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July 5, 2013

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 or the Company)

Biomethane Service Offering: Post Implementation Report and Application for Approval for the Continuation and Modification of the Biomethane Program on a Permanent Basis (2012 Biomethane Application) (the Application)

Response to the British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 2

On May 28, 2013, FEI filed its response to IR No. 1. In accordance with Commission Order G-53-13 setting out the Revised Regulatory Timetable for review of the Application, FEI respectfully submits the attached response to BCUC IR No. 2.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed by: Shawn Hill

For: Diane Roy

Attachments

cc (e-mail only): Registered Parties

A. REQUESTED APPROVALS

1.0 Reference: REQUESTED APPROVALS

Exhibit B-14, BCSEA IR 1.1.1; Exhibit B-1, Appendix B-3, Tab 4, Page 5; Exhibit A2-18

Request for Approval to Reset the BERC Rate

In response to B.C. Sustainable Energy Association (BCSEA) IR 1.1.1, FortisBC Energy Inc. (FEI) listed the approvals FEI is currently requesting in this proceeding including the following item:

"The resetting of the BERC rate at $12.001/GJ to be effective at the start of the first quarter after the Commission's Decision on the 2012 Biomethane Application;"

1.1 Please confirm that FEI wishes to reset the Biomethane Energy Recovery Charge (BERC) rate at $12.001 per GJ at the start of the first quarter after the Commission's Decision on the 2012 Biomethane Application. If not confirmed, please provide the amended request regarding the resetting of the BERC rate.

Response:

Not confirmed. Upon further consideration and given the passage of time since the filing of the 2012 Biomethane Application, FEI believes that the BVA data and BERC rate proposals need to be updated to reflect the most current information after the Commission Decision on the 2012 Biomethane Application has been issued. As well, the Company requires sufficient lead time prior to the effective date of a reset BERC rate to enable updates to its Customer Information System (CIS) and appropriate customer communications.

FEI therefore proposes that following the Commission's final decision in this proceeding, FEI will file updated financial schedules on the Biomethane Variance Account (BVA) with the proposed rate and effective date for the Biomethane Energy Recovery Charge (BERC) taking into account any directions from the Commission. The Company would file its updated BVA report and BERC rate proposals on their own or as part of its next quarterly gas cost report to the Commission.

The schedule attached below, provided for comparative purposes only, shows the BERC rate calculated using an October 1, 2013 effective date and based on current forecasts for the 15-month prospective period of October 1, 2013 to December 31, 2014 (to align the effective period with the Company's position that under circumstances the biomethane rate be adjusted on an annual basis with a January 1 effective date). A BERC rate of $13.504 per GJ has been calculated.

FORTISBC ENERGY INC. - LOWER MAINLAND, INLAND AND COLUMBIA SERVICE AREAS
BIOMETHANE VARIANCE ACCOUNT ("BVA") and BIOMETHANE ENERGY RECOVERY CHARGE ("BERC") REVIEW
FOR THE FORECAST 15-MONTH PERIOD ENDING DECEMBER 31, 2014
(Amounts shown pre-tax unless otherwise indicated)

Line No.	Particulars		$000		TJ	Notes
	(1)		(2)		(3)	(4)
1	**Forecast BVA Deferral Balance at October 1, 2013**					
2	Cost		$ 1,126.1			
3	Volume				90.0	Unsold Volume
4						
5	**Forecast Costs Incurred in the 15-Month Period**					
6	Cost		$ 3,059.8			
7	Volume				220.0	15 Month Purchase Volume
8						
9	**Biomethane Available for Sale in the 15 Months**					
10	**Total Cost to be Recovered**		**$ 4,186.0**			
11	**Total Volume**				**310.0**	
12						
13						
14						
15	**Calculation of Proposed Biomethane Energy Recovery Charge Effective October 1, 2013**					
16						
17						
18	**Proposed BERC** = Cost of Biomethane Available for Sale in 2013	=	$ 4,186.0	=	**$ 13.504**	per Gigajoule
19	Volume of Biomethane Available for Sale in 2013		310.0			
20						
21						
22	Existing BERC (effective January 1, 2012)				$ 11.696	per Gigajoule
23						
24						
25	**Proposed Rate Increase (Decrease)**				**$ 1.808**	per Gigajoule

Notes: Based on 2013 Second Quarter Gas Cost Report data, but includes an adjustment to correct the BVA balances for error in the reported Rate Class 1B sales for January 2013.

1.2 Based on the data provided in the 2013 Second Quarter Gas Cost Report that is Exhibit A2-18 to this proceeding and a 12-month prospective period to June 30, 2014, use the methodology in the 2012 Fourth Quarter Gas Cost Report (Appendix B-3, Tab 4) to calculate the indicative BERC rate that would have been calculated to be effective July 1, 2013 and provide the equivalent version of Tab 4 Page 5 of the 2012 Fourth Quarter Gas Cost Report to show the calculation details.

Response:

The schedule attached below provides the BERC rate that would have been calculated to be effective July 1, 2013 based on using a 12-month prospective period of July 1, 2013 to June 30, 2014 and the data submitted in the 2013 Second Quarter Gas Cost Report. A calculated BERC rate of $13.048 per GJ is shown at lines 18/19 on the schedule.

As indicated in the response to BCUC IR 2.56.2, there was an error in the recorded Rate Class 1B sales for January 2013 reported in the 2013 Second Quarter Gas Cost Report. The BERC rate that would have been calculated to be effective July 1, 2013 based on the 12-month prospective period of July 1, 2013 to June 30, 2014 and after adjusting the 2013 Second Quarter Gas Cost Report data to correct error in the Rate Class 1B sales for January 2013, would be a rate of $13.085 per GJ ($0.037 per GJ higher than the rate calculated in the schedule provided below).

FORTISBC ENERGY INC. - LOWER MAINLAND, INLAND AND COLUMBIA SERVICE AREAS
BIOMETHANE VARIANCE ACCOUNT ("BVA") and BIOMETHANE ENERGY RECOVERY CHARGE ("BERC") REVIEW
FOR THE FORECAST 12-MONTH PERIOD ENDING JUNE 30, 2014
(Amounts shown pre-tax unless otherwise indicated)

Line No.	Particulars	$000	TJ	Notes
	(1)	(2)	(3)	(4)
1	**Forecast BVA Deferral Balance at July 1, 2013**			
2	Cost	$ 1,088.1		
3	Volume		87.0	Unsold Volume
4				
5	**Forecast Costs Incurred in the 12-Month Period**			
6	Cost	$ 1,918.7		
7	Volume		143.4	12 Month Purchase Volume
8				
9	**Biomethane Available for Sale in the 12 Months**			
10	**Total Cost to be Recovered**	**$ 3,006.8**		
11	**Total Volume**		**230.4**	
12				
13				
14				
15	**Calculation of Proposed Biomethane Energy Recovery Charge Effective July 1, 2013**			
16				
17				
18	**Proposed BERC** = Cost of Biomethane Available for Sale in 2013	= $ 3,006.8	= **$ 13.048**	per Gigajoule
19	Volume of Biomethane Available for Sale in 2013	230.4		
20				
21				
22	Existing BERC (effective January 1, 2012)		$ 11.696	per Gigajoule
23				
24				
25	**Proposed Rate Increase (Decrease)**		**$ 1.352**	per Gigajoule

Notes: Based on 2013 Second Quarter Gas Cost Report dated June 6, 2013.

2.0 Reference: REQUESTED APPROVALS

Exhibit B-14, BCSEA IR 1.1.1

Request for Approval of Recovery of Costs in the BVA through the MCRA

In response to BCSEA IR 1.1.1, FEI listed the approvals FEI is currently requesting in this proceeding including the following item:

"Approval of the recovery of costs in the Biomethane Variance Account through the Midstream Cost Recovery Account as set out in Section 8 of the 2012 Biomethane Application;"

2.1 Please confirm that FEI's proposed risk mitigation strategy requires the transfer of volumes as well as costs from the BVA to the MCRA. If not confirmed, please explain the treatment of unsold volumes in the BVA.

Response:

Confirmed.

Please refer to the response to BCUC IR 2.52.1.

3.0 Reference: REQUESTED APPROVALS

Exhibit B-14, BCSEA IR 1.1.1

Process for Approval of GVS&DD Supply Contract and Related Interconnection Capital Costs

In response to BCSEA IR 1.1.1 when asked to list the approvals FEI is currently requesting in this proceeding, FEI states:

"The acceptance of the four supply agreements under section 71 of the UCA and the capital expenditures of the related facilities under section 44.2 of the UCA are not required in this proceeding as Commission Order G-70-13 approved the Dicklands, Seabreeze and Earth Renu supply contracts as rates and accepted the related interconnection capital costs. FEI anticipates that a separate process for review of the Greater Vancouver Sewage and Drainage District supply contract and related interconnection capital costs will begin when an exemption is granted for the regulation of biomethane suppliers pursuant to the exemption process initiated by the Commission."

3.1 Please confirm that FEI is no longer seeking acceptance of the Greater Vancouver District Sewage and Drainage District (GVS&DD) supply agreement or approval of the related interconnection capital costs in this proceeding.

Response:

FEI is not seeking acceptance of the GVS&DD supply agreement in this proceeding due to the regulatory history in relation to the approvals required and approved process for the GVS&DD contract. FEI recounts the key aspect of this history below.

In Order G-29-13 and G-45-13 the Commission determined that the supply cap for the biomethane pilot program set by Order G-194-10 is increased by an amount sufficient to accommodate up to an additional 280,000 GJ of supply annually from four suppliers, one of which being the GVS&DD.

In Order G-29-13, Appendix A, page 5, the Commission also found:

> **The Commission Panel finds that a Streamlined Review Process is an appropriate regulatory process for the review of the additional contracts.**
>
> …

> **The Panel finds that the guidelines established in Order G-194- 10 and the accompanying Decision, with respect to the criteria for supply contracts to meet the filing requirements in sections 71(1)(a) and 71(1)(b) of the Act, including the pilot price cap of $15.28 per GJ, will apply to the review of the four contracts for acceptance.** [Emphasis in original.]

According to these determinations, the GVS&DD supply agreement is incorporated under the supply cap for the biomethane pilot program and should be reviewed in accordance with the criteria approved for the pilot in a Streamlined Review Process.

This process has not proceeded because in Order G-18-13, Appendix A, page 10, the Commission found that a CPCN is required for the GVS&DD project and that acceptance of the agreement cannot precede the CPCN approval. Order G-18-13 states:

> "**A CPCN is…required for the Greater Vancouver Sewerage and Drainage District unless it is exempt from regulation as a public utility as defined in the UCA. The Commission Panel further finds that approval of rates for a biomethane project and acceptance of the energy supply agreements between FEI and the biomethane supplier cannot precede the CPCN approval.**" [Emphasis in original.]

It is also important to note that until an exemption is granted, the GVS&DD supply agreement requires approval as a rate under section 61 of the UCA, which is a process that should be initiated by the GVS&DD, not FEI.

At this time, the GVS&DD has indicated it will not proceed with a CPCN application and rate application, but will wait for an exemption to be granted.

For these reasons, at this time, FEI does not believe it would be appropriate or consistent with the Commission's prior Orders to seek acceptance of the GVS&DD supply agreement and related interconnection costs in this proceeding.

When an exemption is granted for biomethane suppliers, FEI expects to reinitiate a process to seek acceptance of the GVS&DD supply contract and related interconnection facilities in accordance with the terms of Orders G-29-13 and G-45-13.

