the other hand, natural gas consumption is utilized for cooking, hot water, dishwashing, spacing heating and patio heating. With many options to become green, restaurants will be inclined to select eco-friendly steps that are associated with their primary service and thus allows for easy communication to their customers about initiatives taken. For example, if the green initiative results in an increase in price charged for food, explanations would be simple because the ingredients are more costly to grow (organic); a direct association can be made.

With the nature of industry, RNG would remain a secondary component to support the primary restaurant experience. Once knowledge and awareness of this program grows, its diners would be able to recognize RNG program (through other segments and the residential sector) much more easily and thus this segment would benefit as a secondary target group.

[1] Assumption: trends in the US will be indicative of trends to come in Canada (tends to lag behind) since the two countries have similar characteristics.

Education/Government Segment Analysis

The education category accounts for 5% of the Rate 2 customer segment. The education sector is currently strongly focused on achieving carbon neutrality by reducing greenhouse gas emissions and sustainability. The government buildings sector accounts for 8% of Rate 2 customers. These segments are both controlled by government policies and regulations and thus will be addressed together in further analysis. Overall, despite the size and green initiatives of these segments, they do not provide significant opportunity for the RNG program due the goal to use carbon neutrality to achieve cost savings.

British Columbia is leading the way in carbon neutrality by becoming the first major jurisdiction to achieve carbon neutrality in 2010. This means the entire public sector including public schools and government buildings have achieved a net-zero greenhouse gas emissions. These efforts began in September 2008, British Columbia enacted the Green Code. The green code states “An objective of this Code is to limit the probability that, as a result of design, construction or renovation of a building, the use of energy will be unacceptably inefficient or the production of greenhouse gases will be unacceptably excessive….the unacceptable risks of inefficient energy use or excessive greenhouse gas”. As a result, in 2010 the BC school system released the sustainable schools best practice guide to implement actions to reduce greenhouse gasses and encourage efficient use of all resources. The government as well as the school system hope that the current regulations and codes will help lead the way in creating sustainable buildings and schools. Furthermore, the schools acknowledge that their heating and cooling systems consume significant amounts of energy and thus are striving to find alternative measures to reduce the GHG emissions of the equipment. According to Live Smart BC, these measures were successfully achieved in 2010.

Despite the public sector’s strong initiatives to reduce GHG, the goal of this reduction was to reduce costs and yield large savings for these large consumers. The efforts to improve the climate and lead the way in green living, is strongly coupled by a desire to take responsibility for the carbon pollution generated through careful cost-effective building and equipment upgrades (NComputing). This misalignment with the RNG plan, which reduces GHG through an *increased* cost on the gas bill for the consumer, makes the education sector a less attractive target for the RNG project.

INDUSTRY ANALYSIS

The renewable/green energy industry is becoming more and more prominent as pollution, climate change, and energy insecurity continue to be issues in today's world. Renewable energies are "expanding both in terms of investment, projects and geographical spread." World investment in renewable energy accounted to approximately $211 billion in 2010, which increased by $51 billion from the previous year (Renewable Energy Report, 2011). First-generation technologies such as biomass, geothermal power and heat, and hydroelectricity are mature in their growth stages within the industry. More importantly, second-generation technologies such as solar heating, wind power, and bioenergy are "market-ready" and these technologies are growing throughout the world market.

In Canada, and more specifically British Columbia, there are renewable energy technologies for wind power, solar power, hydroelectricity, biomass, ethanol, and biogas among others. In terms of commercial biogas, the industry is relatively untouched within the province, since Fortis currently provides 95% of the natural gas to the province of British Columbia (Fortis, 2011); therefore there is a high potential for providing a renewable natural gas to clients within the province. Within British Columbia, two feasible options for attaining this biogas is though anaerobic digesters and landfills.

In a broader sense, Fortis BC is in the industry of providing power and heat to potential clients. Within this industry, companies such as BC Hydro, Aeolis Wind Power, and Bullfrog Power are providing energy efficient alternatives that offer "green" services. For example, BC Hydro has implemented a number of initiatives to procure bioenergy from projects that utilize wood fiber and biomass fuel sources (BC Hydro, 2011), Aeolis Wind Power is committed to providing sustainable wind energy projects that are also economically viable (Aeolis, 2011), and Bullfrog Power provides clean and renewable electricity through both wind and hydro facilities.

COMPETITOR ANALYSIS

Competitors for Fortis BC can be divided into two distinct categories. These categories are:

A) **Direct Competitors:** These competitors are "directly" competing with Fortis BC in the power and energy industry within British Columbia. The most significant competitors in this segment are BC Hydro, Canadian Utilities Limited (ATCO), and Pacific Northern

Gas. BC Hydro provides sustainable electricity to its customers through its world-class integrated hydroelectric system and is one of the strongest competitors for Fortis BC in both the residential and commercial sector. Canadian Utilities Limited (ATCO) is another competitor with its McMahon Plant providing power to British Columbia; the company is also currently in a joint venture with BC Hydro, with a natural gas contract between the two companies. Finally, Pacific Northern Gas is a company in British Columbia that provides gas to over 40,000 residential, commercial, and industrial customers throughout the province (Pacific Northern, 2011). Other potential direct competitors include companies such as Aeolis Wind Power and Bullfrog Power.

B) **Indirect Competitors:** These competitors are competing with Fortis at a more "indirect" level. If Fortis introduces a biogas program to potential commercial clients, it will need to compete against other programs or companies that are offering similar "green" initiatives, services, etc, since commercial customers are looking for ways to become more socially responsible and increase their "green" image to customers. These types of competitors could range from companies that help in other aspects of building a green image for commercial customers to consulting firms that specialize in "green sustainability" such as Green Sky Thinking, which is a company based in Vancouver. Competitors such as BC Hydro can also be categorized as an indirect competitor, since the company offers a number of green initiatives, which can also help potential commercial clients with their desire to become more socially responsible.

CREST ANALYSIS

Competition

There is limited competition for renewable natural gas, as Fortis BC is the only provider of the product in BC. However, the RNG program competes among other renewable energy programs, such as hydro and wind power. The program also indirectly competes with other companies that are selling the "green" and sustainable image.

Regulatory

The BC government is currently focused on becoming a “champion of climate change”, by reducing carbon and greenhouse gas emissions. They are using the energy sector’s technological advancements, such as renewable natural gas, to make BC a “green economy”. However, before the RNG program could be introduced into the residential or commercial customer segments, Fortis BC filed a Revenue Requirements and Delivery Rates application with the British Columbia Utilities Commission. Fortis was required to file such an application to have permission to charge higher utility fees for the introduction of the RNG program. In January of 2010, Fortis received approval to go ahead with the RNG program under the condition that they create a customer demand, which is capped at 250,000 GJ within the first two years.

Environmental

There is a growing concern for climate change and the future of the world’s environment, which has led to the enactment of many new environmental policies and regulations by the province and the federal government. The effort of the City of Vancouver to become “the greenest city in the world” by 2020 creates an opportunity for renewable natural gas programs.

Social

Current consumers are becoming increasingly aware of the “greenness” of business. Consumers specifically look to energy companies to make efforts to provide them with the most efficient and environmentally friendly energy as possible. They also are beginning to base consumer purchases off the sustainable and green image of a company, forcing business to find ways to meet this image.

Technological

Fortis BC is the first Canadian energy supplier to develop and deliver carbon neutral renewable natural gas. To create the renewable natural gas, Fortis captures and refines the emissions from broken down organic material from landfills and agricultural waste. When customers sign up to receive RNG, Fortis places the renewable gas in the pipes along with the natural gas.

INTERNATIONAL COMPARABLE ANALYSIS

City of Vermont Public Service

The city of Vermont in the United States launched a comparable biogas program in 2009 and its marketing efforts include the use of animation and cartoons to explain and promote biogas (Central Vermont Public Service, 2009). Their website features a simple-to-understand animation explaining the biogas process which seems to have been successful for their program (see Appendix 3). Upon sign-up, the city of Vermont provides a logo to members which they can then use to advertise their participation in the program

In regards to product offering, the city of Vermont has created a "voluntary tariff" which consumers can elect to pay a premium on their bill and that premium is directly passed on to the farms which produce biogas. Unlike Fortis' RNG program, the city of Vermont is using the biogas process to fuel electricity production. They have given residential customers the option to convert their total or a portion of their electricity consumption to be renewable. For example, one can opt to allocate 100% of their electricity consumption to be produced by biogas which is about $20 more per month on that customer's electricity bill. Alternatively, one can opt to allocate a portion of their electricity consumption to be from biogas, i.e. 50% renewable and 50% non-renewable which would be $10 more per month on the customer's electricity bill.

US Environmental Protection Agency (EPA)

The EPA in the US offers a Green Power Partnership biogas initiative. Similar to what the city of Vermont offers, this program is also electricity based. Their communication on their website is more technical and scientific which can also be exemplified by the layout of the site (see Appendix 4).

They offer many interesting recognition collateral for companies that sign-up to the program. First, in the welcome package that all new members receive, a certificate acknowledging the member's green power commitment in included. All members also receive the "EPA Green Power Partner Mark" which they can include in their corporate communications to reinforce their leadership in environmental sustainability (US Environmental Protection Agency, 2011). There is a dedicated section of the website listing prominent members with links to company profiles elaborating more on the company's other green initiatives. The EPA has created a ranking system which is updated quarterly to reflect their members' greatest contributions to the program. Finally, the EPA

also hosts an annual awards night to recognize the actions of individuals and organizations that have contributed significantly to the program.

To qualify to be a Green Partner, the EPA has set minimum standards on how much green power one must purchase within the first 6 months of joining the program. The minimum standard is based on the individual or organization's yearly electricity usage. They have a two-tier product system because there is a second level up from the standard product offering. The EPA has created a Green Power Leadership Club where these members have higher minimum standards of how much green energy they must purchase to qualify to belong to this club. They provide incentives for members to upgrade to the Green Power Leadership Club because these members get recognized at a nationwide green industry annual event called the Renewable Energy Markets Conference that is co-hosted by the EPA and the US Department of Energy.

CHANNEL ANALYSIS

Account Managers

Account managers are FortisBC employees who oversee a group of commercial customer accounts. They are in charge of the sales and relationships between the company and these customers.

Account managers have a close working relationship with their customers. They understand who are the decision makers, the company structure and their company needs. To utilize this channel would save time in trying to get into contact with the decision maker and establish another relationship. Relationships are crucial in sales because decision makers are often approached by many offers and for them to take time out of their busy day for each sales associate is highly unlikely. Logically, it would make sense for the account managers to approach these commercial customers because they are in charge of these accounts and any potential changes. From the customer's perspective, they should be informed by the account managers of any new products because one connection with the customers versus multiple would alleviate any potential account confusion.

Motivation and resources such as time are two aspects that determine the success of this marketing channel and are often insufficient. Although a relationship is already established, account managers often need to make several calls and attempts in order to successfully contact

these decision makers. To maintain the number of attempts requires motivation and time. If account managers do not have the incentive to spend a majority of their time on this aspect, they will not continue to approach their customers for RNG signups. Thus, incentives need to be addressed and the criteria of their performance reviews will require a slight adjustment so that these managers will not be penalized for their sales efforts. Additionally, support such as training and education should be given to account managers to help them achieve numerous signups.