3.1.1 Does FEI believe that the GVS&DD supply agreement and related interconnection capital costs are out of scope for this proceeding?

Response:

FEI believes that the GVS&DD supply project is in scope to a limited extent. The GVS&DD supply project is relevant and in scope in a general sense because it is part of FEI's plans for biomethane supply. The Commission has approved the expansion of the current supply cap for the purpose of accommodating the anticipated supply from the GVS&DD project. However, as discussed in BCUC IR 2.3.1, FEI believes that it cannot seek acceptance of the GVS&DD supply agreement at this time. Therefore, any details that would only be necessary to approve the project and related interconnection facilities are out of scope.

4.0 Reference: GVS&DD SUPPLY AGREEMENT

Exhibit B-16, BCUC IR 1.1.1, BCUC IR 1.1.2, BCUC IR 1.1.2.1, BCUC IR1.1.2.2, Attachment 1.5; Appendix A to Order G-130-06,

Rules for Natural Gas Energy Supply Contracts;

In response to BCUC IR 1.1.1, FEI confirms that purchases of biomethane in excess of 40 TJ annually from GVS&DD cannot be considered as purchases of renewable gas and therefore cannot be sold as renewable natural gas (RNG) to customers participating in the RNG gas offering.

In response to BCUC IR 1.1.2, FEI states "FEI notes that the necessary approvals required for the GVS&DD supply project are not within the scope of this proceeding."

In response to BCUC IR 1.1.2.2, FEI states that the purchase of biomethane in excess of 40 TJ is non-firm and on a spot basis.

4.1 Please describe the necessary approvals that FEI believes are required for the purchase of biomethane in excess of the 40 TJ annually from GVS&DD and FEI's plans for obtaining such approvals.

Response:

Assuming that the exemption is granted for biomethane suppliers, FEI would require approval pursuant to section 71 of the UCA for its energy supply contract with the GVS&DD. As the purchase of RNG and potential purchase of non-RNG is under the same energy supply contract, only one approval is required. Please also refer to the response to BCUC IR 2.33.1.

The "Rules for Natural Gas Energy Supply Contracts" which are Appendix A to Commission Order G-130-06 describe the process for the review of natural gas supply contracts pursuant to section 71 of the *Utilities Commission Act* (the Act).

4.2 For purchases of gas from GVS&DD in excess of 40 TJ annually that are not considered as purchases of renewable gas, please confirm that these would be considered purchases of natural gas under section 71 of the Act. If not confirmed, please explain.

Response:

Confirmed. Please refer to the response to BCUC IR 2.4.1.

4.2.1 Does this contract for the purchase of natural gas (that is not renewable natural gas) require an Order from the Commission accepting the contract for filing under section 71 of the *Utilities Commission Act*? Please explain the response.

Response:

Yes. Please refer to the response to BCUC IR 2.4.1.

4.2.2 Please confirm that the term of the GVS&DD spot purchase contract is longer than one month.

Response:

FEI has only one energy supply contract with the GVS&DD, which is filed in Confidential Appendix J-1 of Exhibit B-1. The term of the GVS&DD energy supply contract is 10 years.

4.2.3 Please describe the current practice FEI follows with the Commission regarding the filing and acceptance of spot purchase agreements with terms longer than one month.

Response:

FEI typically does not enter into spot purchase agreements with terms longer than one month. Spot purchases are usually supply purchases of a day, or several days if spanning a weekend, in duration and are required to help balance core load requirements on the FEI system on a daily basis. These supply deals are not filed with Commission although they are included in

MCRA purchases and GSMIP reporting. Only supply deals that are longer than one month in duration are filed with the Commission. These supply deals typically cover a winter or summer period, an entire gas year or a peak demand period such as December to February.

The Annual Contracting Plan, submitted to the Commission for approval each year, outlines the supply requirements for the upcoming gas year in order to meet forecast normal and peak day load demands of core customers. These supply requirements include both seasonal or term purchases as well as potential spot purchases that may be required. All contracts entered into as part of the Annual Contracting Plan, including those for spot purchases, have a requirement for firm physical supply.

4.2.4 Does FEI intend to include consideration of the need for this long-term spot gas purchase contract in annual gas contracting plan? Please explain the response.

Response:

FEI does not foresee adjusting the Annual Contracting Plan (ACP) supply resource requirements for this spot gas purchase contract until the supply volumes become material and at least a portion of the supply deemed reliable. Until these conditions are met, this supply arrangement will be treated much like other spot purchases are today. They are used primarily to manage the gas day to help balance load on the system. Until the volumes are material, reliable and consistent from day to day, the supply cannot be counted on to meet forecast core load requirements and meet the objectives of the ACP.

A key factor limiting the consideration of this supply purchase contract in the Annual Contracting Plan is that it is supply without a firm volume guaranteed each day. FEI's other supply arrangements are firm in nature, meaning that supply is guaranteed or financial reimbursement is provided. Because this supply cannot be relied on to arrive each day, it cannot be included as a resource required to meet the forecast demand of core customers.

Should production delivered under the terms of this spot gas purchase contract prove to be consistent in the future, then a portion of this supply could be deemed to be as reliable as conventional natural gas. More importantly, however, is that the volume would have to be material and could then be assessed for reliability in order to determine if it can be included in future ACPs. Volumes less than a few terajoules per day are not considered material for FEI.

FEI will continue to monitor developments related to the Biomethane Program and associated supply volumes and will make appropriate adjustments to the resource portfolio through the ACP process in the future if warranted.

4.2.5 In response to BCUC IR 1.2.1, FEI notes that the volumes purchased "are expected to be relatively small." Please confirm that the "Rules for Natural Gas Energy Supply Contracts" and Section 71 of the UCA do not specify a minimum threshold volume below which Section 71 and the "Rules for Natural Gas Energy Supply Contracts" would not apply. If not confirmed, please explain.

<u>Response:</u>

Confirmed. The Rules for Natural Gas Energy Supply Contracts and Section 71 of the UCA do not specify a minimum threshold volume below which the Rules for Natural Gas Energy Supply Contracts and Section 71 would not apply.

4.3 Please confirm that the volumes and costs associated with the purchase of gas from GVS&DD in excess of 40 TJ annually will be recorded in the MCRA. If not confirmed, please explain.

<u>Response:</u>

Confirmed.

B. EFFECTIVENESS OF CURRENT MARKETING

5.0 Reference: EFFECTIVENESS OF CURRENT MARKETING

Exhibit B-17, BCUC IR 1.10.2.1

Customer Education and Promotions Drives Enrolments

In response to BCUC IR 1.10.2.1, FEI provides a graph labeled "Customer Education and Promotions Drives Enrolments," showing the relationship between marketing activities and customer enrolments. The graph indicates the bulk of the enrolments occurred in the 6 month period after the marketing campaign ended.

5.1 Please explain why FEI believes there is a direct relationship between the May marketing campaign and the enrolments that occurred afterwards between June and December.

Response:

FEI believes that a direct relationship between the May campaign and enrollments is established by the fact that there was a 700 percent increase in enrollments from June till December. As the market takes some time to respond, it is expected that the results of the May campaign would be seen in the following months.

However, FEI does not believe that the campaigns in May alone led to the 700 percent increase in enrollments. FEI has had awareness campaigns since the start of the program in June 2011 and beyond May 2012 to the end of the year which also likely resulted in increased enrollments.

In May 2012, FEI also launched the AIR MILES campaign with a limited time bonus offer until July 31 through FEI channels and there is an increase in enrollments in that time frame. The increase in November and December can be attributed to another limited time bonus offer that ran from October through December 2012, which deployed via AIR MILES channels to a targeted database of approximately 300,000. FEI believes that the other campaigns that were in the market through FEI channels have also led to increased awareness and sign ups.

In response to BCUC IR 1.15.4, FEI showed the correlation between campaigns in the market and the increase in traffic to the RNG pages of our website and sign ups. This further lends support to the fact that promotions in general lead to awareness and eventually participation.

6.0 Reference: DEMAND IN B.C.

Exhibit B-17, BCUC IR 1.15.4

Measuring Effectiveness of Marketing Campaigns

In response to BCUC IR 1.15.4, FEI provides a graph showing the relationship between marketing activities and website page views. The graph indicates there were three periods of high-volume campaigning (multiple campaigns running at the same time): March 1, 2012 to July 1, 2012; August 1, 2012 to September 1, 2012; and November 1, 2012 to December 1, 2012.

6.1 Please confirm, or otherwise explain, that website page views did not substantially increase between March 1, 2012 and May 1, 2012; or between August 1, 2012 and September 1, 2012, despite a high volume of campaigns in the market during those time periods.

Response:

Confirmed. While visits to the website did not substantially increase during those periods, FEI still continued to add customers during that time. The other campaigns in the market such as radio, direct mail, bill inserts, and print ads could have motivated the customer to call and sign up or directly sign up online without visiting any of the other webpages related to RNG information. FEI's website is one of the many touch points for a consumer. The peaks shown in the graph in BCUC IR 1.15.4.demonstrate that an economic motivator such as AIR MILES is a strong incentive for visiting RNG information on the Fortis BC website.

6.2 Please describe the optimal level of marketing (i.e. number of campaigns, type of campaign) needed to produce a significant increase in website page views.

Response:

It is too soon to determine the optimum level of marketing, but an integrated marketing campaign which utilizes multiple channels to reach potential customers is needed to continue to increase awareness of the program in order to motivate customers to take action, including increasing website page views. In response to BCUC IR 1.10.4 FEI has indicated that customers need to hear things at least seven times before they take action. To achieve the desired level of awareness, FEI will aim to have multiple communications in the market with at least seven touch points with the target customer base in a year.

7.0 Reference: 2011 CUSTOMER EDUCATION PLAN

Exhibit B-17, Attachment 10.1, Section 1.1, pp. 1-2

Generating awareness, interest and subscription – Target audience

On page 1 of the 2011 Customer Education Plan, FEI states: "Those who are most likely to participate in the Terasen Gas Green Gas program are those who not only act in the interest of the environment, but also tend to be among the first to use new products and services. They routinely act on their concern about their environmental footprint in everything they do and buy; they are concerned about the current and future state of the environment and have taken steps to save energy in the past; they are innovators and early adopters of new products and services that benefit the environment."

7.1 Does FEI believe the target audience described above has received enough education regarding the RNG program to be "sufficiently aware of it and able to make an informed decision as to whether or not they wish to participate in it?" (Exhibit B-17, Attachment 10.1) Please explain.

Response:

No, the target audience described in the preamble has not received enough education since the current overall awareness levels are only at 13 percent, with a current participation rate of 0.76 percent (for the entire customer base).

FEI recently concluded a focus group session with potential subscribers to test the effectiveness of its current marketing materials and messages. The results of the focus group indicate that the awareness levels for the RNG offering are quite low, since the participants had never heard of the program despite receiving their bills from FortisBC. FEI received feedback to provide more information on the process and more clarity on the increase in costs in its communication in order to increase the participation rates. FEI will refine its communication messaging and test its effectiveness by monitoring participation rates and communications recall.

FEI's primary research indicates a market potential of 27 percent assuming 100 percent awareness rates. This suggest that there is enough growth potential to achieve the median participation rates of 2 percent similar to other green pricing programs in the short term. Please also refer to the response to BCUC IR 1.16.1 for additional information on the criteria that FEI will use to determine when the program reaches a certain level of maturity for customers to make an informed decision as to whether or not they wish to participate.