Trade Magazines

Trade magazines are professional publishing that are created to target a specific industry. Advertisings in this channel would be directed at a specific segment of customers. On top of such, advertisings will have a higher chance of being read because the channel filters out people who are not interested in such information. Therefore, the people that sign up with the trade magazines are on the search for industry news and latest products and services out on the market.

The downsides of trade magazines are the high costs and limited accessibility/ distribution of the publishing. To advertise in a trade magazine, it would cost about $5000/ full page spread one time a year[2]. Also, the most popular magazines within the industry may not be Vancouver specific and thus, with a national or global viewership, the costs would also be increased. To utilized trade magazines with only a British Columbia viewer base may have limited accessibility to FortisBC commercial customers because not all companies would subscribe to a trade magazine and even less would subscribe to a less well-known magazine.

Trade Shows

Trade shows are similar to trade magazines in the sense that these are targeted to a specific group of customers; acting as a pre-filter. The people attending the trade shows have made a conscious decision to actively look for what's new in the industry and what is a potential fit for their company. Trade shows allow for personalization in the one-on-one contacts. Additionally, trade shows offer the ability to utilize mediums such as videos, marketing collateral and marketing trinkets to be given out.

[2] This amount would have a quantity discount if advertised more than once a year (for example, about $4000/ full page spread for 6 times/ year).

Trade shows is a space where many options are made available to the customers. With many competitions vying for their green budget and time, FortisBC will need to stand out. Another factor that makes trade shows difficult is the fact that the people who attend may not necessarily be the decision makers and thus may not be able to achieve quick signups. Thirdly, for limited attendance by the target customers, trade shows may become expensive due to the quality and quantity of materials needed and given away for the amount of time and dollars spent. Lastly, trade shows are scheduled for dates in locations that are outside of FortisBC's control. Therefore, it requires organization and preparation on FortisBC's part to prevent missing out on a trade show that occurs once a year.

Fortis Energy Efficiency and Conservation Group

The Fortis Energy Efficiency and Conservation Group are consultants who offer advise to customers on how to increase energy efficiency in their buildings. In a close corporation with the customers, their aim is to make existing energy systems more efficient and provide expertise in the processes of engineering and designing new buildings in order to meet high-energy efficiency standards in the future

The RNG program should be implemented into the set of recommended programs for customers, who are consulted by the Energy Efficiency and Conservation Group. Through the active relationship of this group to corporate customers, they are providing an excellent channel for the RNG program to be promoted. Based on their expertise they will be able to introduce the program to customers in a most credible way.

Recognizing the relatively small size of the Energy Efficiency and Conservation Group, it is necessary to mention that its reach is limited and will not have an effect on all Fortis customers. Reaching out to customers through this channel can potentially be very timely and may not be compatible with other programs recommended to customers by the Energy Efficiency and Conservation Group.

Electronic Newsletter

Including information about RNG in existing FortisBC electronic newsletters is a very cost efficient method of reaching a large number of customers. It specifically attracts those customers who are inclined to seek information online rather than in newspapers or magazines. Interactive tools, such as videos can be implemented and customers can easily forward information to others. It is

very important to create very user-friendly newsletters, which are easy to navigate through. The customer should be able to easily seek out the information that is of interest for him. This can be a very crucial benefit in corporations, in which several managers have to make decisions about signing up for programs like RNG. Electronic newsletters are environmentally friendly which underlines the main argument of the RNG program.

Potential challenges of using electronic newsletters as an advertisement channel for RNG are that some customers might receive a lot of electronic newsletters and feel overwhelmed by the amount of information provided. Some customers might dislike electronic newsletters in general and others might be too busy to read them. Newsletters need to be updated on a regularly which incurs the need for resources. Since not all customers are registered with their email address at FortisBC or do not use the internet for this kind of information gathering, this channel can be used in addition to others but will not provide a method that allows to reach all of the corporate customers.

E-bills

A large number of FortisBC's corporate clients receive monthly e-bills instead of physical bills in the mail. Taking advantage of this existing communication channel with the customers can be very effective way of promoting the RNG program. After the initial cost of creating an advertising tool that can be attached to e-bills, the cost of distributing it is very low. The advertisement can include videos and other unique features that will introduce RNG to the customers and convince them to sign up for the program. Combining the information on RNG with the e-bill increases the chance for customers to notice and pay attention to it. Through a link that leads the customer directly to the sign-up page, even the process of signing up can be made more convenient and faster than with conventional advertising channels. Customers who have signed up to receive their bill on an electronic way are likely to prefer receiving program offers electronically as well. The electronic information provided on the RNG program can be easily forwarded to decision makers and peers and has no negative impact on the environment. FortisBC will be able to provide the information several times to the same customers at no additional cost, which can ultimately lead to an increase of sign-ups for the RNG program throughout the year. Since not all corporate clients are registered for receiving their bills electronically, it is not possible to reach all customers through this communication channel.

MARKETING OBJECTIVES

The marketing strategy for FortisBC will consist of six main objectives. These objectives are SMART objectives. Each goal is specific, measurable, attainable, relevant, and time-bound. These objectives are as follows:

1. Increase program awareness: This is a specific goal, which will be measurable through surveys. It is most definitely attainable, as our marketing strategy will be aimed at increasing awareness. This objective is also relevant, since program awareness will be essential, in order to increase customer sign-ups. It is also time bound, since our program will increase awareness, with a goal of 75% awareness within the first year.

2. *Educate potential commercial customers:* Again, this goal is specific and measurable through questionnaires and surveys. It is also attainable to educate these customers, which will be achieved through promotional tools. Education is also very relevant; if consumers lack understanding of the program, then it is unlikely they will sign-up. This objective is time-bound, since much of the education will occur within the first year of the initial program, since the program is so new to commercial customers.

3. Identify optimal promotional channels: This goal is specific and will be measurable because upon sign-up in the program, customers will be asked to write down how they found out about the program. This will make it possible to track which channels perform the best. Due to the relatively ease of measurability, this goal will be attainable as well. The goal is also realistic and time-bound.

4. Achieve a Rate 2 customer sign-up of approximately 6000 customers within the first year: This goal is specific and measurable. Quarterly tracking of customers will be done in order to track customer sign-ups frequently. According to market projections, which will be discussed later, this goal is also attainable and realistic. The market projections were done using an optimistic and conservative view; therefore this objective is based on an average of the two projections. The one-year time frame helps to make this objective time-bound as well.

5. Achieve a Rate 3 customer sign-up of approximately 400 customers in the first year: Again, this goal is specific and measurable. Quarterly tracking will be done to gage the success of this segment. Market projections also show this goal is attainable and realistic. The one-year time frame makes this objective time-bound as well.

6. Achieve an RNG usage rate of approximately 73,000 GJ in the first year: This goal is also specific and measurable. Projections help to support that this objective is attainable and realistic. An optimistic and conservative projection was conducted, and an average was used to produce the overall objective of RNG gas consumption. This goal is time-bound, since a time frame of one year is used.

PRODUCT STRATEGY

Product Definition

Renewable natural gas or "biogas" can be defined as natural gas that is derived from organic material and typically consists of 50-60% methane gas. In terms of out RNG program, it will allow potential commercial customers to purchase a percentage of RNG to replace an existing percentage of natural gas.

Product Proposition

The purpose of the RNG program is to provide potential commercial customers with an opportunity to improve on CSR and sustainability initiatives, help companies gain community recognition, and provide a point of differentiation from competitors. Essentially, the RNG program will help companies improve their green image, which is a major selling point for the program. The program will consist of a three-tier membership, where a customer's membership depends on the level of RNG consumption. The three levels of membership will include Gold, Silver, and Bronze members; Gold members will have the highest RNG percentage consumption, followed by Silver and finally Bronze.

Universal Benefits for all Members

The RNG program will offer many incentives to sign-up, which will be consistent across all three levels of memberships. First, RNG members will receive a welcome-kit upon sign-up that will include information about the program and an RNG certification. This certificate can be displayed at any prominent location that the commercial customer wishes. The certificate will essentially be a tool that will allow commercial customers to communicate to customers, other businesses, or the general public that the business is participating in the program. Additionally, commercial customers will receive marketing support from FortisBC by helping these clients create RNG

posters, banners, and any other signage, that can be displayed at any events, conferences, or on site. Thirdly, commercial clients that become RNG members will have the opportunity to receive free “green” consulting from the Fortis Energy Efficiency and Conservation Group. This group will consult commercial customers on how to improve on strategic sustainability or CSR initiatives, and will help these customers find ways to better promote their RNG memberships. Lastly, every commercial customer that signs up in the RNG program will be recognized on the FortisBC website; however, the degree of recognition will depend on level of membership.

Proposed Membership System

As mentioned earlier, the RNG program will consist of three levels: Gold, Silver, and Bronze. The Gold membership will have exclusive benefits over the other two memberships, and the Silver membership will have exclusive benefits over the Bronze membership. The reasoning behind this is that exclusive benefits will give commercial customers an incentive to upgrade to the next level of membership.

Gold Membership: Qualifications & Exclusive Benefits

Qualifications: Qualification within the Gold membership is different for both Rate 2 and Rate 3 customers. For Rate 2 customers, 5.5% of total gas consumption must consist of RNG. For Rate 3 customers, 4.7% of total gas consumption must consist of RNG. Additionally, commercial customers must satisfy this consumption requirement for three consecutive months in order to qualify as a Gold member. This requirement will help create an incentive for companies to continue with the program in order to reach the membership. Once the membership is achieved, benefits of the RNG program will help to retain these newly qualified members.

Exclusive Benefits: The exclusive benefits of a Gold member will consist of four components. First, there will be a section on the Fortis website dedicated to Gold members at the top of the RNG section of the website. Their logos will be shown to help promote the companies on the website. Second, upon achieving the membership, there will be a press release dedicated to new members on the website. New members will also be acknowledged in the Fortis newsletter. Lastly, Gold members will have the opportunity to be primary sponsors of the Fortis annual green event (no charge to be a sponsor), as well as a select few Gold members will also have an opportunity to present initiatives at the event. The opportunity to speak will be determined by the first ten companies that sign-up for the event, since time will only permit a select few to present.

Silver Membership: Qualifications and Exclusive Benefits

Qualifications: Qualification within the Silver membership for Rate 2 customers requires that 4.1% of total gas consumption consists of RNG. For Rate 3, 3.5% of total gas consumption must consist of RNG. Similarly to Gold qualification, a commercial customer must satisfy these requirements for three consecutive months in order to qualify for the membership.

Exclusive Benefits: For the Silver membership, new members will be mentioned in the Fortis newsletter. This will help to create public awareness of these members, which will provide pubic relations benefits. Moreover, Silver members will be *mentioned* in a press release on the Fortis website. The major difference between the press release for Silver members and Gold members is that Gold members will have a dedicated acknowledgment about the company, where as Silver members will only be mentioned. Silver members will also be featured on the Fortis BC website, however their logos will not be on the website like the Gold members. Instead, these members will only be listed under the RNG program section, closer to the bottom. Lastly, Silver members will have the opportunity to be secondary sponsors of the annual green event, but these customers will not have the opportunity to speak at the event.

Bronze Membership: Qualifications and Benefits

Qualifications: In order to qualify as a Bronze member, Rate 2 commercial customers must have 2.7% RNG usage of total gas consumption, and Rate 3 customers must have 2.3% of total gas consumption. In order to qualify as a member, these requirements must be fulfilled for three consecutive months.