7.1.1 Does FEI believe there is still growth potential in the above described target audience? Please explain.

Response:

Yes. Please refer to the response to BCUC IR 2.7.1.

On page 2 of the 2011 Customer Education Plan, FEI states: "Our communications will also reach a secondary audience – residential customers who consider themselves to be environmentally-minded, but who aspire to be more environmentally conscious in their actions and choices. While they are not the most likely to participate at the outset, their awareness of the Terasen Gas Green Gas program could lead to subscribing in the future."

7.2 Does FEI plan to alter its marketing materials to better target the secondary audience? Please explain.

Response:

Yes, FEI plans to refine its website and future campaigns to attract the attention of the secondary audience and stimulate participation.

As discussed in the response to BCUC IR.2 7.1 FEI recently concluded a focus group session on June 20th 2013 with potential subscribers and received feedback to simplify its messaging and provide more information on the process and more clarity on the increase in costs in its communications in order to increase the participation rates.

Additionally, as stated in the response to BCUC IR 1.15.1, FEI is in the process of engaging UBC students from the current MBA program this fall to help evaluate the effectiveness of current campaigns and suggest recommendations to make changes to its 2014 marketing plan to appeal to the secondary audience.

FEI is also assessing other creative cost effective customer engagement campaigns such as targeting specific postal codes and neighborhoods with messages that will have a higher response rate based on their attitudes towards green products and lifestyle. FEI is also mining its existing database of subscribers to identify neighborhoods with higher participation rates and targeting potential natural gas customers in those postal codes to maximize reach. FEI's goal is to create awareness and interest in the marketplace through cost effective and creative promotional strategies in order to stimulate and maintain participation.

7.2.1 Please describe the growth potential for enrolments from the secondary audience.

Response:

The only growth potential FEI has available is from the research conducted by TNS in 2012 indicating a 27 percent market potential. Please refer to the response to BCUC IR 2.7.1.

8.0 Reference: 2012 MARKETING AND COMMUNICATIONS PLAN

Exhibit B-17, Attachment 10.1

Communications strategies

In the 2012 Marketing and Communications Plan, under the heading "Communications strategies," FEI proposes to "Use aggregators and industry partners to promote the program: Offsetters, Vancity, Recyclebank, Airmiles, Climate Change etc. Pursue ENGO & Govt endorsement."

FEI further proposes the following under the heading "Communication activities – Commercial:"

- "Utilize existing relationships and form new ones with organizations that can help promote RNG, such as David Suzuki, Vancity, Recyclebank, City of Vancouver, Lighthouse, CEC, Green Table Network etc.
- BD to pursue partnership opportunities with other aggregators: Vancity, ENGO, Green Table Network, LEEDS, City of Van, other munis etc."

8.1 Please explain FEI's past and current partnerships with any third parties, including those listed above, for program promotion. Please describe whether the partnership was/is for the residential program, the commercial program or both.

<u>Response:</u>

FEI would like to clarify that the partnerships referenced in the question are working relationships with the following organizations to educate and promote RNG.

Organization	**Relationship**	**Segment**
Climate Smart (https://climatesmartbusiness.com/)	FEI participates in their carbon training workshops and RNG is presented as a carbon reduction tool and featured RNG in their newsletter	- Commercial
Lighthouse (http://www.sustainablebuildingcentre.com/)	Feature RNG in their newsletter and mention RNG in their presentations	- Commercial
Green Step (http://www.greenstep.ca/)	Use their customer base to make Presentations on RNG and EEC offers. Also have a referral contract when they reach to their small and medium business in the interior	- Commercial
Offsetters (http://www.offsetters.ca/)	RNG has been featured on their website, newsletters and is presented to their customer base as a carbon reduction tool. Offsetters also provides their carbon neutral decal to add credibility to FEI's program and reviews environmental claims.	- Commercial and residential
UBC	MOU is in place to further the development of RNG in BC	- Residential and commercial
AIR MILES	FEI has relationship with AIR MILES to co-promote RNG to their customer base	- Residential
City of Vancouver	FEI has done joint promotions with the city to create awareness for RNG	- Residential

FEI is also in the process of creating relationships with other organizations such as the those listed below and is looking for more opportunities to spread the word.

- **Green key** (http://www.greenkeyglobal.com/strategic_partners.asp) to target hotels that consider themselves as environmental friendly
- LEED certification to get RNG recognized for LEED points under the renewable energy category
- **Van City –** utilize their network and brand to co-promote RNG for any customers getting loans for home improvement projects or new mortgages
- **City of Richmond**- co promote RNG to their residential and commercial customers
- **Various municipalities –** RNG is or has been featured as a link on their website such as Port Coquitlam, Maple Ridge, Village of Belcarra and City of Vancouver.

8.1.1 Please provide any marketing materials related to third party partnerships.

Response:

Please refer to Exhibit B-17, Attachment 10.1 (pages 443-444 of the pdf version) for an example of the marketing material with the City of Vancouver.

Please refer to Attachment 8.1.1 which includes:

- A copy of the presentation slide that was used for Climate Smart
- Examples of newsletters distributed through channels of other third party partners.
- Examples of links on third party partners' websites, including City of Vancouver, Port Coquitlam, the Beclarra Mayor's Report and GreenStep.

8.1.2 Has FEI considered partnering with any additional third parties not described in response to the previous question for program promotion (i.e. other environmental organizations, municipalities, etc.)?

Response:

FEI always looks for opportunities as they arise to establish relationships with organizations that can spread the message on RNG. For example FEI is pursuing one with VanCity, the local financial institution that is a leader in sustainability, to co-market RNG along with their financial products for home improvement. Such relationships utilize the reach and influence of the partnering organization to create awareness and increase enrollments.

It is too soon to conclusively comment on the impact on enrollments from such relationships as the purpose is to create awareness. As stated in response to BCUC IR 2.15.1, if there is a correlation between participation levels and awareness levels, then customer participation should increase if FEI is able to increase awareness levels

In addition, FEI is still exploring opportunities with certain municipalities for RNG and, once they sign up, FEI may co-market with them to promote the message in their neighborhoods similar to the example provided for the City of Vancouver. All existing relationships with Municipalities and other environmental organizations have been stated in the response to BCUC IR 2.8.1.

8.1.2.1 If yes, please provide an explanation of the potential partnership and its impact on customer education, awareness and enrollment levels for the RNG program.

Response:

Please refer to the response to BCUC IR 2.8.1.2.

8.1.2.2 If no, please explain why other partnership promotion opportunities have not been explored.

Response:

Please refer to the response to BCUC IR 2.8.1.2.

9.0 Reference: 2013 MARKETING AND COMMUNICATIONS PLAN

Exhibit B-17, Attachment 10.1

Communications strategies

In the 2013 Marketing and Communications Plan, under the heading "Communications strategies," FEI states: "There is a strong link to our residential customers from our commerical (sic) customers who are consumer facing businesses. When a consumer facing business actively displays their participation in the program (ie: stamp on reciept (sic), stickers on window, etc) their customers will be exposed to the product and the support by local businesses will add creditbility (sic) to our product."

9.1 Please provide FEI's research findings to support the link between commercial customers displaying participation in the program and residential customers.

Response:

FEI has not conducted any formal research to support the link between commercial customers displaying participation and residential customer enrollments. Secondary research into other popular green pricing programs all contained visual elements such as recognizable logos or decals for businesses to display either online or onsite. Commercial customers that sign up for the program receive printed and digital decals as part of their enrollment package to display their support and hope to attract and retain customers that they currently do business with that care about sustainability. For FEI, this is a way to increase awareness of the biomethane program amongst customers of these businesses, who would also often be residential customers of FEI. The importance of this link is to connect liked minded customers together to create synergies and spread awareness of the biomethane program. It is also another way for FEI to attract new commercial businesses to allow them to market their services to RNG customers at large

9.1.1 Does FEI believe there is a link between commercial customers displaying participation in the program and residential customer enrolment levels?

Response:

Please refer to the response to BCUC IR 1.9.1.

9.1.1.1 If yes, please provide information in support of this link.

Response:

Please refer to the response to BCUC IR 2.9.1.

9.1.1.2 If no, please explain the importance of this link in the absence of increased residential customer enrolment.

Response:

Please refer to the response to BCUC IR 2.9.1.

10.0 Reference: RNG OFFERING, PRODUCT ROLL-OUT AND RESULTS

Exhibit B-17, BCUC IR 1.15.1

Average non-mortgage debt grows to $38,619 in B.C., http://www.vancouversun.com/business/your-money/Average+mortgage+debt+grows/8476490/story.html#ixzz2VM0C5osh; Vancouver Housing Affordability Is The Worst In Canada: Royal Bank, http://www.huffingtonpost.ca/2013/05/24/vancouver-housing-affordability-worst-canada-royal-bank_n_3332228.html?1369410213&ncid=edlinkusaolp00000008

Customer Uptake

"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. FEI has learned that it takes multiple contacts and continued awareness through diverse channels to motivate and educate FEI's demographically diverse customer base." (Exhibit B-17, BCUC IR 1.15.1)

"While the rest of the country is paying off their non-mortgage debt at a pace not seen in nearly a decade, B.C. continues to buck the trend, adding on more debt." (Average non-mortgage debt grows to $38,619 in B.C.)

"The costs of owning a detached bungalow in Vancouver take up 82.3 per cent of household income, while a standard two-storey home takes up 87.2 per cent, despite housing prices reaching 10-year lows, the bank's May 2013 Housing Trends and Affordability report shows." (Vancouver Housing Affordability Is the Worst In Canada: Royal Bank) [underline for emphasis]

10.1 Given the growth in British Columbia's average non-mortgage debt and Vancouver having the worst housing affordability in Canada, is cost a barrier to attracting Biomethane customers in the 35-44 category? Please explain why, or why not.

Response:

Generally speaking cost is a barrier for buying any product or service regardless of age or income levels (high or low). Given that it costs more to buy Biomethane than conventional natural gas, cost could be one of the many barriers in attracting customers in the 35-44 category.

10.2 Is cost a barrier to low income consumers participating the RNG offering? Please explain why, or why not.

Response:

Please refer to the response to BCUC IR 2.10.1.

11.0 Reference: RNG OFFERING, PRODUCT ROLL-OUT AND RESULTS
Exhibit B-13, BCPSO Attachment 4.1;
Customer Uptake

Comments on Household Income: "Both RNG and EEC Responders are significantly over indexed in the high income segments."

11.1 Given that RNG Responders are significantly over indexed in the high income segments should Biomethane be considered a luxury good (i.e. a good for which demand increases more than proportionally as income rises)? Please explain why, or why not.

Response:

FEI does not agree that biomethane should be considered a luxury good. At present there is no evidence in the product rollout results that indicate that demand increases proportionately as income rises. At present the only biomethane offering is at a fixed rate of 10 percent of the customer's demand so it is not currently possible for customers with higher income levels to increase their consumption more than proportionately.

FEI believes that biomethane demand is driven more by customers core beliefs regarding the environment and how that fits with the merits of a carbon neutral product. Such demand can logically be expected to be constrained in cases of low household income where the desired purchase may not be within the budget means of the customer.

Primary research indicates that 50 percent of subscribers are in the household income range from $40k to $100k indicating that the program has a wide base over a rather broad income spectrum.

Many products that are not considered to be luxury goods have an affordability threshold. For example, bicycles, phones and seafood would all exhibit similar demand characteristics with demand being constrained to a certain extent at low income levels. The perception of affordability re biomethane is likely magnified due to the price difference between biomethane and conventional natural gas, as opposed to the price of biomethane compared to other heating sources (oil, electricity) and other consumer goods such as cell phones and internet service. Compared to these, biomethane is not a high priced item.

The ability to participate in the program at a low level through a 10 percent blend is a way in which FEI is trying to manage the affordability issue. The development of additional product offerings with higher blends of biomethane will also allow those with less price sensitivity and/or higher environmental drivers to purchase higher blends and maximize participation under the program.

12.0 Reference: RNG OFFERING, PRODUCT ROLL-OUT AND RESULTS
Exhibit B-17, BCUC IR 1.13.2, Attachment 1.13.2
Residential and Commercial Customers

"EC: Yes, that is like a brand attribute. We want to jump onboard. For us, it's really a small investment. $1,500 a year is something that a medium sized business can handle. It's not a huge amount of money. But this leadership thing is important for us as a brand."

12.1 Is cost a barrier to commercial customers participating the RNG offering? Please explain why, or why not.

Response:

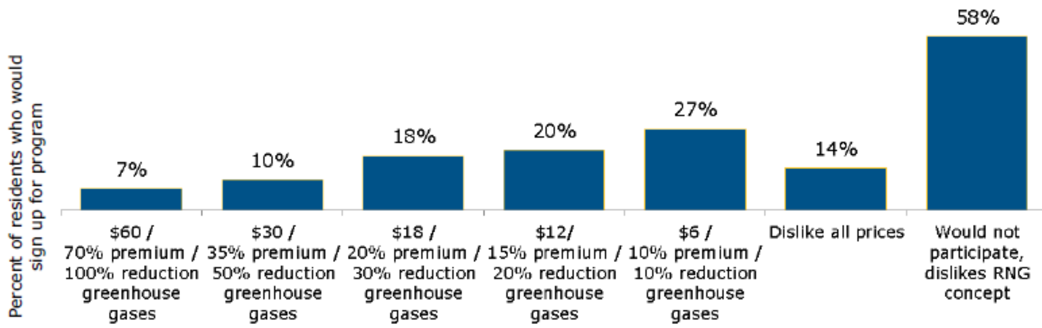
Generally, cost can be a barrier for commercial customers to buy any new product or service. Direct feedback from FEI sales also indicates that cost is a barrier for some businesses to participate in the RNG offering. Most of the commercial participants who signed up for the Biomethane Program did so because it aligns with their core brand value and corporate sustainability goals despite the higher cost. Please also refer to the responses to BCUC IRs 2.12.2 and 2.15.2.

12.2 Has FEI conducted research to determine if cost a barrier to residential/commercial consumers participating the RNG offering? Please explain why, or why not.

Response:

Yes, FEI has conducted research to test various price points. Please refer to the report entitled "Renewable Natural Gas Monitor: Pricing" found in Appendix E-3 of the 2012 Biomethane Application (Exhibit B-1).

The key finding of FEI's research is that price is the largest point of contention and barrier for the RNG program. Customers generally oppose the idea of increases to their gas bill and the research estimated an acceptable level of price increase by testing various concepts and questions. In summary, 7 percent of customers indicated that they would take 100 percent biomethane at a 70 percent price premium and 27 percent indicated that they would be willing to take 10 percent biomethane at a 10 percent price premium.



Q18: Suppose FortisBC offered a renewable natural gas program for its customers. Those who sign up would... Would you sign up for such a program?
Q18A: ...pay a premium of 10% (or an additional $6 per month) for a 10% reduction in their greenhouse gas emissions.
Q18B: ...pay a premium of 15% (or an additional $12 per month) for a 20% reduction in their greenhouse gas emissions.
Q18C: ...pay a premium of 20% (or an additional $18 per month) for a 30% reduction in their greenhouse gas emissions.
Q18D: ...pay a premium of 35% (or an additional $30 per month) for a 50% reduction in their greenhouse gas emissions.
Q81E: ...pay a premium of 70% (or an additional $60 per month) for a 100% reduction in their greenhouse gas emissions.

C. PILOT FINANCIAL RESULTS

13.0 Reference: COMMUNICATIONS AND EDUCATION BUDGET

Exhibit B-17, BCUC IR 1.14.3, BCUC IR 1.14.5.2; Exhibit B-15, CEC IR 1.16.1

In response to BCUC 1.14.3, FEI confirmed: "The updated Promotion (AIR MILES and Customer Video) expenditure was $60,797, including $41,174 paid to AIR MILES (for reward miles and promotion campaign) and $19,623 for customer videos."

In response to CEC IR 1.16.1, FEI states:

> "FEI believes that assessing costs incurred on a per GJ basis is not a true measure of assessing the effectiveness of its marketing campaigns. As noted in the response to CEC IR 1.15.2, the cost will be high on a per GJ basis given that the program is new and volumes are relatively low. FEI expects customer education cost to go down every year as customer awareness increases and biomethane volumes grow. For example, the 2012 cost per GJ of RNG offering for residential customers of $6.39/GJ was significant lower compared to $103.79 in 2010/11 (the year RNG program was introduced). Additionally, the cost per GJ of RNG offering for commercial customers in 2012 (the first year RNG was available to commercial customers) was significant lower compared to the per GJ of RNG offering for residential customers in 2010/11.
>
> Moreover, as also noted in the response to CEC IR 1.15.2, the education expenditures relate to establishing awareness with all customers, not just those that have entered the program. Therefore, education dollars per GJ is of little relevance, especially in the early years of programs when volumes are still ramping up.
>
> Nonetheless, FEI provides the cost per GJ of RNG per residential and commercial customers below.
>
> The cost per GJ of RNG offering per residential customer equals the 2012 residential education expenditure divided by the 2012 total residential Biomethane demand (GJ). This equals:
>
> $130,858 / 20,469 GJ = $6.39 / GJ
>
> The cost per GJ of RNG offering per commercial customer equals the 2012 commercial education expenditure divided by the 2012 total commercial Biomethane demand (GJ). This equals:

$170,375 / 6,255 GJ = $27.24 / GJ"

13.1 Please confirm that AIR MILES is targeted at the residential Biomethane market. If not please reply to the following questions with the correct AIR MILES target market.

Response:

Confirmed.

13.1.1 Using the consumption distribution of residential Biomethane gas customers provided in response to BCUC 1.35.1.1, and assuming current levels of AIR MILES participation, please provide an estimate of the total spend on AIR MILES once residential uptake has reached the forecast participation rates in 2017.

Response:

This response discusses information that is commercially sensitive to Air Miles and that FEI is obligated to keep confidential pursuant to a non-disclosure agreement. FEI is therefore filing this response confidentially in accordance with the Commission's Practice Directive on Confidential Filings.

13.2 What would FEI consider to be a reasonable limit on the communication budget for any specific product offering, relative to its anticipated incremental revenue, in order to attract and maintain these specific customers? Would a reasonable limit be 10, 20, or 40 percent of incremental revenues? Please respond to each of the 3 possible thresholds individually.

Response:

FEI does not believe that the budget should be established relative to the incremental revenue for a number of reasons, as listed below.

- Biomethane revenues are a flow through similar to conventional natural gas revenues. There does not appear to be any logical tie between these revenues and the communication budget.
- Establishing budgets tied to incremental revenue from participating customers alone is not reasonable since the budget is used for customer education purposes to create awareness for all customers, as well as attract and maintain customers in the system.
- Incremental revenue is tied to approvals for incremental supply projects to bring RNG onto the system. The need for customer education, customer attraction and retention, however, is not directly linked to the amount of supply on the system, but is driven by factors such as customer awareness levels, attrition rates, and the need to sell existing biomethane volumes.
- Incremental revenue does not reflect any quantity of unsold biomethane supply that would indicate a greater need for customer communications.
- A percentage of revenue approach is inherently not suited for new products such as Biomethane where revenues are low in the early stages of product rollout. As with any rollout for new products, marketing expenses can easily exceed revenues in the early stages as these expenditures are incurred as investments in building the market to its potential and with time they come down or stabilize once the program reaches a certain level of maturity.

14.0 Reference: RNG OFFERING, PRODUCT ROLL-OUT AND RESULTS

Exhibit B-17, BCUC IR 1.15.4, BCUC IR 1.19.1, BCUC IR 1.20.1

Summary of O&M Expenditures

"FEI is measuring the effectiveness of its campaigns to educate customers and promote the Biomethane program through the use of Google Analytics for our website, tracking URLs on digital ads, QR codes on certain print ads and surveying existing and potential customers for feedback." (Exhibit B-17, BCUC IR 1.15.4)

"FEI learned that the bill inserts was the most effective communications channel to reach residential customers from the survey conducted in October 2012. FEI currently does not track the number of responses received and customer additions by communications channel and is unable to provide such level of detail." (Exhibit B-17, BCUC IR 1.19.1)

14.1 FEI's statement in response to BCUC IR 1.15.4 "measuring the effectiveness of its campaigns to educate customers and promote the Biomethane program" is inconsistent with its response to BCUC IRs 1.19.1 and 1.20.1 where FEI is unable to provide the customer additions by communications channel. Is FEI measuring or not? Please explain.

Response:

This response addresses BCUC IR 2.14 series.

The responses to BCUC IRs 1.15.4, 1.19.1 and 1.20.1 are consistent. FEI is measuring the effectiveness of its campaigns as described in BCUC IR 1.15.4 through research, Google analytics, and tracking URLs on digital ads. FEI is able to assess the impact of marketing communications in the market place by comparing them to the sign ups during that period. However, FEI is unable to provide specific customer additions by communication channel type, as FEI currently does not track that information. Customers cannot currently indicate how they heard about the program and what influenced them when signing up for the Biomethane Program online and hence FEI is unable to provide customer additions by communication channel. This functionality was not put in place when the program was created due to cost and the change from Accenture to in-house call center and billing.

Surveys conducted in October 2012 with existing subscribers indicated that bill inserts were the most effective channel. The surveys provide a general measure of the cost effectiveness of the communication channels.

Although bill inserts were the most effective channel according to this research, customer education expenditures on other channels are still vital to the success of the Biomethane Program and should not be reduced. For example, bill inserts is a direct channel and reaches the target audience while other channels such as print and radio are mass market education and reach a broader population. The surveys provide a general measure of the effectiveness of the channel, but are not perfect measurement tools. Customers may have been aware of the offering through multiple channels such as radio, print, bill inserts as part of FEI's integrated marketing approach but may not have recalled the exact source while responding to the survey. FEI firmly believes that an integrated approach through different channels has been the most effective approach to educate customers and ultimately have customers sign up. As stated in response to BCUC IR 1.10.4, the "Rule of Seven" is an old marketing adage which says that a prospect needs to see or hear the marketing message at least seven times before they take action.

FEI can determine the cost effectiveness of each channel through ongoing research with existing subscribers, tracking URL on digital ads, QR codes on certain print ads and monitoring FEI webpages traffic through Google analytics

Additionally, prior to the launch of an educational campaign, FEI works with our agency of record, Wasserman and Partners, to identify the channels that will provide the best reach for the budget available. They will look at the cost effectiveness per $1000, and the channels readership to ensure it fits our target and provide the exposure to gain awareness.

For example, the recent RNG Spring campaign digital component was promoted on external websites related to homeowners and environmentally conscious audience who seek sustainable options in their regular lifestyle. Based on web analytic data Wasserman and Partners provided, the campaign generated over 900,000 impressions (meaning that many people saw it on the sites where promoted); from that over 2,000 individuals clicked on the ad and linked to the RNG web pages for more information. This resulted in a Click Through Rate (CTR) over 0.24 percent which exceeds the industry benchmark standard of 0.09 percent.