Exclusive Benefits: There are no exclusive benefits at this level of membership. The three-tier system is in place to create an incentive for members to upgrade to the next level of membership, due to an increase in benefits. Although Bronze members have no exclusive benefits, these members do get the universal benefits of the RNG program that were discussed in the “incentives to sign-up” section.

PRICING STRATEGY

Our pricing strategy is based on an increase cost that will be on each monthly bill, and will be determined by the three-tier membership structure. Based on market research which found that

44% of commercial customers would be willing to spend 3% *or more* on bills (see Appendix 5) (TNS, 2009), and projections of customer sign-ups, it was concluded that the most realistic cost structure would be as follows:

Gold Membership

The Gold membership will consist of annual cost increases of about 20% for both Rate 2 and Rate 3 customers. On a monthly cost basis, this will equate to an average bill increase of approximately $30.93 for Rate 2 customers and $210.53 for Rate 3 customers. When promoting the RNG program it will be important to communicate the pricing structure on a monthly basis, which will be perceived by commercial customers as much more financially attractive.

Silver Membership

The Silver membership will consist of annual cost increases of approximately 15% for both Rate 2 and Rate 3 customers. This will equate to an average monthly increase in a bill of about $20.62 for Rate 2 customers and $131.60 for rate three customers.

Bronze Membership

The Bronze membership will consist of annual cost increases of about 10% for Rate 2 and Rate 3 commercial customers. On a monthly basis, this will equate to an average monthly bill increase of approximately $12.89 for Rate 2 customers and $65.80 for Rate 3 customers.

See Appendix 6 and Appendix 7 for pricing models.

CUSTOMER PROJECTIONS

We have forecasted the following projections for commercial customer sign-up for 2012. See Table 1 for a breakdown of Rate 2 and Rate 3 projections.

Table 1: Rate 2 and Rate 3 Customer Sign-up Projections and GJ Usage

COMPANIES TO SIGN UP						GJ USAGE				
		Bronze	Silver	Gold	Total		Bronze	Silver	Gold	Total
RATE 2	Cons	8%	5%	1%	**4,497**	Bill	10%	15%	20%	
		2,570	1,606	321		Cons	21,988	20,614	5,497	**48,100**
	Best	12%	10%	2%	**7,709**	Best	32,983	41,228	10,994	**85,205**
		3,855	3,212	642						
RATE 3	Cons	8%	5%	1%	**296**	Bill	10%	15%	20%	
		169	106	21		Cons	1,445	1,355	361	**4,497**
	Best	12%	10%	2%	**507**	Best	2,169	2,711	723	**7,709**
		253	211	42						

We have provided conservative and best-case (optimistic) projections for 2012. For Rate 2, we predict that the RNG program will be able to achieve between 4,497 and 7,709 customers in 2012 and for Rate 3, 296 to 507 customers in 2012. We came up with these projections basing it on a percentage of the commercial clients we feel would be willing to sign-up for the program. The TNS market research study had found that 44% of commercial clients would support a 3% increase on their gas bill (TNS, 2010). Since we are increasing commercial clients' gas bills by either 10%, 15%, or 20% we lowered our sign-up expectations to 8% for Bronze, 5% for Silver, and 1% for Gold for conservative predictions and 12% for Bronze, 10% for Silver and 2% for Gold for our best-case predictions. There are many more Rate 2 customers than there are Rate 3 customers and thus, more Rate 2 clients would most likely be in the program versus Rate 3.

Based on our sign-up projections and percent increase on the commercial client's gas bill, we calculated the amount of GJ usage that would be incurred. For Rate 2, GJ used would be between 48,100 GJ and 85, 205 GJ and for Rate 3, between 4,497 and 7,709. That gives us a total program usage (Rate 2 + Rate 3) between 52,597 GJ and 92,914 GJ. We understand that Fortis would like to maximize their 250,000 GJ allocation from the government; however, we feel that this is the most realistic projection we can offer due to the costs of the program and the likelihood of sign-up from commercial clients.

MARKETING STRATEGY

Acquisition Strategy: Incentives to Sign-up

"Being green" has recently become a highly sought-after standard that many companies want to become. In today's environment, companies recognize that our resources are becoming scarcer and that steps must be taken to pursue more sustainable development and preservation of existing resources. As found in the TNS Market Research study, some of the top reasons organizations are pursuing green initiatives is to demonstrate to the community that they are doing the right thing, that they are doing their part to preserve nature, and to provide for future generations (TNS, 2010). The recent emphasis on corporate social responsibility (CSR) is another reason going green has experienced considerable growth.

Fortis can market their RNG program to cater to the "going green" movement. Participating in the RNG program supports advancement in sustainable technology and is another way one can demonstrate to the community that they are doing their part in trying to make the world more sustainable. The incentive for commercial customers to participate in the program is that it is a low-involvement and easy way to becoming green. In all communication pieces, be it a brochure or an event, Fortis should always convey what the RNG program is, what benefits it provides to its participants, and how the customer can find out more information and sign-up.

Marketing Recommendations

Annual Event

What is important for organizations in their quest to becoming green is recognition for their efforts. Fortis should organize and host an annual gala recognizing RNG members and the efforts they have put into the program. Gold members will be featured most prominently at the event and select few Gold members who have made outstanding contribution to the program will have the opportunity to speak at the event. Silver members will also be featured but not to the extent that Gold members would be and they do not receive rights to speak at the event.

Creating an annual event will draw in the media thus developing positive press for the RNG program and Fortis. Furthermore, this annual event is also a good way to promote and educate other commercial clients what the RNG program is all about. Fortis should invite other clients who invest in other green products Fortis offers and also the external green

community to spread the word about the program. Gift bags could be distributed to all guests and this is where RNG marketing collateral such as brochures, take-ones, and any other promotional material can be included.

Fortis RNG Membership Logo

A Fortis RNG Membership Logo should be created and given to participants of the RNG program to communicate to the community their involvement in the program. This logo should have specific rules as to its use in order to control the legitimacy of the program. Participating companies can then print this logo on marketing communication pieces or even display on the windows of their premises.

Traditional Media

Traditional media such as bill inserts has been successful for the residential RNG program. Fortis should also explore this channel when promoting the program to commercial clients. Bill inserts, e-bill inserts, Fortis-branded email blasts, advertising in trade magazines, writing advertorials, and the inclusion of RNG articles in the Fortis bi-annual newsletter are all options which can be explored to promote the RNG program to commercial clients.

E-bill inserts and Fortis-branded email blasts could prove extremely effective because these pieces could be sent out multiple times a year at limited cost. Advertising in trade magazines such as Green Space (an annual publication focusing exclusively on sustainable business opportunities and initiatives) (Green Space, 2011) and creating advertorials to include in local publications are a good way to reach Fortis' clients through third-party channels.

Trade Shows

Green-specific and industry-specific trade shows is another promotional channel which Fortis should explore. For example, at green trade shows, many companies attend these events to find out more information and explore what green options exist in the marketplace for them to explore. At industry-specific trade shows, companies attend these events to see what the trends in the industry are and what services and products they should be investing in for the future. Fortis should have a presence at both these types of trade shows in order to promote the RNG program to an external audience.

At these trade shows, Fortis should be distributing brochures, postcards with RNG information, and any other fun promotional items to catch the attention of the trade show attendees. Playing the RNG video featuring Dig and Scoop is also vital while at the trade show as it easily breaks down what the RNG program is and how the process works. Educating consumers about what the product is and how it works is extremely vital in order to induce consumer trial.

Examples of green-specific trade shows that Fortis could enter include Epic Vancouver (a green exhibition on sustainable living) and Globe 2012 (an international trade fair on business and environment). Industry-specific trade shows which Fortis could enter include the BC Hospitality Industry Conference and Expo (showcases new products and trends in the hospitality industry) to target the hotels segment, Grocery Showcase West 2012 (conference for major grocery chains) to target wholesalers/retailers, and Buildex Vancouver (trade show regarding designing, building, and managing real estate) to target commercial office buildings.

Align RNG with Green Certification Programs

An increasing number of buildings today are being built to green standards such as the LEED (Leadership in Energy and Environmental Design) green certification program. Fortis should align the RNG program with such programs communicating RNG as another option an organization can pursue to add to their building's "green portfolio". For example, when a company applies for their building to be LEED certified, LEED measures the "greenness" of the building through the building's energy efficiency, natural gas usage, building construction, etcetera (Canada Green Building Council, 2011). Participation in the RNG program could count as credits that go towards meeting LEED standards for natural gas usage.

Partner with City of Vancouver

The city of Vancouver has announced an ambitious goal of becoming the greenest city in the world by 2020 (City of Vancouver, 2011). Fortis should take advantage of the city's goal and partner with them to promote the RNG program to commercial clients. For example, the city of Vancouver would have green consulting services and spokespeople that help promote their goal of becoming the greenest city. By partnering with the city's goals, this would reinforce the legitimacy of the RNG program and also increase the RNG program's ability to gain a greater share of mind among Vancouver businesses since a third party, city of Vancouver, would also be communicating and promoting the program.

Increase Fortis PR Activities

The more PR that Fortis generates for the RNG program, the greater the chance that the media would want to write articles and cover the progress of the RNG program. Enticing the media to cover the RNG program would be greatly beneficial for Fortis because this would equate to free press generated for the company and for the program. Furthermore, this would increase the amount of communication that is released about the RNG program.

Incorporate RNG Communication into Fortis Customer Service Channels

Communication about the RNG program should be incorporated into Fortis' customer service hotline, commercial inquiries hotline, and their natural gas offers hotline. This will increase the number of touch-points Fortis has with their clients regarding RNG and thus increase awareness of the program.

MONITORS AND CONTROLS

Success of the program can be measured by the number of companies signed up for RNG. The difference in companies signed up should be taken in intervals of four months time to allow for marketing initiative such as trade shows to take effect. This would be the most direct way of measuring the success of the products (gold, silver, bronze). Secondly upon sign up, making sure to ask where they learned of the program will help to measure which marketing channels have been the most effective in creating interest and education. Thus after half a year (sufficient amount of time for all channels to take affect), money should be re-allocated to the most successful channels and remove the under-performing ones.

Surveys should be given out to customer after they have signed up to identify their satisfaction levels of the program and of the benefits members are receiving. This will help to provide feedback on areas of improvement for the customer service department and for potential adjustments of the benefits to increase the level of satisfaction.

From the number of signups, if the three-tiered product structure does not encourage signups in the higher levels, then to alleviate possible product confusion, restructuring of the offerings will be required.

CONTINGENCY PLANS

There are two scenarios in which the recommended program may fall short of expectations. First, a worst-case scenario is a lack of customer sign up, which threatens the government approval of the program. In return, it is recommended that Fortis remove the incremental product offerings of bronze, silver, and gold, and simply offer a standard rate for all commercial customers. The one-rate for all customers, Rate 2 and 3, aims to increase the number of sign-ups for the program, to increase the GJ usage to meet the government requirements. The setting of the product price and percentage of RNG, can be determined by customer feedback and breakeven points. This is not the most profitable option for Fortis; however, it has the ability to increase RNG demand. Once there are sufficient customers in the program, Fortis can reconsider the introduction of the incremental product offering, using the incentives provided in the recommendations, to get customers to sign up for the higher levels of RNG.