Communication is a vital component to the success of the RNG program and FEI is always seeking to develop and implement new channels, change messaging and monitor the effectiveness of its communications to better guide future campaigns. Although FEI may not currently track the customer additions by channel, through research and other measures as described above FEI can decipher the effectiveness to make changes on a go forward basis.

14.2 Please explain how FEI determined that "the bill inserts was the most effective communications channel to reach residential customers."

Response:

Please refer to the response to BCUC IR 1.14.1.

14.3 Please explain why FEI did not track the number of responses received and customer additions by communications channel.

Response:

Please refer to the response to BCUC IR 2.14.1.

14.4 Given that other communications channels are not as effective as bill inserts, should expenditures on other communications channels be reduced? Please explain why, or why not.

Response:

Please refer to the response to BCUC IR 2.14.1.

14.5 Given that FEI currently does not track the number of responses received and customer additions by communications channel, please explain how FEI can determine the cost effectiveness of each communications channel be determined?

Response:

Please refer to the response to BCUC IR 2.14.1.

15.0 Reference: CUSTOMER EDUCATION

Exhibit B-17, BCUC IR 1.16.1

Summary of O&M Expenditures

"Assuming a direct correlation between participation and awareness, FEI believes that awareness levels of 40 percent should be reasonable to hit the industry average participation rates of 2 percent to 3 percent in the next 5 years. FEI believes that if this awareness level can be achieved it would be a strong signal that the program has reached a level of maturity for customer groups to make informed decisions regarding participation in the program."

15.1 Please explain why the assumption of a direct correlation between participation and awareness is appropriate (i.e. there is a high awareness of the brands Porsche and Ferrari, but awareness does not necessarily result in purchases).

Response:

To clarify, by "direct correlation" FEI does not mean that every customer that is aware of the product will purchase it. Rather, FEI meant that if there is a correlation between participation levels and awareness levels, then customer participation should increase if FEI is able to increase awareness levels. This assumption is reasonable because research indicates that there is a market potential of 27 percent assuming perfect market conditions. That is, when made aware of the biomethane service, 27 percent of customers indicated that they would be willing to purchase a 10 percent biomethane blend. Research also indicates that current customer awareness levels of the Biomethane program is low. As discussed in BCUC IR 2.15.2, a barrier to the Biomethane program is the level of information getting to customers. This research therefore suggests that by increasing awareness levels of the Biomethane program, FEI can increase customer participation.

15.2 Is FEI aware of any barriers to customers participating in the Biomethane service offering? Please explain why, or why not.

Response:

Research conducted by TNS survey in 2012 suggests that FEI's biggest barrier to customer adoption is lack of information and cost of the product offering. The focus group sessions that

FEI recently concluded also echo the same concern. Customers need a simple message on the availability of the product, the benefits, carbon credits and impact on appliances including safety and other technical details to make an informed decision.

16.0 Reference: RNG OFFERING, PRODUCT ROLL-OUT AND RESULTS
Exhibit B-1, Appendix B-2, Table J-2
Summary of O&M Expenditures

16.1 Please provide the actual 2010/2011, actual 2012 and budget 2013 Total Operations and Maintenance (O&M) Costs-All Customers per residential customer addition (Total O&M Costs-All Customers /Residential Customer Additions) by year.

Response:

This response also addresses BCUC IR 2.16.2.

FEI assumes that the reference in the questions to “Total Operations and Maintenance (O&M) Costs-All Customers” refers to Biomethane O&M costs only, not the entire O&M costs of FEI.

FEI also assumes that the reference in the questions to Residential/Commercial Additions are Biomethane additions (as opposed to service line residential additions in the FEI service territory).

To be responsive to the question, FEI has included in Table 2 below total O&M cost divided by the number of biomethane customer additions for residential and commercial by year. However, FEI cautions that this does not represent the total O&M costs on a per customer basis and is a misleading statistic. Further, FEI does not believe the information in Table 2 is relevant. The O&M costs pertain to activities for both new customer acquisition and customer retention for residential and commercial customers. FEI also does not segregate O&M costs between new and existing customers for residential and commercial, because many of the O&M activities relate to both RNG customer acquisition and RNG retention. For example, the AIR MILES under customer education and the position of the Biomethane program manager is used for both acquisition and retention purposes. Additionally, the O&M spent on interconnect facilities also serves to maintain the system to ensure continuous supply of Biomethane for all customers.

FEI has provided Table 1 illustrating O&M costs all customers on a per customer basis. This table provides more useful information as it is more representative of the activities pertaining to this total expenditure, i.e. to acquire new and retain existing Biomethane and gas customers at large. Table 1 shows that the Total Costs per Biomethane Customer decreased from 2010/2011 to 2012 and that 2013 is showing a further downward trend as compared to 2012.

Table 1

Year	Total O&M Cost-All Customers	Total Number of Biomethane Customers	O&M cost-All Customers per customer
2010/2011	$505,402	1,088	$ 465
2012	$412,928	4,850	$ 85
2013	$500,040 (budget)	6,762 (forecast)	$ 74

Table 2

Year	Total O&M Cost-All Customers	Residential Customer Additions	Total O&M cost/ Residential customer additions	Commercial Customers Additions	Total O&M costs / Commercial customer addition
2010/2011	$505,402	1,088	$ 465	0	0
2012	$412,928	3,689	$ 112	73	$ 5,656
2013 (forecast)	$500,040 (budget)	1,881	$ 266	31	$16,130

16.2 Please provide the actual 2012 and budget 2013 Total O&M Costs-All Customers cost per commercial customer addition (Total O&M Costs-All Customers / Commercial Customer Additions) by year.

Response:

Please refer to the response to BCUC IR 2.16.1.

17.0 Reference: RNG OFFERING, PRODUCT ROLL-OUT AND RESULTS

Exhibit B-17, BCUC IR 1.18.1

Summary of O&M Expenditures

17.1 The response to BCUC IR 1.81.1 appears to be incomplete. Please provide the budgeted, actuals and variances for the years 2010/2011 through 2012 for the Total O&M Costs-All Customers and Total O&M Cost – Biomethane Customers. [underlined for emphasis]

Response:

FEI has updated the table from BCUC IR 1.18.1 with the Total O&M Costs-All Customers.

As discussed in the BCUC IR 1.18.1 response, FEI has underspent in both categories of O&M Costs (all customers and Biomethane customers) since 2010/11. All variances were due to initial budgets being developed based on preliminary estimates provided by contractors and the outsourced customer care service provider. These were the best estimates for such expenditures at that time. With the implementation of the new insourced CIS system some of the administrative charges such as inbound calls, reporting etc. are not being paid to a third party. Internal staff now complete those tasks as part of their everyday work with no incremental cost to the company, similar to any other tasks undertaken to service a customer.

Going forward, the average historical data for the last two year period will form the basis for future budgets and will more accurately reflect the expected expenditure.

	2011				2012				2011-2012 Cumulative			
FEI Biomethane O&M Costs ($000)	2011 Budget	2011 Actual	2011 Difference	2011 Difference %	2012 Budget	2012 Actual	2012 Difference	2012 Difference %	2011-2012 Budget Cumulative	2011-2012 Actual Cumulative	Difference	Difference %
O&M Costs - All Customers												
Labour Costs	$ 125	$ 116	$ (9)	-8%	$ 102	$ 105	$ 3	3%	$ 227.0	$ 221.0	$ (6.0)	-3%
Computer Costs	$ -	$ -	$ -		$ 10	$ -	$ (10)	-100%	$ 10.0	$ -	$ (10.0)	-100%
Customer Education	$ 400	$ 386	$ (14)	-4%	$ 300	$ 301	$ 1	0%	$ 700.0	$ 686.8	$ (13.2)	-2%
Internal Reporting Charges	$ 3.2	$ -	$ (3)	-100%	$ -	$ -	$ -		$ 3.2	$ -	$ (3.2)	-100%
Inbound Calls	$ 36	$ -	$ (36)	-100%	$ 6.38	$ -	$ (6)	-100%	$ 42.3	$ -	$ (42.3)	-100%
Rate Changes	$ 4	$ -	$ (4)	-100%	$ -	$ -	$ -		$ 4.0	$ -	$ (4.0)	-100%
Application Support	$ 166	$ -	$ (166)	-100%	$ -	$ -	$ -		$ 165.6	$ -	$ (165.6)	-100%
	$ -	$ -	$ -		$ -	$ -	$ -		$ -	$ -	$ -	
Interconnect Facilities*	$ -	$ -	$ -		$ -	$ -	$ -		$ -	$ -	$ -	
Materials & Supplies	$ 50	$ 4	$ (45)	-91%	$ 23	$ 6	$ (16)	-72%	$ 72.0	$ 10.5	$ (61.5)	-85%
Total O&M Costs - All Customers	$ 783	$ 505	$ (278)	-35%	$ 441	$ 413	$ (28)	-6%	$ 1,224	$ 918	$ (306)	$ 90
O&M Costs-Biomethane Customers												
Upgrader Equipment**												
Materials & Supplies												
Customer Related												
Energy Peace Application Support	$ 23.3	$ 4.1	$ (19.2)	-82%					$ 23.3	$ 4.1	$ (19.2)	-82%
Enrollment Confirmations (mailings)	$ 3.0	$ 3.3	$ 0.3	8%	$ 1.2		$ (1.2)	-100%	$ 4.2	$ 3.3	$ (0.9)	-23%
Customer Drops/Finalization	$ 10.5	$ 9.2	$ (1.3)	-12%	$ 8.0	$ 0.5	$ (7.5)	-94%	$ 18.5	$ 9.7	$ (8.8)	-47%
Credits to customers to Heat Content Adjustments	$ 54.0	$ 24.3	$ (29.7)	-55%					$ 54.0	$ 24.3	$ (29.7)	-55%
Reporting & Administration	$ 6.2		$ (6.2)	-100%					$ 6.2	$ -	$ (6.2)	-100%
Process for Updating Premise Heat Zone in New CIS System***			$ -		$ 5.0		$ (5.0)	-100%	$ 5.0	$ -	$ (5.0)	-100%
Total O&M Costs-Biomethane Customers	$ 97.0	$ 40.9	$ (56.1)	-58%	$ 14.2	$ 0.5	$ (13.7)	-96%	$ 111.2	$ 41.4	$ (69.8)	-63%

17.2 Please provide the per customer enrollment confirmation cost = Total Enrollment Confirmations (mailings) cost / number of customers enrolled by year.

Response:

2010/2011:

- Total Enrollment Confirmation (mailings) cost: $2663
- Total Number of Customer Enrolled: 1,088
- Per Customer Enrollment cost: $2663 /1,088=$2.44

FEI would like to clarify that the line item "enrollment confirmation (mailings)" costs as indicated in the Biomethane O&M costs summary table for 2010/2011 in response to BCUC IR 118.1 for $3,251 is inadvertently mislabeled and does not pertain to mailing costs. This line item pertains to costs incurred by CustomerWorksLP for enrolling customers into the Biomethane program, and since January 1, 2012 FEI is not incurring any incremental costs in performing this service in-house. FEI assumes that the Commission is interested in only the mailing costs for all the subscribers of the Biomethane program. This cost was $2663 in 2011 and this is captured within the customer education expenditure in O&M costs for all customers as it contains a magnet for the customer to display as a promotional item in the mailing. Subscribers are not mailed an enrolment letter on its own for their subscription to RNG.