The next possibility is the communication strategies outline are ineffective, which again leads to no commercial customers sign ups for the program. In this case, it is recommended that the external strategies be reduced and use internal resources to promote the program. For example, reducing the amount of print media, trade shows, and trade magazine advertisements and use the account managers and customer service centers to discuss the program with the commercial clients. Furthermore, the sales team can focus more efforts on the program. However, this can take away time and human resources away from other Fortis projects.

APPENDIX

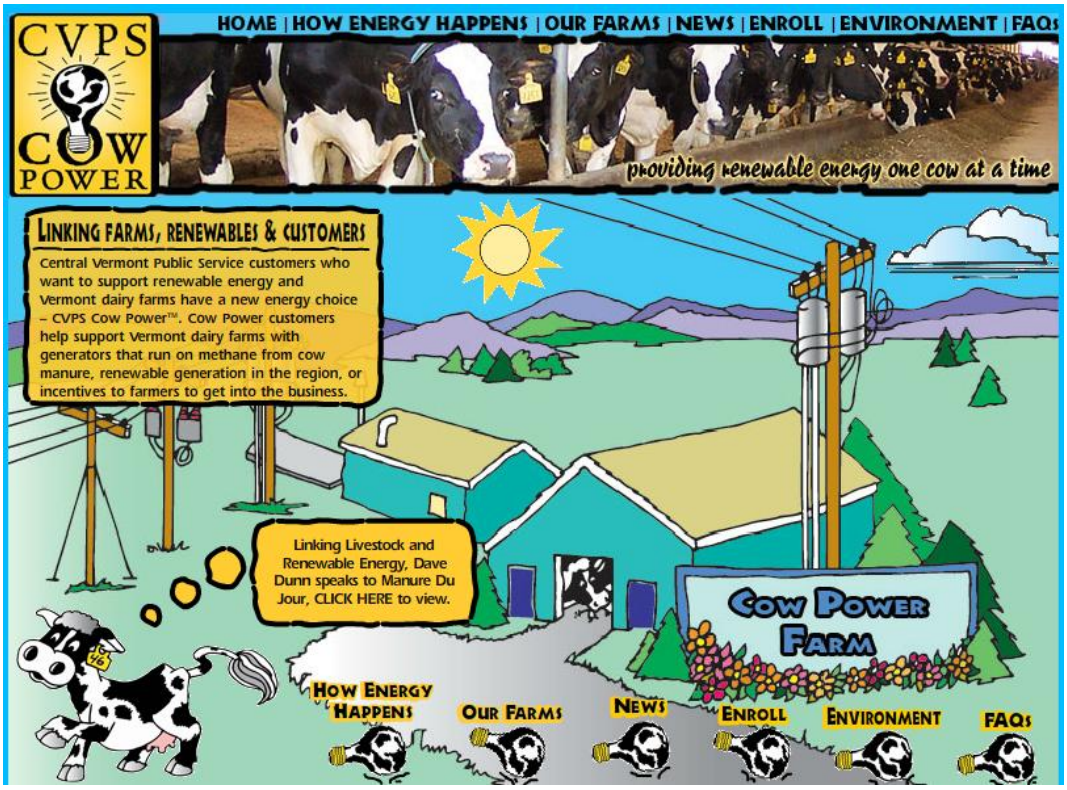
Appendix 1: Small Commercial (Rate 2) Top Consuming Sectors

	TJs	%
Apartment/Condo	5,860	25%
Commercial/Office Building	2,430	11%
Education	1,120	5%
Restaurant	2,490	11%
Wholesale/Retail	3,830	17%
Other	7,340	31%
Total	23,070	100%

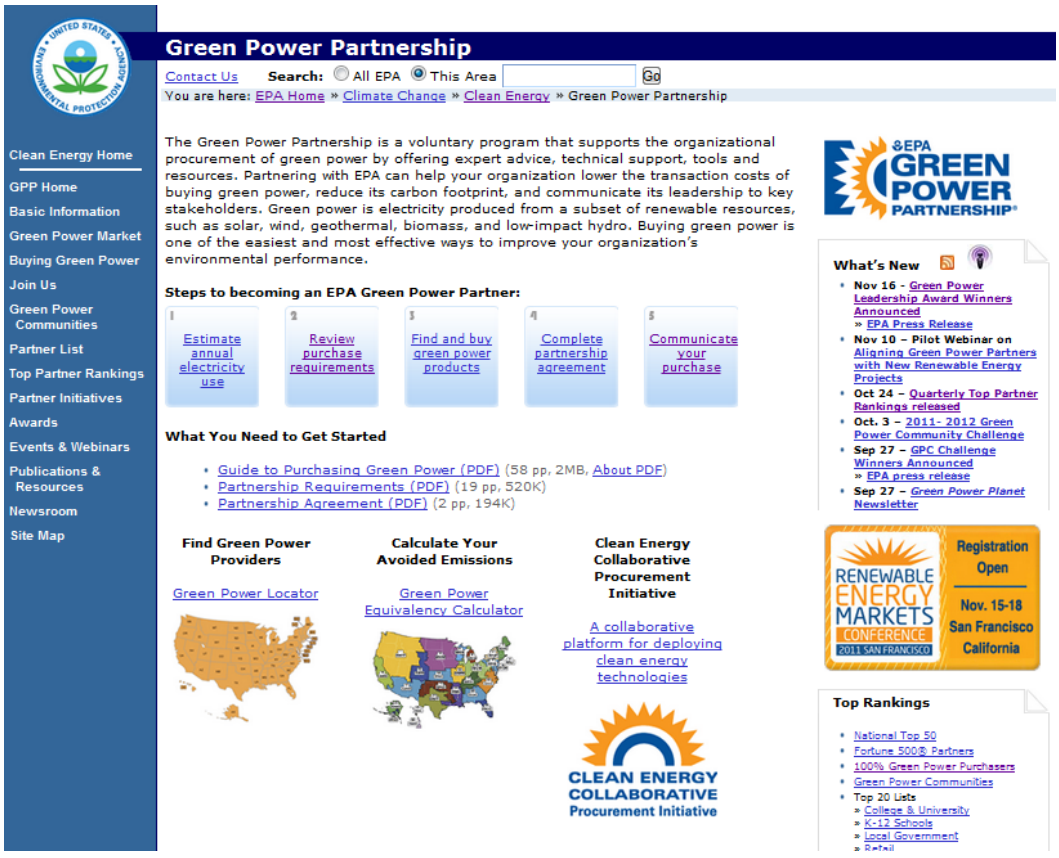
Appendix 2: Large Commercial (Rate 3) Top Consuming Sectors

	TJs	%
Apartment/Condo	6,820	43%
Commercial/Office Building	870	6%
Hotel	570	4%
Restaurant	990	6%
Wholesale/Retail	1,360	9%
Other	5,000	32%
Total	15,610	100%

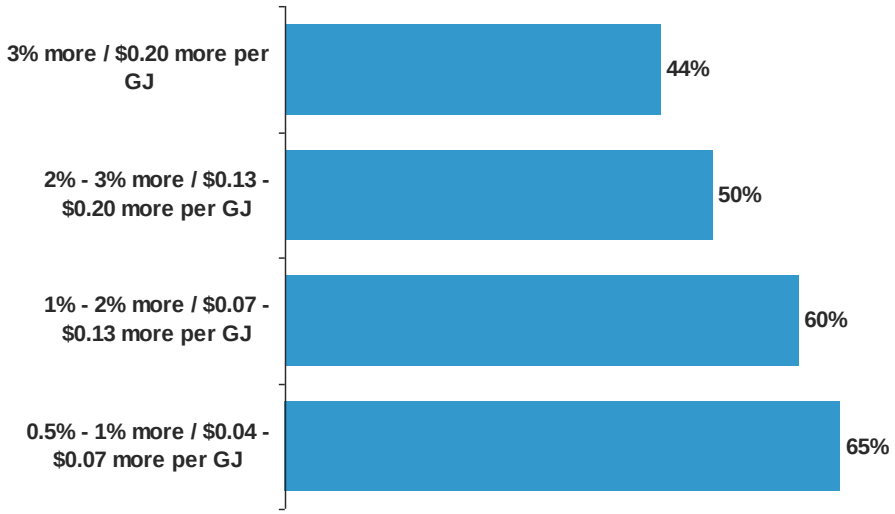
Appendix 3: City of Vermont Public Service Biogas Home Page



Appendix 4: Environmental Protection Agency (EPA) Biogas Home Page



Appendix 5: Commercial Clients Willingness to Sign-up



Percent of Terasen Commercial Customers Who Would Support Program at specified price point

Appendix 6: Rate 2 Pricing Model

% Increase on Bill	**BRONZE 10%**	**SILVER 15%**	**GOLD 20%**
Apartment/Condo	$159.01	$254.41	$381.62
Commercial/Office Building	$149.86	$239.77	$359.65
Education	$151.95	$243.12	$364.68
Restaurant	$153.56	$245.69	$368.53
Wholesale/Retail	$152.83	$244.53	$366.79
Other	$160.62	$256.99	$385.48
Average Rate 2 yearly cost	*$154.64*	*$247.42*	*$371.13*
Average Monthly	*$12.89*	*$20.62*	*$30.93*

Appendix 7: Rate 3 Pricing Model

	BRONZE	SILVER	GOLD
% Increase on Bill	**10%**	**15%**	**20%**
Apartment/Condo	$981.76	$1,636.27	$2,618.03
Commercial/Office Building	$897.55	$1,495.92	$2,393.47
Hotel	$882.08	$1,470.13	$2,352.20
Restaurant	$1,021.35	$1,702.25	$2,723.60
Wholesale/Retail	$935.38	$1,558.96	$2,494.34
Other	$967.19	$1,611.98	$2,579.17
Average Rate 3 yearly cost	*$947.55*	*$1,579.25*	*$2,526.80*
Average Monthly	*$65.80*	*$131.60*	*$210.57*

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Attachment 11.1

Question 1

How long did you participate in the renewable natural gas program?

Response	*Chart*	*Percentage*	*Count*
0 to 3 months		0%	0
4 to 6 months		29%	2
7 to 12 months		43%	3
1 to 2 years		29%	2
more than 2 years		0%	0
I thought I was still signed up		0%	0
		Total Responses	**7**

Question 2

Why did you sign up for renewable natural gas?

Response	*Chart*	*Percentage*	*Count*
to preserve nature		14%	1
to provide for future generations		0%	0
to earn AIR MILES® reward miles		57%	4
to do the right thing		14%	1
I didn't know I was signed up		0%	0
other (please explain):		14%	1
		Total Responses	**7**

Other (please explain):

There is 1 response to this question.

#	*Response*
1	thought it was saving me money

Question 3

Why did you unsubscribe from the renewable natural gas program?

Response	Chart	Percentage	Count
I wasn't aware I unsubscribed		0%	0
the extra cost on my bill		57%	4
I didn't see any benefit		0%	0
AIR MILES® reward miles were discontinue		29%	2
I signed up for the program by accident		0%	0
other (please explain):		14%	1
		Total Responses	**7**

Other (please explain):

There is 1 response to this question.

#	Response
1	there is no way to separate the flow of renewable gas from regular gas. So I felt I was paying extra while neighbour received the same gas for less money. You should offer discounts for thoise that opt for the renewable option.

Question 4

What would influence you to reenroll in the program? Please rank the options from 1 to 5, with 1 as your most influential reason and 5 as your least influential reason.

	Most influential 1	2	3	4	Least influential 5	Total Responses
lower monthly cost	6 (85.7%)	0 (0.0%)	0 (0.0%)	1 (14.3%)	0 (0.0%)	7
lower blend option (e.g. 5 per cent)	2 (33.3%)	0 (0.0%)	2 (33.3%)	1 (16.7%)	1 (16.7%)	6
recognition of enrolment/participation	1 (16.7%)	1 (16.7%)	3 (50.0%)	0 (0.0%)	1 (16.7%)	6
a regular reward (e.g. third-party loyalty program rewards)	3 (60.0%)	0 (0.0%)	2 (40.0%)	0 (0.0%)	0 (0.0%)	5
an opportunity to win prizes (e.g. gift cards)	1 (16.7%)	2 (33.3%)	3 (50.0%)	0 (0.0%)	0 (0.0%)	6

Other (please explain):

There are 2 response to this question.

#	Response
1	we are only borrowing this planet from future generations so environmental and future generations is my biggest concern.
2	And Proof re-used gas will not damage to my systems

Attachment 12.1

FORTIS BC™

Name: [redacted]
Service address: [redacted]

Rate class: Residential
Billing date: Sep 22, 2015

NATURAL GAS

Customer Service: 1-888-224-2710
7 am - 8 pm Mon - Fri, PST
fortisbc.com

Account number	Due date	Amount due	Amount paid
[redacted]	Oct 14, 2015	$42.39	

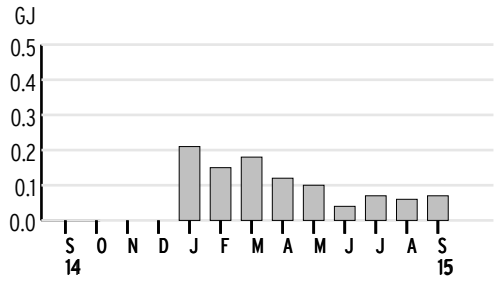
Previous Bill	47.56	
Less Payment - Thank You	47.56CR	
Balance from Previous Bill		0.00
Delivery Charges		
Basic Charge (28 days at 0.3890 per day)	10.89	
Delivery (2.0 GJ at 3.559 per GJ)	7.12	
		18.01‡<º
Commodity Charges		
Storage and Transport (2.0 GJ at 1.334 per GJ)	2.67	
Cost of Gas (1.0 GJ at 2.486 per GJ)	2.49	
Renewable Natural Gas (1.0 GJ at 14.414 per GJ)	14.41	
		19.57‡<º
Other Charges and taxes		
Franchise Fee (3.09% of º amounts)		1.16‡<
Carbon Tax (2.0 GJ at 1.4898 per GJ)		2.98<
Clean Energy Levy (0.40% of ‡ amounts)		0.15
Biomethane Credit (1.0 GJ at 1.4898 per GJ)		1.49CR<
GST (5% of < amounts)		2.01
Please do not pay – Will be withdrawn automatically		**42.39**

Gas usage calculation [redacted]

Present reading	-	Previous reading	x	Conversion factor	=	Gas used in gigajoules (GJ)
Sep 22 '15		Aug 25 '15				
415		395		0.0989320		2.0

Point of Delivery: [redacted]

Average daily gas usage over 13 months



50% of your natural gas has been designated as Renewable natural gas. Renewable natural gas is carbon neutral. This reflects your commitment to supporting sustainable energy in BC.

[redacted]

Recycled Paper

NATURAL GAS

FORTIS BC™

Account number	Due date	Amount due	Amount paid
[redacted]	Oct 14, 2015	$42.39	

[redacted]

Automatic Withdrawal

[redacted]

[redacted]

[redacted]

FORTIS BC™

Name: [redacted]
Service address: [redacted]

Rate class: Small commercial
Billing date: Sep 22, 2015

NATURAL GAS

Customer Service: 1-888-224-2710
7 am - 8 pm Mon - Fri, PST
fortisbc.com

Account number	Due date	Amount due	Amount paid
[redacted]	Oct 14, 2015	$249.85	

Previous Bill	136.53	
Less Payment - Thank You	136.53CR	
Balance from Previous Bill		0.00
Delivery Charges		
Basic Charge (32 days at 0.8161 per day)	26.12	
Delivery (21.4 GJ at 2.921 per GJ)	62.51	
		88.63‡«
Commodity Charges		
Storage and Transport (21.4 GJ at 1.334 per GJ)	28.55	
Cost of Gas (19.3 GJ at 2.486 per GJ)	47.98	
Renewable Natural Gas (2.1 GJ at 14.414 per GJ)	30.27	
		106.80‡«
Other Charges and taxes		
Carbon Tax (21.4 GJ at 1.4898 per GJ)		31.88‹
Clean Energy Levy (0.40% of ‡ amounts)		0.78
Biomethane Credit (2.1 GJ at 1.4898 per GJ)		3.13CR‹
PST (7% of « amounts)		13.68
GST (5% of « amounts)		9.77
GST (5% of ‹ amounts)		1.44
Please do not pay - Will be withdrawn automatically		**249.85**

Gas usage calculation [redacted]

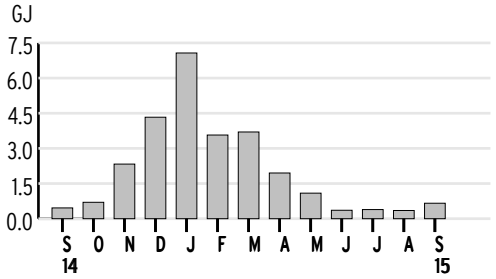
Present reading	-	Previous reading	x	Conversion factor	=	Gas used in gigajoules (GJ)
Sep 22 '15		Aug 21 '15				
37,151		36,749		0.0533087		21.4

Point of Delivery: [redacted]

Comparison to previous year

Billing Period	Number of days billed	Average daily temp	Average daily usage GJ	Total Billing period usage GJ
Sep '2015	32	16°C	0.67	21.4
Sep '2014	31	17°C	0.46	14.4

Average daily gas usage over 13 months



10% of your natural gas has been designated as Renewable natural gas. Renewable natural gas is carbon neutral. This reflects your commitment to supporting sustainable energy in BC.

[redacted]

Recycled Paper

NATURAL GAS

FORTIS BC™

Account number	Due date	Amount due	Amount paid
693590	Oct 14, 2015	$249.85	

[redacted]

Automatic Withdrawal

[redacted]

FORTIS BC™

Name: [redacted]
Service address: [redacted]

Rate class: Large commercial
Billing date: Sep 11, 2015

NATURAL GAS

Customer Service: 1-888-224-2710
7 am - 8 pm Mon - Fri, PST
fortisbc.com

Account number	Due date	Amount due	Amount paid
[redacted]	Oct 3, 2015	$1,410.06	

Previous Bill	850.83	
Less Payment - Thank You	850.83CR	
Balance from Previous Bill		0.00
Delivery Charges		
Basic Charge (31 days at 4.3538 per day)	134.97	
Delivery (132.0 GJ at 2.436 per GJ)	321.55	
		456.52‡«
Commodity Charges		
Storage and Transport (132.0 GJ at 1.114 per GJ)	147.05	
Cost of Gas (118.8 GJ at 2.486 per GJ)	295.34	
Renewable Natural Gas (13.2 GJ at 14.414 per GJ)	190.26	
		632.65‡«
Other Charges and taxes		
Carbon Tax (132.0 GJ at 1.4898 per GJ)		196.65‹
Clean Energy Levy (0.40% of ‡ amounts)		4.36
Biomethane Credit (13.2 GJ at 1.4898 per GJ)		19.67CR‹
PST (7% of « amounts)		76.24
GST (5% of « amounts)		54.46
GST (5% of ‹ amounts)		8.85
Please pay		**1,410.06**

Gas usage calculation [redacted]

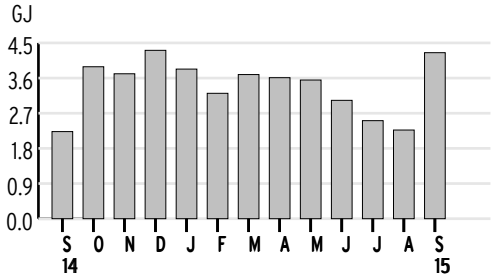
Present reading	-	Previous reading	x	Conversion factor	=	Gas used in gigajoules (GJ)
Sep 11 '15		Aug 11 '15				
363,953 Est		361,498		0.0537862		132.0

Point of Delivery: [redacted]

Comparison to previous year

Billing Period	Number of days billed	Average daily temp	Average daily usage GJ	Total Billing period usage GJ
Sep '2015	31	17°C	4.26	132.0
Sep '2014	32	18°C	2.23	71.4

Average daily gas usage over 13 months



10% of your natural gas has been designated as Renewable natural gas. Renewable natural gas is carbon neutral. This reflects your commitment to supporting sustainable energy in BC.

[redacted]

Recycled Paper

NATURAL GAS

Payment return slip - Make cheques payable to FortisBC-Natural Gas

FORTIS BC™

[redacted]

Account number	Due date	Amount due	Amount paid
[redacted]	Oct 3, 2015	$1,410.06	

[redacted]

[redacted]

[redacted]

[redacted]

FORTIS BC™

Name: [redacted]
Service address: [redacted]

Rate class: Rate 23
Billing date: Oct 13, 2015 **Billing month:** Sep, 2015

NATURAL GAS

Customer Service: 8 am - 4 pm Mon - Fri
1-855-873-8773
fortisbc.com

Account number	Due date	Amount due	Amount paid
[redacted]	**Nov 4, 2015**	**$3,452.60**	

Previous Bill

Less Payment - Thank You		3,286.34	
		3,286.34CR	
Balance from Previous Bill			0.00

Current Charges

Basic Charge		132.52ᶜ	
Administration Charge		78.00ᶜ	
Transportation - Firm	(630.0 GJ at 2.436 per GJ)	1,534.68ᶜ	
Renewable Natural Gas	(100.0 GJ at 14.414 per GJ)	1,441.40ᵗ«	
			3,186.60

Other Charges and Taxes

Carbon Tax (100.0 GJ at 1.4898 per GJ)	148.98ᶜ
Biomethane Credit (100.0 GJ at 1.4898 per GJ)	148.98CRᶜ
Clean Energy Levy (0.40% of ᵗ amounts)	5.77
PST (7% of « amounts)	100.90
GST (5% of « amounts)	72.07
GST (5% of ᶜ amounts)	87.26

Please pay **$3,452.60**

16% of your natural gas has been designated as Renewable Natural gas for a portion of your consumption in the current billing period.