2012:

- Enrollment Confirmation (mailings) cost: $ 3,494.
- (This is part of the customer education expense as FEI brought this service in-house in 2012).
- Total Number of Enrollments in 2012: 3,765
- Per customer enrollment cost: $3,494/3,765=$0.93

The decrease in per customer enrollment cost from $2.44 in 2010/2011 to $0.93 in 2012 is the result of efficiencies achieved by bringing the enrollment confirmation mailings in house. FEI believes that these costs have now stabilized.

17.3 Please provide the per Customer Drops/Finalization cost= Total Customer Drops/Finalization/ number of customers Dropped/Finalized by year.

Response:

2010/11:

- 2010/11 Customer finalization cost: $ 9,220
- Number of customer dropped: 70
- Per Customer Drops/Finalization cost = $131.71

2012:

There were no incremental costs associated with customer drops and finalization in 2012. The amount of $500 reported for 2012 pertains to customer drops/ finalization costs for 2011 that were posted in the SAP system in 2012.

On January 1, 2012, FEI in-sourced its customer service activities and brought this work in-house. With this transition, FEI was able to absorb this activity with the existing customer service staffing levels and is incurring no incremental cost with this work.

18.0 Reference: RNG OFFERING, PRODUCT ROLL-OUT AND RESULTS

Exhibit B-17, BCUC IR 1.18.2

Summary of O&M Expenditures

18.1 Please provide the actual 2010/2011, actual 2012 and budget2013 educational cost per residential customer addition (Total Residential Customer Education Cost/Residential Customer Additions) by year.

<u>Response:</u>

FEI tracks residential and commercial expenditures through separate internal order numbers, but this is not a true measure of the costs incurred in those categories. FEI's integrated marketing plan allocated resources to create awareness and increase participation across all segments. Many marketing campaigns were created to target both residential and commercial customers and it is difficult trying to isolate the costs and effects for each segment. For example, some of the newspapers print media which featured commercial customers was targeted towards both commercial and residential customer segments. This approach allows FEI to educate and promote the program to both residential and commercial customers while using a single medium and thereby garner efficiencies. As such, an allocation of such costs between residential and commercial customers would be somewhat arbitrary. FEI therefore cautions that the allocation between residential and commercial customers is based on a rough estimate and should not be considered as indicative of actual costs.

With the caveat above, FEI has provided the response as requested by the Commission in Table 2. FEI notes that dividing the total education costs by the customer additions for the year is not a relevant or appropriate indicator because the education costs incurred for the year pertain to customer acquisition, customer retention and program awareness in general for all natural gas customers.

A more appropriate measure, which has been provided below in Table 1, is the total Customer Education costs divided by the total number of biomethane customers. These per customer costs have decreased from 2010/2011 to 2012 and then further decreased from 2012 to projected 2013. FEI believes that these costs, on a per customer basis, have stabilized, and FEI will continue to seek efficiencies in these activities and in maximizing customer reach. This trending is quite typical for new programs where the awareness costs are higher in initial years and then decrease over time and eventually stabilize.

FEI has also included in Table 1 below total Customer Education cost divided by the number of biomethane customer additions (defined for this purpose as the increase in number of customers in the year), as requested. However, FEI would like to caution that this measure is not useful as education costs pertain to activities for both new customer acquisition and customer retention.

Table 1

Year	Customer Education costs	Number of Customers	Cost per customer	Number of New Customers	Cost per new customer
2010/2011	$ 385,587	1,088	$ 354	1,088	$ 354
2012	$ 301,233	4,850	$ 62	3,762	$ 80
2013	$ 306,100 (budget)	6,762 (projected)	$ 45	1,912	$ 160

Table 2

Year	Residential Customer Education costs	Residential customer additions	Cost per new residential customer additions	Commercial Customer Education	Commercial customer additions	Cost per new commercial additions
2010/2011	$ 385,587	1,088	$ 354	0	0	0
2012	$ 130,858	3,689	$ 36	$ 170,375	73	$ 2,334
2013 (forecast)	$ 150,000 (budget)	1,881	$ 80	$ 156,100	31	$ 5,035

18.2 Please provide the actual 2012 and budget 2013 educational cost per commercial customer addition (Total Commercial Customer Education Cost/Commercial Customer Additions) by year.

Response:

Please refer to the response to BCUC 2.18.1.

18.3 Please provide a breakdown of the actual 2012 and budget 2013 Promotions (AIR MILES and Customer Videos) cost between AIR MILES and Customer Videos by year.

Response:

2012 AIR MILES and Customer Videos Cost Breakdown

Category	Amount $
AIR MILES	$ 41,174
Videos	$ 19,623
Total	**$ 60,797**

For 2013, FEI has budgeted $110,000 for AIR MILES and $20,000 for videos including production. The $110,000 is based on a higher number of customers expected to sign up and take advantage of the AIR MILES program and certain bonus offers planned in the fall period.

18.4 Please provide the number of videos and the average cost of each video for actual 2010/2011, actual 2012 and budget 2013. Also provide the date each video was created and number of times each video has been viewed as of May 31, 2013.

Response:

In 2010/2011, FEI spent $39,799 in developing the educational video ("What is RNG? - Stop waste from going to waste").

http://fortisbc.com/NaturalGas/Homes/Offers/RenewableNaturalGas/Pages/default.aspx

In 2012, FEI spent $19,623 in developing 6 testimonial / promotional videos featuring various commercial customers. Average production cost per video was: $3,272.

http://fortisbc.com/NaturalGas/Business/Offers/RenewableNaturalGas/Pages/Green-Leaders.aspx

The video view tracking system does not allow FEI to extract the number of views of the video as of May 31 2013. FEI is supplying below the number of times each video has been viewed as of the day this information request was completed (June 27th, 2013).

Video	Date Created	Number of Views as of June 27, 2013
Educational Video:		
What is RNG? –Stop waste from going to waste	June, 2011	2,407
Testimonial Videos:		
Renewable Natural Gas from FortisBC	May 2013 (from footage developed in 2012)	8,957
RNG-Thrifty's Food	June, 2012	198
RNG-Fairmont Hotel	August, 2012	256
RNG-Summer Hill	March, 2012	561
RNG-Opus	March, 2012	Video removed as Opus Hotel is no longer an RNG subscriber
RNG-Van Houtte Coffee	March, 2012	Not released as FEI did not receive permission from Van Houtte Coffee to release this video

18.5 Please discuss the treatment of the AIR MILES promotional expenses under US GAAP.

Response:

AIR MILES promotional expenses are treated as a period expense and are therefore expensed in the period in which the costs are incurred, in accordance with US GAAP. FEI's cost is limited to the amount paid per AIRMILE. FEI receives a monthly invoice from AIR MILES for eligible AIR MILES customers, which is reviewed for accuracy and then paid in accordance with the terms of the contract. All such costs are recorded and captured within the Biomethane Customer Education costs in O&M.

19.0 Reference: RNG OFFERING, PRODUCT ROLL-OUT AND RESULTS

Exhibit B-17, BCUC IR 1.22.1, IR 1.22.2

Summary of O&M Expenditures - Labour

19.1 For 2012 and forecast 2013, please provide detailed organizational charts showing all positions reporting to the Director of Energy Solutions and the Business Development Manager involved in the RNG offering by year. Also specifically identify the reporting structure for the Biomethane Program Manager.

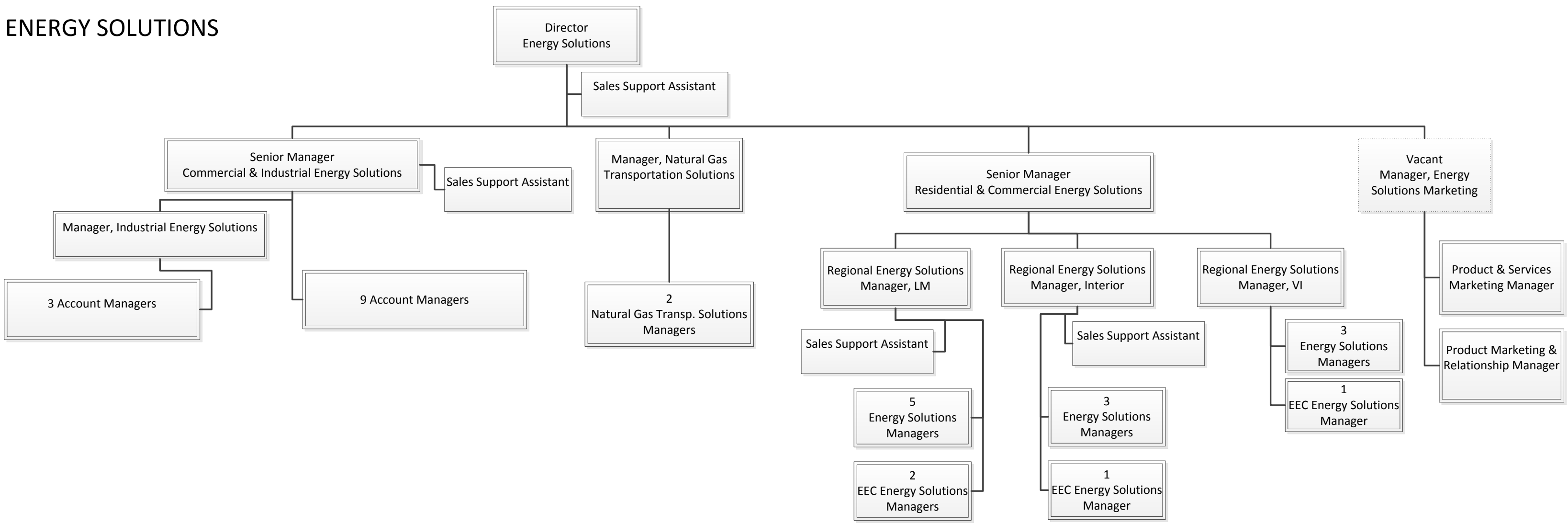
Response:

The response provides organizational charts for the Energy Solutions group, the reporting structure for the Business Development Manager within the Business Development group and the Biomethane Program Manager within the Market development group. FEI has also provided an explanation of the individuals charging their time to the Biomethane program manager position.

The following chart shows the current organizational structure for all positions reporting to the Director of Energy Solutions.

1

ENERGY SOLUTIONS

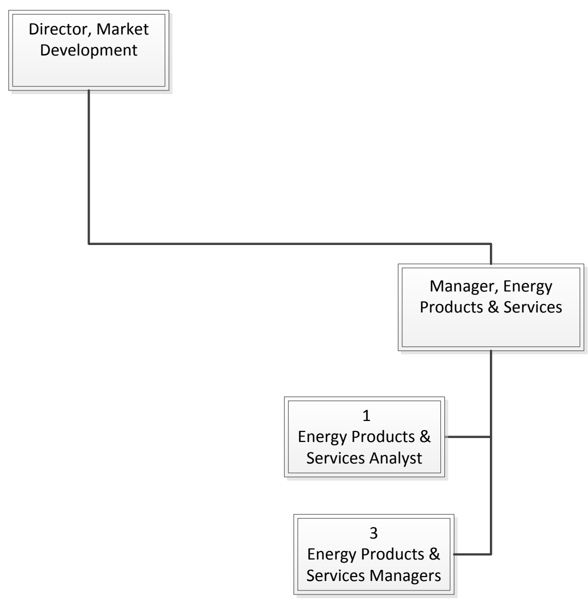


2 Last Update: 7/5/2013
3

The Business Development Manager reports to the Senior Manager of Business Development but this position does not have any direct reports. The organizational chart for this group was provided in response to BCUC IR 1.22.1.