Marketer Name: [redacted]
Marketer Phone Number: [redacted]
Marketer Reference: [redacted]

Recycled Paper

NATURAL GAS

FORTIS BC™

Payment return slip - Make cheques payable to FortisBC-Natural Gas

* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 *

[redacted]

Account number	Due date	Amount due	Amount paid
[redacted]	**Nov 4, 2015**	**$3,452.60**	

[redacted]

[redacted]

[redacted]

[redacted]

Attachment 19.1

	Option Description	BERC Rate mechanism	Potential Benefits	Potential Concerns	Estimated System Implementation and Additional Incremental Marketing Costs (i.e. > $300 thousand)[1][2]	Is this Option Feasible	Did FEI consider similar option? /Will FEI consider recommending this option?	Preference
	Status Quo: cost based rate	BERC Rate = cost based rate	• No changes to communicate	• Trend of declining enrollment • Rising costs in the BVA • Greater impact to Non-RNG customers • Challenges associated with long term contracts	$0	• No, although this option is the one currently implemented with no additional implementation costs it does not address issues with an increased BERC rate, declining enrollment, acquiring long term contracts. • FEI has significant concerns with the long term growth of the program and long term impact to non-RNG customers.	Yes/No	Not Applicable
	FEI Proposal: BERC Rate = CCRA Rate + Carbon Tax + $7 premium for short term contracts; $1 discount for long term contracts.	BERC Rate = CCRA Rate + Carbon Tax + $7 premium for short term contracts; $1 discount for long term contracts	• Increased enrollment • Reduce costs in the BVA • Reduced impact to Non-RNG customers • Greater opportunity for long term contracts	• Partial impact to Non-RNG customers	$0	• Yes, no implementation costs or additional marketing costs beyond proposed resumption in marketing spend.	Yes, it is the preferred alternative	1
1	**Two Short Term Contract Offerings:** split the Short Term Contract into two offerings based on volume with the premium set at $8.50 for a Low Volume Short Term Contract offering (less than 2000 GJ per year), at $7.50 for a High Volume Short Term Contract offering (higher than 2000 GJ per year) and at $6.50 for the Long Term Contract offering.	BERC Rate = CCRA Rate + Carbon Tax + $8.50 premium for short term contracts at volume less than 499GJ per year; $1 discount for short term contracts at a volume of greater than 500GJ; $2 discount for long term contracts.	• Price signals for RNG volumes purchased • Greater incentive for large purchasers to buy RNG • Allows higher volume customers a lower price option without having to commit to a Long Term Contract. • Bill impact to residential customers is in line with FEI proposal	• Determination of rate(s) • Rates not consistent with commodity rates (which are the same for all rate schedules) • IT costs associated with a more complex billing system because of the multiple commodity prices across each rate class • Potential need for new tariffs and complexity with tariffs (Example: A R3B customer taking less than a 100% blend would be using less than 2,000 GJ of RNG so would be in the higher Short Term Contract price bracket, while a R3B customer taking 100% would be in the lower price Short Term Contract bracket) • Customer may benefit from reduced term contract based on previous consumption, and may then drop out prior to meeting minimum thresholds	$100,000 A design and reconfiguration would be required.[3] $120,000 incremental marketing costs	• Yes, although the option may be feasible, FEI has concerns with respect to the estimated costs to implement (which would ultimately be recovered from customers), and the potential confusion to RNG customers that may result due to two Short Term Contract Offerings.[4]	Yes/No	3
2	**Rate class based BERC Rate:** presumably residential customers will consume less RNG than commercial customers, and commercial customers will consume less than industrial customers. The BERC rate can be set based on rate class. For example, higher rate for residential customers and lower for industrial customers due to RNG volumes purchased.	BERC Rate = A) CCRA Rate + Carbon Tax + $7 R1B B) CCRA Rate + Carbon Tax + $6 R2B C) CCRA Rate + Carbon Tax + $5 R3B D) CCRA Rate + Carbon Tax + $4 R5B/11B	• Price signals for RNG volumes purchased • Encourage RNG sales volume to large purchasers • Utilize existing CIS billing structure	• Determination of rate(s) • Challenges with determination of premiums that may result in different rates for customers that have the same consumption level • (Example: R3B customers on a higher blend buying more RNG than a R11B on a lower blend but paying a higher rate per GJ for the RNG)	$0 $120,000 incremental marketing costs	• Yes, although the option may be feasible, FEI has concerns about the potential for error when updating rate class information based on consumption history. • Multiple short term contracts may create further confusion for customers when assessing what level to enroll at.	No/No	2
3	**Declining premium based on blend percentage:** discounted price for higher volume blends. For example, $9 premium at 5% blend, $8.50 premium at 10%, $8 premium at 20%, etc.	BERC Rate = A) CCRA Rate + Carbon Tax + $9 for 5% blend B) CCRA Rate + Carbon Tax + $8 for 10% blend C) CCRA Rate + Carbon Tax + $7 for 25% blend D) CCRA Rate + Carbon Tax + $6 for 50% blend E) CCRA Rate + Carbon Tax + $5 for 100% blend FEI would classify long term contracts at nearest blend	• Price signals for volumes purchased • Lower price for large volumes purchased, thus incentive to buy more RNG • Price discovery for different customer preference	• Determination of a rate(s) • More complicated sales process due to difficulty of educating customers on the price structure • IT costs associated with a more complex billing system because of multiple commodity rates	$50,000 $120,000 incremental marketing costs	• Yes, however FEI has concerns about the estimated costs to implement and the potential confusion that may result due to multiple Short Term Contract Offerings based on blend percentages. • No benefit of having a long term contract	No/No	5

[1] Estimated system implementation costs equal to or greater than $50,000 are considered to be classified as a medium impact change to the Customer Information System. Estimated Implementation Costs equal to or greater than $100,000 are considered to be classified as a of high impact change to the Customer Information System.
[2] The estimated system implementation costs are inclusive of development, configuration and testing and exclusive of process effort and changes to the marketing program.
[3] There would be no process to reassess if the customer is in the right block, and there is no contractual commitment on behalf of the customer.
[4] Please refer to the response to BCUC IR 1.25.3 which outlines internal research results that indicate that the existing biomethane offering is already complicated enough.

	Option Description	BERC Rate mechanism	Potential Benefits	Potential Concerns	Estimated System Implementation and Additional Incremental Marketing Costs (i.e. > $300 thousand)[12]	Is this Option Feasible	Did FEI consider similar option? /Will FEI consider recommending this option?	Preference
4	**Customer choose their own blend:** Any blend between 1% to 100%	BERC Rate = CCRA Rate + Carbon Tax + $7.50 premium for short term contracts at high volume; $1 discount for long term contracts	• Allow customers to choose their optimal percentage • Attract all levels of participation • Customers may choose blend depending on total bill impact (e.g. seasonality) • Simplifies sales message about the blend options	• Administration costs • Customers may gravitate towards the "lowest" option • IT costs associated with a more complex billing system because of multiple blends • Potential for low load growth resulting in increased BERC rate and greater risk to non-RNG customers	$50,000[5]	• No, because FEI does not believe that by solely offering customers the ability to choose their own blend will result in a meaningful increased level of participation in the RNG Program. • Additionally, FEI has concerns about the estimate costs to implement.	Yes/No	Not Applicable
5	**Customer determined flat fee contribution:** customers can pay a fixed lump-sum amount each period. FEI derives the customer's blend and informs the customer, for example, by way of customer bill	BERC Rate = CCRA Rate + Carbon Tax + Delivery + Storage and Transport + $4 per month premium for one block of RNG (customers can buy as many blocks as they would like)	• Allow customers with a fixed budget to participate in the RNG program • Customers are less impacted by BERC rate volatility (premium based rate or otherwise) • No seasonal bill impacts which can be a trigger to drop from the Program • RNG Bill impact stability and certainty • Simplified sales message potentially overcoming the price barrier to participate	• Incremental system administration and implementation costs • Uncertainty of RNG quantities sold • IT costs associated with a more complex billing system because of the unique fee per customer • Complexity of transferring existing customers into a new program design	$100,000+[6]	• No, because FEI has concerns about the estimated costs to implement and the potential confusion with respect to the carbon tax credits. • Challenges associated with blocks for long term contracts • Difficult to migrate existing customers	Yes/No	Not Applicable
6	**RNG premium by percentage:** BERC rate = CCRA rate + Carbon Tax + % premium	A) BERC rate = CCRA rate + Carbon Tax + 10% premium for R1B, R2B, R3B. B) R11B would need be given the option to define a specific percentage premium based on desired volumes	• Equal proportion to any CCRA rate change • Retain existing enrollment as the premium to buy RNG is relatively equal to CCRA rate • Simplified sales message potentially making it easier for people enroll	• Volatility of BERC rate will depend on CCRA rate changes	$50,000 $120,000 incremental marketing costs	• Yes, however FEI has concerns about the estimated costs to implement. • Not as clear to customers compared to a fixed amount • Difficult to communicate • Difficult to implement system updates	No/No	4
7	**Auction:** FEI sells blocks of RNG units in an auction environment, for example, for large volume customers who may have long term contracts.	A) BERC rate = CCRA rate + Carbon Tax + $7.50 premium for R1B, R2B, R3B customers. B) Long Term Contracts: BERC rate = CCRA rate + Carbon Tax + premium defined by specific auction bid for each customer	• Bidding process can reveal customers' willingness to pay • Unsold biomethane volumes can be cleared at a certain price • Potential to add new RNG customers if they can choose a price to meet their business model needs	• Revenue may not be maximized as it will depend on the winning bid • Incremental IT system and administration costs • Potential for greater impact on non-RNG customers through non-recovery of costs • Limits participation by small volume customers • Long Term contracts rely on guaranteed supply and demand, an auction creates the potential for a contract failure if the customer doesn't buy or FEI sells out to other customers.	$50,000[7]	• No, because FEI has concerns about the estimated costs to implement • Potential customer confusion regarding the BERC price when attempting to negotiate a Long Term Contract.	No/No	Not Applicable

[5] Please note that pre-existing biomethane customers will need to migrate to this proposed model option. An account online redesign would be required to educate customers to increase blend uptake and behaviours.
[6] This would involve a new charge on customers' bills. There may be issues with the Carbon Tax credit. Data migration for existing customers would be challenging.
[7] Costs are based on the implementation for Long Term contracts only.

Attachment 21.3

Table 5-3: Summary of Utility Interviews (Converted to $CAD)

Company	Exchange Rate (USD -CAD)*	Green Energy Price per GJ	Green Energy Price per GJ ($CAD)	$ Premium per GJ (% Premium)	$ Premium per GJ ($CAD)	Monthly premium for average house to go 100% green power	Monthly premium for Avg house at 100% green power ($CAD)	% Residential Participation
FortisBC Rate 1 (LML service area) (G)			$19.30	$10.43 net of carbon tax credit (262%)		$78		0.7%
Bullfrog Power - BC (G)	1.32669524	$10.86		3.48 (87%)		$29.87		
Wellesley Municipal Light Plant (E) *				$11.11 (25%)	$14.74			11.0%
Madison Gas & Electric (E) *				$6.78	$8.99	$20-30	$26.53-39.80	8.0%
Puget Sound Energy (E) *		$34.72 per GJ or $4 per block. Average customer needs 2 blocks per month to be 100% green energy	$46.06/GJ or $5.31 per block	$3.47	$4.60	$10-12	$13.27-$15.92	6.3%
Puget Sound Energy (G) *		$4 per block. Average customer needs 2 blocks per month to be 100% green energy	$5.31 per block			$8	$10.61	0.2%
North West Natural (G) *		$0.99 per GJ for volumetric program	$1.31	$0.99 (10%)	$1.31	$5.50	$7.30	4.0%
North West Natural (G) *		$5.50 per block. For the average user this equates to 100% green energy	$7.30 per block					
River Falls Municipal Utilities (E) *		$3 per block of 1.08GJe	$3.98 per block	$2.78	$3.69	$5.50	$7.30	5.8%
Portland General Electric (Green Source) (E) *				$2.22 (6%)	$2.95	$7-10	$9.29-13.27	15% (combined)
Portland General Electric (Clean Wind) (E) *		$2.50 per block of 0.72 Gje	$3.32 per block					
WPPI (E) * - *n.b. WPPI are a wholesaler of electricity to municipal utiliteswho can opt in to provide the green option.*		$3 per block of 1.08GJe	$3.98 per block	$2.78	$3.69			
Green Mountain Power (E) *				$11.11 (29%)	$14.74	$20	$26.53	1.5%
City of Palo Alto (G)				$1.14	$1.51	$5	$6.63	19.4%
Washington Gas Energy Services (G)				$1.42	$1.88			
Pacificorp California (E)				$5.41	$7.18			
Pacificorp Oregon (E)				$2.92	$3.87			8.9%
City of Naperville -IL (E)		$5 per block of 0.72GJe	$6.63 per block	$6.94	$9.21	$20-25	$26.53-$33.17	6.2%
Sacremento Municipal Utility District (E)		$3 (50%) or $6 (100%) monthly flat fee	$3.98/$7.96			$6	$7.96	11.7%
Silicon Valley Power (E)				$4.12	$5.47	$7.50	$9.95	8.1%
National Grid - Ma (E)				$6.69 to $10.56	$8.88-$14.01			
Lake Mills Light & Water (E)		$3 per block of 1.08GJe	$3.98 per block			$6	$7.96	
Farmers Electric Cooperative of Kalona (E)		Minimum of $3 per month	$3.98					10.4%
Xcel Energy - Co (E)		$2.16 for a 0.36GJ block	$2.87	$6	$7.96			

* Bank of Canada Monthly Average of Exchange Rates - Ottawa, September 2015, Average 21 days

Utility Green Power Reseach Findings (Converted to $CAD)

Assumptions

* Based on residential programs only
* All prices in US$ except FortisBC prices
* All energy units in GJ's
* Currency conversion = Bank of Canada Monthly Average of Exchange Rates - Ottawa, September 2015, Average 21 days

Interviews Conducted March - April 2015, by Janelle De La Cour and Neil Dobson

Company	Exchange Rate (USD -CAD)*	Green Energy Price per GJ	Green Energy Price per GJ ($CAD)	$ Premium per GJ	$ Premium per GJ ($CAD)	% Premium	Monthly premium for Avg house at 100% green power	Monthly premium for Avg house at 100% green power ($CAD)	% Residential Participation (Ranking)	% of Green Energy as a % of Total Energy Sold (Ranking)
FortisBC Rate 1 (LML service area)			$19.30	$ 10.43 (w/ tax credit)		262%	$78		0.7%	0.001%
Wellesley Municipal Light Plant				$11.11	$14.74	25%			11% (3)	11% (2)
Madison Gas & Electric				$6.78	$8.99		$20-30	$26.53-39.80	8% (8)	
Puget Sound Energy (Electrical)		$34.72 per GJ or $4 per block. Avg 2 blocks/month ~ 100% "green"	$46.06/GJ or $5.31 per block	$3.47	$4.60		$10-12	$13.27-$15.92	6.3%	
Puget Sound Energy (Gas)		$4 per block. Average customer needs 2 blocks per month to be 100% green energy	$5.31 per block				$8	$10.61	0.2%	
North West Natural				$0.99	$1.31	25%				
North West Natural		$5.50 per block. For the average user this equates to 100% green energy	$7.30 per block				$5.50	$7.30	4.0%	
River Falls Municipal Utilities		$3 per block of 1.08GJe	$3.98 per block	$2.78	$3.69		$5.50	$7.30	5.8% (10)	8.1% (5)
Portland General Electric (Green Source)				$2.22	$2.95	6%	$7-10	$9.29-13.27	15% (1)	8.9% (4)
Portland General Electric (Clean Wind)		$2.50 per block of 0.72 Gje	$3.32 per block							
WPPI	1.32669524	$3 per block of 1.08GJe	$3.98 per block	$2.78	$3.69					
Green Mountain Power				$11.11	$14.74	29%	$20	$26.53	1.5%	
City of Palo Alto				$1.14	$1.51		$5	$6.63	19.4% (1)	3.2% (10)
Washington Gas Energy Services				$1.42	$1.88					
Pacificorp California				$5.41	$7.18					
Pacificorp Oregon				$2.92	$3.87				8.9% (6)	
City of Naperville (IL)		$5 per block of 0.72GJe	$6.63 per block	$6.94	$9.21		$20-25	$26.53-$33.17	6.2% (9)	
Sacremento Municipal Utility District		$3 (50%) or $6 (100%) monthly flat fee	$3.98/$7.96				$6	$7.96	11.7% (2)	4.3% (9)
Silicon Valley Power				$4.12	$5.47		$7.50	$9.95	8.1% (7)	5.3% (6)
National Grid - Ma				$6.69 to $10.56	$8.88-$14.01					
Lake Mills Light & Water		$3 per block of 1.08 GJe	$3.98 per block				$6	$7.96		
Farmers Electric Cooperative of Kalona		Minimum of $3 per month	$3.98						10.4% (4)	
Xcel Energy - Co		$2.16 for a 0.36 GJ block	$2.87	$6	$7.96					

Attachment 30.1

REFER TO LIVE SPREADSHEET MODEL

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)

Attachment 31.1

REFER TO LIVE SPREADSHEET MODELS

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)

Attachment 31.2

REFER TO LIVE SPREADSHEET MODELS

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)

Attachment 31.4

REFER TO LIVE SPREADSHEET MODELS

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)

Attachment 32.1

Participant RESEARCH

FortisBC: Renewable Natural Gas Program Focus Groups

May 5, 2015

Background

- Renewable Natural Gas (RNG) has been available to residential and business customers on the BC mainland since 2010
- It is collected, processed and injected into the natural gas transmission system
- Methane is a potent greenhouse gas so collection and use is environmentally friendly
- Participants in the RNG program must pay to participate (~$5)
- Focus groups conducted in 2013 indicated significant barriers exist that inhibit participation.
- FortisBC commissioned these groups to update and identify barriers to participation.

Participant RESEARCH

Objectives

- Awareness of the RNG program
- Prompted and unprompted the levels of understanding of the current product offering
- Test and evaluate 3 different approaches to pricing, product design, and product promotion

Methodology

- Four focus groups with self-defined green consumers
- April 16 and 20, 2015 (5:30pm and 7:30pm)
- Held in typical focus group facilities
- Respondents were recruited by Participant research
  - Fully screened
  - $100 incentive

Participant RESEARCH

Research Limitations

- Results are not projectable to any population
- Participants are not selected randomly
- Qualitative research does not carry any quantitative characteristics
- All ideas are explored and as many opinions as possible are elicited

KEY FINDINGS

Participant RESEARCH

Perspective on Respondents

- Green-Oriented Participants
  - Suspicious of large organizations
  - Skeptical of FortisBC's intentions
  - Information needs were higher than most
- Awareness of Other Energy Sources
  - Solar
  - Wind
  - Geothermal
  - Nuclear (1 mention)
- Poor awareness of commodity amount that they pay
- Poor awareness of RNG

Reaction to RNG Program

- Improved awareness of FortisBC since 2013
- Awareness of RNG program
  - No respondent was aware
  - Assumed the idea is completely new (i.e. new to the world)
  - Very high information needs for RNG
  - Idea holds promise
    - Capture something useful
    - Diversion of harmful gas
    - Displacement of natural gas (less drilling)

Program Perceptions

- Overall concerns had a lot to do with program transparency
  - FortisBC's motivation
  - Process and delivery
  - Environmental effects
  - Effect on local areas where collection and cleaning take place
- Product or a program?
  - Distaste for using a product perspective to promote the program.

Barriers to Participation

- Major concern revolved around FortisBC's motivation for the program
- Other barriers included:
  - Knowledge of RNG production and use
  - Preference for *participating* in development rather than paying for it
  - Overall lack of program awareness
    - Wider knowledge would lend credibility
- The basic charge of $3 to $5 is not a barrier
  - Some suggested that would participate at even higher levels, but it is the contextual program issues that are problematic.
  - The current dollar amount was considered very reasonable

"It sounds like they're trying to get people to pay for something that they can pay for themselves."

"If I was a small business person, I wouldn't turn around and ask my customers to give me some money to expand my business. Why can Fortis do that?"

Incentives to Participation

- Carbon Tax credit
  - Although small, it speaks to making a difference
  - Adds credibility (government approved)
- Communication of notable achievements
  - Factoids
  - Specific developments
  - Amount of natural gas displacement

"I need programs like this to inspire me."

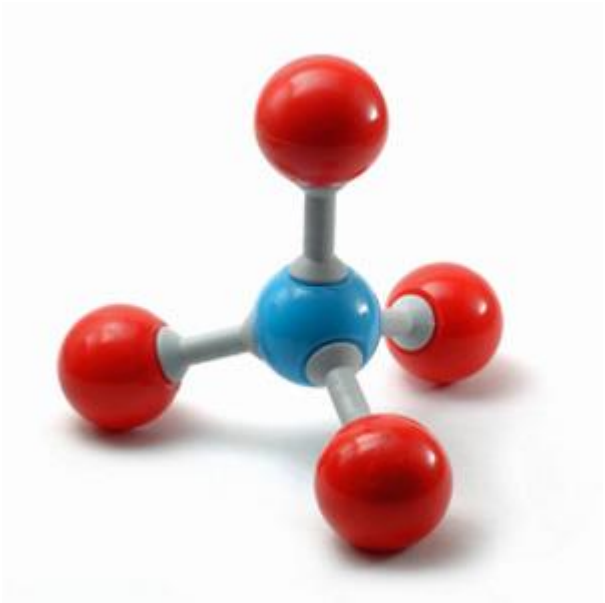
"I want to know how it is making a meaningful difference. If I'm contributing a few dollars per month, I'd like to know what impact my dollars are making."

Communications

- Current brochures stimulate positive interest
  - Use these a platform for communications development
  - Underscore how the program supports local communities and businesses
  - Continue using factoids and statistics
    - Emphasize how the program creates positive change
  - Eliminate the prize draw

Participant RESEARCH

RECOMMENDATIONS



Participant RESEARCH

Recommendations

- Reposition RNG as a fund rather than as a product.
- Increase program awareness.
- Use the brochure's tone and information as a platform for positioning

Participant RESEARCH

Thank You

Attachment 34.3

REFER TO LIVE SPREADSHEET MODELS

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Attachment 35.1

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Attachment 35.2

BCUC IR 35.2

Summary from Scenarios (in $000)