The organizational chart for the Biomethane Program Manager within the Energy Products & Services group is shown below.

MARKET DEVELOPMENT:



In 2012, the position of Biomethane program manager was filled by two individuals with varying expertise and skill sets and their time allocated to RNG equated to one FTE. One was a temporary position reporting to the Energy Products & Services Manager and this individual charged 20 per cent of their time to RNG O&M. The other individual who charged the remaining 80 per cent was the Energy Products & Services Manager identified in the organizational chart above.

From January 1 2013 to June 2013 the Energy Products & Services Manager dedicated and charged 100 percent of their time to RNG O&M. In July 2013, a temporary RNG Sales Manager was hired and this individual will be devoting 70 per cent of their time to RNG and the Energy Products & Services Manager will dedicate the remaining 30 per cent. The new Sales Manager will be reporting to the Energy Products & Services Manager. The Energy Products & Services group is responsible for the product management of existing and new gas service offerings.

All three positions, the Director of Energy Solutions, the Business Development Manager and the Biomethane Program Manager role, reside within the Energy Solutions and External

Relations Department, which encompasses three functional groups: Energy Solutions, Business Development and Market Development.

20.0 Reference: RNG OFFERING, PRODUCT ROLL-OUT AND RESULTS

Exhibit B-17, BCUC IR 1.22.3

Summary of O&M Expenditures - Labour

"FEI is unable to fill out the table as requested as the individual departments do not charge their time to Biomethane due to the fact that this was not a requirement given the O&M cost for the program manager position was approved in 2012-2013 RRA and in the 2010 Biomethane decision."

20.1 If directed, could FEI track the time and the cost that individual departments spend on the Biomethane program? Please explain why, or why not.

Response:

No. It would not be feasible for individual employees to capture what fraction of their time they spend in each interaction with a customer discussing Biomethane vs. other concerns. FEI expects that the incremental time requirements for employees to estimate, track and record their time (often fractions of minutes) would be higher than the actual amount of time spent discussing Biomethane with customers.

In the AES Inquiry Report issued by the Commission on December 27, 2012 the Commission provided guidelines on the business structure for the Biomethane Service and stated that "*Biomethane is appropriately considered a Separate Class of Customer* ***within*** *the natural gas class of service* (page 46) (emphasis added). Therefore streaming and segregating costs to the level of detail suggested in the question is not appropriate and of little value to biomethane and all natural gas customers.

The AES Inquiry Report also describes the cost allocation principles and guidelines that FEI should follow in which "*the basis of cost allocation is cost causality*" (Page 33). Cost causality requires that there be a demonstration of a clear cause-and-effect relationship between the service delivery and the costs. In this circumstance, servicing the natural gas customers is the cost driver for the activities performed by the individual departments and these other departments' budgets and expenditure levels would remain at the same level regardless of whether the company offered RNG or not.

In addition, FEI notes that biomethane customers, like all natural gas customers, pay for the biomethane program costs as part of their delivery rates. The conventional delivery rates include provision for general O&M costs from all departments as part of the cost of service for these rate classes. If FEI were to track and allocate these costs to the biomethane program there would be double recovery of these costs.

20.2 Given that FEI cannot determine the time and the cost that individual departments spend on the Biomethane program; can FEI determine the full cost of providing the RNG offering? Please explain why, or why not.

<u>Response:</u>

FEI submits that the difference between the incremental cost and the full cost of providing the RNG offering is not material, especially when considering the regulatory environment where rates are set based on forecasts. In the case of RNG, the incremental cost can be assumed to substantially equal to the full cost of the program offering. The tracking of any small difference provides no value to customers of either the Biomethane or the standard service offering at this time. Please also refer to the response to BCUC IR2 20.1.

21.0 Reference: COST ALLOCATION AND ACCOUNTING TREATMENT, AND RATE SETTING

Exhibit B-1, Appendix B-3, Tab 4, Page 5, Appendix B-1, Table J-2;

Exhibit B-17, BCUC IR 1.18.2

Rate Sensitivity

"The costs to be allocated to all utility customers include the costs associated with the capital assets downstream of the receipt point of Biomethane on the FEI system and the costs to provide consumers with the option to purchase Biomethane." (Exhibit B-1, p. 120)

Proposed BERC = Cost of Biomethane Available for Sale/ Volume of Biomethane Available for Sale

2013 Proposed BERC = $1,903.1/174.2 = $ 10.923 per Gigajoule

2014 Proposed BERC = $ 2,764.3/220.4= $ 12.545 per Gigajoule

(Exhibit B-1, Appendix B-3, Tab 4, Page 5)

21.1 Using the latest forecast 2013 Total O&M Costs recovered from all customers, please calculate the impact on the BERC rate if:

i. 10 percent
ii. 20 percent
iii. 40 percent

of the 2013 Total O&M Costs recovered from all customers is reallocated to and recovered from the Biomethane customers. Show all calculations.

<u>Response:</u>

Please refer to the forecast 2014 O&M costs ($396 thousand) filed on page 2 of Appendix H of FEI's Biomethane Post Implementation Report and Application. FEI has chosen to refer to the impact on 2014 as 2013 is now half over and the next planned BERC rate change is for January 1, 2014.

Based on the 2012 Fourth Quarter Gas Cost Report forecast of volume of biomethane available for sale during 2014, if 10 percent, 20 percent and 40 percent of the latest forecast 2014 total O&M costs recovered from all customers is reallocated to and recovered from the Biomethane customers, the proposed 2014 rates will increase by $0.180/GJ, $0.359/GJ, and $0.719/GJ respectively. Please see the calculation below.

		Pre-Tax for BERC Recovery	10%	20%	40%
Cost of Service (2014)	$ 1,339				
Less: O&M	396	396	40	79	158
All Other Cost of Service	$ 943				
Volume TJ			220.4	220.4	220.4
Impact on BERC Rate $ / GJ			$ 0.180	$ 0.359	$ 0.719

Based on the most current 2013 Second Quarter Gas Cost Report forecast of volume of biomethane available for sale during 2014, if 10 percent, 20 percent and 40 percent of the latest forecast 2014 total O&M costs recovered from all customers is reallocated to and recovered from the Biomethane customers, the proposed 2014 rates will increase by $0.139/GJ, $0.278/GJ, and $0.557/GJ respectively. Please see calculation below.

		Pre-Tax for BERC Recovery	10%	20%	40%
Cost of Service (2014)	$ 1,339				
Less: O&M	396	396	40	79	158
All Other Cost of Service	$ 943				
Volume TJ			284.4	284.4	284.4
Impact on BERC Rate $ / GJ			$ 0.139	$ 0.278	$ 0.557

21.2 Using the latest forecast interconnection facilities cost recovered from all customers, please calculate the impact on the BERC rate if:

iv. 10 percent

v. 20 percent

vi. 40 percent

of the interconnection facilities cost recovered from all customers is reallocated to and recovered from the Biomethane customers. Show all calculations.

Response:

Please refer to the forecast 2014 interconnection facilities cost ($943 thousand, total Cost of Service excluding O&M) filed on page 2 of Appendix H of FEI's Biomethane Post Implementation Report and Application. FEI has chosen to refer to the impact on 2014 as 2013 is now half over and the next planned BERC rate change is for January 1, 2014.

Based on the 2012 Fourth Quarter Gas Cost Report forecast of volume of biomethane available for sale during 2014, if 10 percent, 20 percent and 40 percent of the latest forecast 2014 interconnection facilities cost recovered from all customers is reallocated to and recovered from the Biomethane customers, the proposed 2014 rates will increase by $0.540/GJ, $1.079/GJ and $2.158/GJ respectively. Please see calculation below.

		Pre-Tax for BERC Recovery	10%	20%	40%
Property Tax	$ 15	$ 15			
Depreciation Expense	207	276			
Amortization Expense	238	317			
Negative Salvage Expense	5	7			
Income Tax Expense	110	147			
Earned Return					
Utility Interest Expense	189	189			
Return on Equity	179	239			
Total Earned Return	368				
Total All Other Cost of Service	$ 943	$ 1,189	$ 119	$ 238	$ 476
Volume TJ			220.4	220.4	220.4
Impact on BERC Rate $ / GJ			$ 0.540	$ 1.079	$ 2.158

Based on the most current 2013 Second Quarter Gas Cost Report forecast of volume of biomethane available for sale during 2014, if 10 percent, 20 percent and 40 percent of the latest forecast 2014 interconnection facilities cost recovered from all customers is reallocated to and recovered from the Biomethane customers, the proposed 2014 rates will increase by $0.418/GJ, $0.836/GJ and $1.673/GJ respectively. Please see calculation below.

		Pre-Tax for BERC Recovery	10%	20%	40%
Property Tax	$ 15	$ 15			
Depreciation Expense	207	276			
Amortization Expense	238	317			
Negative Salvage Expense	5	7			
Income Tax Expense	110	147			
Earned Return					
Utility Interest Expense	189	189			
Return on Equity	179	239			
Total Earned Return	368				
Total All Other Cost of Service	$ 943	$ 1,189	$ 119	$ 238	$ 476
Volume TJ			284.4	284.4	284.4
Impact on BERC Rate $ / GJ			$ 0.418	$ 0.836	$ 1.673

D. FORECAST DEMAND: EMERGING MARKETS

22.0 Reference: FORECAST DEMAND

Exhibit B-17, BCUC IR 1.38.1, BCUC IR 1.38.2, BCUC IR 1.42.2

Emerging Markets - UBC

In response to BCUC IR 1.38.1, FEI provided a table of forecast total market demand. This forecast included demand from UBC increasing to 500,000 GJ in 2015. In response to BCUC 1.38.2, FEI provided Low, Moderate and High demand growth scenarios that are based on captures rates of 10, 30 and 50 percent, respectively, of the potential demand from the emerging market sector that includes UBC.

In responses to BCUC IR 1.42.2 and BCUC IR 1.42.4, FEI states that construction on the UBC CHP facility “is expected to be complete by the last quarter 2016 or early 2017” and that the related demand of 500,000 GJ is expected by the end of 2017.

22.1 Please update the tables provided in response to BCUC IR 1.38.1 (Total Market Demand) and to BCUC 1.38.2 (Low, Moderate and High demand growth scenarios) to reflect the timing of the potential demand from UBC, as updated by BCUC IR 1.42.

Response:

FEI has updated the tables below to include the following new information.