	2016	2017	2018	2019	2020	Total	5 year AVERAGE
1 - Premium $1 Higher							
BVA Closing Balance (after tax)	$ 3,094	$ 8,267	$ 17,006	$ 22,767	$ 20,992		
BERC RATE based on cost of service	$ 15.74	$ 15.04	$ 16.68	$ 17.17	$ 17.41		
BERC RATE CHARGED to Customers	$ 12.33	$ 12.47	$ 12.60	$ 12.77	$ 12.93		
BERC RATE CHARGED to Customers Long Term	$ 11.33	$ 11.47	$ 11.60	$ 11.77	$ 11.93		
Stale dated write-off > 18 months old	-	-	(1,130)	(3,398)	(5,035)	**(9,563)**	
per GJ to MCRA	-	-	(0.0091)	(0.0274)	(0.0406)		(0.0154)
Tranfer all costs except Supply ending balance	(375.8)	675.9	812.1	(2,074.8)	(9,722.4)	**(10,685)**	
per GJ - all delivery	(0.0021)	0.0039	0.0046	(0.0118)	(0.0555)		(0.0122)
Customer impact based on 90 GJS							**$ 2.49**
2 - Premium $1 lower							
BVA Closing Balance (after tax)	$ 2,570	$ 6,837	$ 14,081	$ 19,089	$ 17,815		
BERC RATE based on cost of service	$ 15.74	$ 14.25	$ 15.53	$ 15.64	$ 15.77		
BERC RATE CHARGED to Customers	$ 10.33	$ 10.47	$ 10.60	$ 10.77	$ 10.93		
BERC RATE CHARGED to Customers Long Term	$ 9.33	$ 9.47	$ 9.60	$ 9.77	$ 9.93		
Stale dated write-off > 18 months old	-	-	(1,051)	(3,272)	(4,937)	**(9,260)**	
per GJ to MCRA	-	-	(0.0085)	(0.0264)	(0.0398)		(0.0149)
Tranfer all costs except Supply ending balance	(1,132.4)	(446.2)	(959.1)	(3,150.5)	(9,515.4)	**(15,204)**	
per GJ - all delivery	(0.0065)	(0.0025)	(0.0055)	(0.0180)	(0.0543)		(0.0173)
Customer impact based on 90 GJS							**$ 2.91**
3 - Premium equal to UBC cost of carbon							
BVA Closing Balance (after tax)	$ 0	$ (0)	$ (0)	$ 0	$ (0)		
BERC RATE based on cost of service	$ 15.74	$ 14.29	$ 16.41	$ 17.06	$ 17.32		
BERC RATE CHARGED to Customers	$ 6.58	$ 6.72	$ 6.85	$ 7.02	$ 7.18		
BERC RATE CHARGED to Customers Long Term	$ 5.58	$ 5.72	$ 5.85	$ 6.02	$ 6.18		
Stale dated write-off > 18 months old	-	-	-	-	-	-	
per GJ to MCRA	-	-	-	-	-		-
Tranfer all costs except Supply ending balance	(3,169.6)	(3,573.8)	(6,981.4)	(8,607.6)	(9,814.6)	**(32,147)**	
per GJ - all delivery	(0.0181)	(0.0204)	(0.0398)	(0.0491)	(0.0560)		(0.0367)
Customer impact based on 90 GJS							**$ 3.30**
4 - Premium equal to carbon tax							
BVA Closing Balance (after tax)	$ 0	$ (0)	$ (0)	$ 0	$ (0)		
BERC RATE based on cost of service	$ 15.74	$ 14.29	$ 16.41	$ 17.06	$ 17.32		
BERC RATE CHARGED to Customers	$ 4.32	$ 4.46	$ 4.59	$ 4.76	$ 4.92		
BERC RATE CHARGED to Customers Long Term	$ 4.32	$ 4.46	$ 4.59	$ 4.76	$ 4.92		
Stale dated write-off > 18 months old	-	-	-	-	-	-	
per GJ to MCRA	-	-	-	-	-		-
Tranfer all costs except Supply ending balance	(3,631.0)	(4,214.0)	(7,893.6)	(9,652.4)	(10,983.7)	**(36,375)**	
per GJ - all delivery	(0.0207)	(0.0240)	(0.0450)	(0.0551)	(0.0627)		(0.0415)
Customer impact based on 90 GJS							**$ 3.73**

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Summary from Scenarios (in $000)	**2016**	**2017**	**2018**	**2019**	**2020**	**Total**	**5 year AVERAGE**
5 - Two short term contract volume based offerings							
BVA Closing Balance (after tax)	$ 2,819	$ 7,502	$ 15,447	$ 20,884	$ 19,450		
BERC RATE based on cost of service	$ 15.74	$ 14.64	$ 16.10	$ 16.41	$ 16.59		
BERC RATE CHARGED to Customers (premium 8.50)	$ 11.33	$ 11.47	$ 11.60	$ 11.77	$ 11.93		
BERC RATE CHARGED to Customers (premium 7.50)	$ 10.33	$ 10.47	$ 10.60	$ 10.77	$ 10.93		
BERC RATE CHARGED to Customers Long Term	$ 9.33	$ 9.47	$ 9.60	$ 9.77	$ 9.93		
Stale dated write-off > 18 months old	-	-	(1,067)	(3,300)	(4,963)	**(9,330)**	
per GJ to MCRA	-	-	(0.0086)	(0.0266)	(0.0400)		(0.0150)
Tranfer all costs except Supply ending balance	(815.0)	40.4	(176.1)	(2,627.8)	(9,577.5)	**(13,156)**	
per GJ - all delivery	(0.0046)	0.0002	(0.0010)	(0.0150)	(0.0546)		(0.0150)
Customer impact based on 90 GJS							**$ 2.70**
6 - Lower natural gas commodity prices							
BVA Closing Balance (after tax)	$ 2,743	$ 7,287	$ 14,983	$ 20,259	$ 18,879		
BERC RATE based on cost of service	$ 15.74	$ 14.53	$ 15.93	$ 16.16	$ 16.31		
BERC RATE CHARGED to Customers	$ 11.05	$ 11.17	$ 11.29	$ 11.44	$ 11.58		
BERC RATE CHARGED to Customers Long Term	$ 10.05	$ 10.17	$ 10.29	$ 10.44	$ 10.58		
Stale dated write-off > 18 months old	-	-	(950)	(2,953)	(4,452)	**(8,354)**	
per GJ to MCRA	-	-	(0.0077)	(0.0238)	(0.0359)		(0.0135)
Tranfer all costs except Supply ending balance	(867.7)	(68.9)	(510.4)	(3,097.9)	(9,987.8)	**(14,533)**	
per GJ - all delivery	(0.0049)	(0.0004)	(0.0029)	(0.0177)	(0.0570)		(0.0166)
Customer impact based on 90 GJS							**$ 2.70**
7 - Higher natural gas commodity prices							
BVA Closing Balance (after tax)	$ 3,051	$ 8,159	$ 16,862	$ 22,770	$ 21,134		
BERC RATE based on cost of service	$ 15.74	$ 15.00	$ 16.64	$ 17.16	$ 17.43		
BERC RATE CHARGED to Customers	$ 12.18	$ 12.36	$ 12.53	$ 12.74	$ 12.95		
BERC RATE CHARGED to Customers Long Term	$ 11.18	$ 11.36	$ 11.53	$ 11.74	$ 11.95		
Stale dated write-off > 18 months old	-	-	(1,436)	(4,365)	(6,515)	**(12,316)**	
per GJ to MCRA	-	-	(0.0116)	(0.0352)	(0.0525)		(0.0199)
Tranfer all costs except Supply ending balance	(426.5)	628.9	1,110.3	(940.3)	(8,085.8)	**(7,713)**	
per GJ - all delivery	(0.0024)	0.0036	0.0063	(0.0054)	(0.0461)		(0.0088)
Customer impact based on 90 GJS							**$ 2.58**
8 - Lower forecast deliveries on FEI system							
BVA Closing Balance (after tax)	$ 3,019	$ 7,939	$ 16,151	$ 21,106	$ 18,938		
BERC RATE based on cost of service	$ 15.74	$ 14.66	$ 16.09	$ 16.39	$ 16.59		
BERC RATE CHARGED to Customers	$ 11.33	$ 11.47	$ 11.60	$ 11.77	$ 11.93		
BERC RATE CHARGED to Customers Long Term	$ 10.33	$ 10.47	$ 10.60	$ 10.77	$ 10.93		
Stale dated write-off > 18 months old	-	-	(1,269)	(3,584)	(5,120)	**(9,973)**	
per GJ to MCRA	-	-	(0.0102)	(0.0289)	(0.0413)		(0.0161)
Tranfer all costs except Supply ending balance	(698.0)	176.7	175.5	(2,957.0)	(10,303.3)	**(13,606)**	
per GJ - all delivery	(0.0040)	0.0010	0.0010	(0.0169)	(0.0588)		(0.0155)
Customer impact based on 90 GJS							**$ 2.84**

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Summary from Scenarios (in $000)	2016	2017	2018	2019	2020	Total	5 year AVERAGE
9 - Higher Forecast deliveries on FEI system							
BVA Closing Balance (after tax)	$ 2,623	$ 7,083	$ 14,783	$ 20,686	$ 19,954		
BERC RATE based on cost of service	$ 15.74	$ 14.63	$ 16.12	$ 16.42	$ 16.59		
BERC RATE CHARGED to Customers	$ 11.33	$ 11.47	$ 11.60	$ 11.77	$ 11.93		
BERC RATE CHARGED to Customers Long Term	$ 10.33	$ 10.47	$ 10.60	$ 10.77	$ 10.93		
Stale dated write-off > 18 months old	-	-	(877)	(3,033)	(4,820)	**(8,730)**	
per GJ to MCRA	-	-	(0.0071)	(0.0245)	(0.0389)		(0.0141)
Tranfer all costs except Supply ending balance	(816.0)	36.9	(377.8)	(2,181.4)	(8,757.0)	**(12,095)**	
per GJ - all delivery	(0.0047)	0.0002	(0.0022)	(0.0124)	(0.0500)		(0.0138)
Customer impact based on 90 GJS							**$ 2.51**
10 - Increase customer awareness spend							
BVA Closing Balance (after tax)	$ 2,797	$ 7,429	$ 15,309	$ 20,814	$ 19,507		
BERC RATE based on cost of service	$ 15.98	$ 14.76	$ 16.17	$ 16.45	$ 16.63		
BERC RATE CHARGED to Customers	$ 11.33	$ 11.47	$ 11.60	$ 11.77	$ 11.93		
BERC RATE CHARGED to Customers Long Term	$ 10.33	$ 10.47	$ 10.60	$ 10.77	$ 10.93		
Stale dated write-off > 18 months old	-	-	(1,027)	(3,240)	(4,921)	**(9,188)**	
per GJ to MCRA	-	-	(0.0083)	(0.0261)	(0.0397)		(0.0148)
Tranfer all costs except Supply ending balance	(837.7)	15.6	(245.4)	(2,570.2)	(9,437.6)	**(13,075)**	
per GJ - all delivery	(0.0048)	0.0001	(0.0014)	(0.0147)	(0.0538)		(0.0149)
Customer impact based on 90 GJS							**$ 2.68**
11 - Decreased customer awareness spend							
BVA Closing Balance (after tax)	$ 2,869	$ 7,707	$ 15,899	$ 21,155	$ 19,376		
BERC RATE based on cost of service	$ 15.26	$ 14.41	$ 15.96	$ 16.31	$ 16.51		
BERC RATE CHARGED to Customers	$ 11.33	$ 11.47	$ 11.60	$ 11.77	$ 11.93		
BERC RATE CHARGED to Customers Long Term	$ 10.33	$ 10.47	$ 10.60	$ 10.77	$ 10.93		
Stale dated write-off > 18 months old	-	-	(1,200)	(3,507)	(5,126)	**(9,833)**	
per GJ to MCRA	-	-	(0.0097)	(0.0283)	(0.0413)		(0.0159)
Tranfer all costs except Supply ending balance	(596.2)	298.0	245.7	(2,611.3)	(9,832.8)	**(12,497)**	
per GJ - all delivery	(0.0034)	0.0017	0.0014	(0.0149)	(0.0561)		(0.0143)
Customer impact based on 90 GJS							**$ 2.71**

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Attachment 40.4.1

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Attachment 43.1

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Attachment 43.2

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