1. **UBC timing:**

	2014	2017	2020
Max Potential (GJ)	100,000	500,000	1,500,000

2. **UBC firm demand:** 20,000 GJ starting April 2013

3. **Hadia Gwaii:** In service date: 2016

Total Market Demand

Rate Schedule Customers	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1B	20,469	51,560	72,923	91,139	108,109	128,549	131,120	133,742	136,417	139,146	141,928
2B	626	2,351	3,353	4,157	4,889	5,769	5,884	6,002	6,122	6,245	6,369
3B	1,724	4,673	6,559	8,189	9,704	11,530	11,761	11,996	12,236	12,480	12,730
Total 1B to 3B	**22,819**	**58,584**	**82,835**	**103,485**	**122,702**	**145,848**	**148,765**	**151,740**	**154,775**	**157,871**	**161,028**
Total 11B	**3,905**	**12,500**	**18,750**	**28,125**	**42,188**	**63,281**	**64,547**	**65,838**	**67,154**	**68,497**	**69,867**
Power Generation											
UBC Firm		20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
UBC			80,000	80,000	80,000	480,000	1,480,000	1,480,000	1,480,000	1,480,000	1,480,000
Haida Gwaii					280,000	280,000	280,000	280,000	280,000	280,000	280,000
District Energy Systems					130,000	155,000	155,000	155,000	155,000	155,000	155,000
Subtotal Power Generation	-	20,000	100,000	100,000	510,000	935,000	1,935,000	1,935,000	1,935,000	1,935,000	1,935,000
Natural Gas Transportation Customers			**45,858**	**70,805**	**101,619**	**144,119**	**147,001**	**149,941**	**152,940**	**155,999**	**159,119**
Other Emerging Markets											
Total Emerging Markets	**3,605**	**29,360**	**164,858**	**189,805**	**630,619**	**1,098,119**	**2,101,001**	**2,103,941**	**2,106,940**	**2,109,999**	**2,113,119**
WesPac				750,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
Total Rate 30	**-**	**-**	**-**	**750,000**	**1,500,000**	**1,500,000**	**1,500,000**	**1,500,000**	**1,500,000**	**1,500,000**	**1,500,000**
Grand Total Volumes	**30,329**	**100,444**	**266,443**	**1,071,415**	**2,295,509**	**2,807,248**	**3,814,313**	**3,821,519**	**3,828,870**	**3,836,367**	**3,844,014**

High Demand

Rate Schedule Customers	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1B	51,560	72,923	91,139	108,109	128,549	131,120	133,742	136,417	139,146	141,928
2B	2,351	3,353	4,157	4,889	5,769	5,884	6,002	6,122	6,245	6,369
3B	4,673	6,559	8,189	9,704	11,530	11,761	11,996	12,236	12,480	12,730
Total 1B to 3B	**58,584**	**82,835**	**103,485**	**122,702**	**145,848**	**148,765**	**151,740**	**154,775**	**157,871**	**161,028**
Total 11B	**12,500**	**18,750**	**28,125**	**42,188**	**63,281**	**64,547**	**65,838**	**67,154**	**68,497**	**69,867**
Power Generation										
UBC Firm	12,600	20,000	20,000	20,000	20,000	20,400	20,808	21,224	21,649	22,082
UBC		40,000	40,000	40,000	240,000	244,800	249,696	254,690	259,784	264,979
Haida Gwaii		-		140,000	140,000	142,800	145,656	148,569	151,541	154,571
District Energy Systems		-	-	65,000	77,500	79,050	80,631	82,244	83,888	85,566
Subtotal Power Generation	12,600	60,000	60,000	265,000	477,500	487,050	496,791	506,727	516,861	527,199
Natural Gas Transportation Customers		45,858	70,805	101,619	144,119	147,001	149,941	152,940	155,999	159,119
Total Emerging Markets	**12,600**	**105,858**	**130,805**	**366,619**	**621,619**	**634,051**	**646,732**	**659,667**	**672,860**	**686,318**
Grand Total Volumes	**83,684**	**207,443**	**262,415**	**531,509**	**830,748**	**847,363**	**864,310**	**881,596**	**899,228**	**917,213**

Moderate Demand

Rate Schedule Customers	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1B	51,560	72,923	91,139	108,109	128,549	131,120	133,742	136,417	139,146	141,928
2B	2,351	3,353	4,157	4,889	5,769	5,884	6,002	6,122	6,245	6,369
3B	4,673	6,559	8,189	9,704	11,530	11,761	11,996	12,236	12,480	12,730
Total 1B to 3B	**58,584**	**82,835**	**103,485**	**122,702**	**145,848**	**148,765**	**151,740**	**154,775**	**157,871**	**161,028**
Total 11B	**11,500**	**14,950**	**19,435**	**25,266**	**32,845**	**33,502**	**34,172**	**34,855**	**35,552**	**36,264**
Power Generation										
UBC Firm	12,600	20,000	20,000	20,000	20,000	20,400	20,808	21,224	21,649	22,082
UBC		24,000	24,000	24,000	144,000	146,880	149,818	152,814	155,870	158,988
Haida Gwaii		-		84,000	84,000	85,680	87,394	89,141	90,924	92,743
District Energy Systems		-	-	39,000	46,500	47,430	48,379	49,346	50,333	51,340
Subtotal Power Generation	12,600	44,000	44,000	167,000	294,500	300,390	306,398	312,526	318,776	325,152
Natural Gas Transportation Customers		9,172	14,161	20,324	28,824	29,400	29,988	30,588	31,200	31,824
Total Emerging Markets	**12,600**	**53,172**	**58,161**	**187,324**	**323,324**	**329,790**	**336,386**	**343,114**	**349,976**	**356,976**
Grand Total Volumes	**82,684**	**150,957**	**181,081**	**335,292**	**502,017**	**512,057**	**522,298**	**532,744**	**543,399**	**554,267**

Low Demand

Rate Schedule Customers	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1B	40,506	47,535	54,365	59,682	63,451	64,720	66,014	67,335	68,681	70,055
2B	1,849	2,186	2,479	2,700	2,848	2,905	2,963	3,022	3,083	3,144
3B	3,580	4,276	4,885	5,357	5,691	5,805	5,921	6,039	6,160	6,283
Total 1B to 3B	**45,935**	**53,997**	**61,729**	**67,739**	**71,990**	**73,430**	**74,898**	**76,396**	**77,924**	**79,483**
Total 11B	**10,500**	**11,550**	**12,705**	**13,976**	**15,373**	**15,680**	**15,994**	**16,314**	**16,640**	**16,973**
Power Generation										
UBC Firm	12,600	20,000	20,000	20,000	20,000	20,400	20,808	21,224	21,649	22,082
UBC		8,000	8,000	8,000	48,000	48,960	49,939	50,938	51,957	52,996
Haida Gwaii		-	28,000	28,000	28,000	28,560	29,131	29,714	30,308	30,914
District Energy Systems		-	-	13,000	15,500	15,810	16,126	16,449	16,778	17,113
Subtotal Power Generation	12,600	28,000	56,000	69,000	111,500	113,730	116,005	118,325	120,691	123,105
Natural Gas Transportation Customers		4,586	7,080	10,162	14,412	14,700	14,994	15,294	15,600	15,912
Total Emerging Markets	**12,600**	**32,586**	**63,080**	**79,162**	**125,912**	**128,430**	**130,999**	**133,619**	**136,291**	**139,017**
Grand Total Volumes	**69,035**	**98,133**	**137,514**	**160,877**	**213,275**	**217,541**	**221,891**	**226,329**	**230,856**	**235,473**

22.2 What portion of the emerging market demand forecast is attributable to the forecast demand from the UBC facilities?

Response:

The table below shows the portion of emerging market demand that is attributable to the forecast demand from the UBC facilities at the end of 2017 in the low, moderate, and high scenarios.

	2017
Low	54%
Moderate	51%
High	80%

22.2.1 What portion of the total market demand forecast is attributable to the forecast demand from the UBC facilities?

Response:

In 2017, 500,000 GJ from UBC would account for 18 percent of the total potential market demand equaling 2.8 PJ.

22.3 Since submitting its PIR and Application, has FEI received any information concerning the UBC project that would cause it to apply a set of capture rates to the UBC project that differ from the 10/30/50 percent used in developing its three forecast scenarios?

Response:

Since submitting the PIR and Application the only new information FEI has received is the materialization of the 20,000 GJ from the UBC project, as presented in Exhibit E-1 of FEI's Application for Reconsideration of G-29-13. From this information, FEI is able to include the 20,000 GJ at a 100 percent capture rate in all three scenarios. The remaining volumes from all of the projects are still uncertain. FEI is confident that at least one, if not all, of these projects will come online and therefore FEI believes that the current capture rates present a conservative range of potential volumes.

22.3.1 If the answer to the previous question is "yes" then please provide forecast scenarios that reflect the revised capture rates applied to the UBC project.

Response:

Please refer to the responses to BCUC IRs 2.22.1 and 2.22.3.

23.0 Reference: FORECAST DEMAND

Exhibit B-17, BCUC IR 1.38.1, IR 1.38.2, IR 1.43.1

Emerging Markets – District Energy Systems

In response to BCUC IR 1.38.1, FEI provided a table of forecast total market demand. This forecast included potential demand from District Energy Systems (DES) of 155,000 GJ beginning in 2015. In response to BCUC IR 1.38.2, FEI provided Low, Moderate and High demand growth scenarios that are based on captures rates of 10, 30 and 50 percent, respectively, of the potential demand from the emerging market sector that includes DES.

In its response to BCUC IR 1.43.1, FEI identifies two DES projects: one in the pre-feasibility stage with a forecast demand of 130,000 GJ and an in-service date of 2016; the second in the identification stage with a forecast demand of 20,000 GJ and an in-service date of 2017.

23.1 Please update the tables provided in response to BCUC IR 1.38.1 (Total Market Demand) and to BCUC 1.38.2 (Low, Moderate and High demand growth scenarios) to reflect the timing of the potential demand from the DES market segment, as updated by BCUC IR 1.43.

Response:

Please refer to the response to BCUC IR 2.22.1.

23.2 Since submitting its PIR and Application, has FEI received any information concerning the DES projects that would cause it to apply a set of capture rates that differ from the 10/30/50 percent used in developing its three forecast scenarios?

Response:

No.

23.2.1 If the answer to the previous question is "yes" then please provide forecast scenarios that reflect the revised capture rates applied to the DES projects.

Response:

Please refer to the response to BCUC IR 2.23.2.

24.0 Reference: FORECAST DEMAND

Exhibit B-1, Section 4.3, p. 54

Exhibit B-17, BCUC IR 1.38.1, BCUC IR 1.38.2, BCUC IR 1.44.2, BCUC IR 1.44.5.3, BCUC IR 1.44.5.4

Exhibit A2-12, BC Hydro Haida Gwaii RFEOI – Web Page

Emerging Markets – Haida Gwaii

On page 54 of the Application, FEI states:

"FEI recently responded to a request for expression of interest for fuel supply for Haida Gwaii. The RFEOI issued by BC Hydro called for projects which meet the definition of Clean or Renewable as defined in the Clean Energy Act. Renewable natural gas meets this definition and the project could result in over 280,000 GJ of renewable liquefied natural gas demand sourced from Tilbury under a future amended Rate Schedule 16 tariff that allows for biomethane sales."

A description of the commercial process leading to the execution of an electricity purchase agreement is described on BC Hydro's website as:

"BC Hydro typically uses an RFEOI process in cases where the number and types of potentially viable projects isn't known. It's used for information gathering only.

The RFEOI itself doesn't result in a contract such as an electricity purchase agreement (EPA) with BC Hydro, nor does the RFEOI include a commitment by BC Hydro to any further commercial process which is required before an EPA may be signed.

If the RFEOI reveals viable projects, BC Hydro may decide to proceed to a commercial process which could involve any of the following potential options:

- a competitive process with evaluation criteria (e.g. Request for Proposals);
- bilateral discussions with one party; or
- bilateral discussions with multiple parties." (Exhibit A2-12)

In response to BCUC IR 1.38.1, FEI provided a table of forecast total market demand. This forecast included potential demand from deliveries of liquefied RNG to Haida Gwaii of 280,000 GJ beginning in 2015. In response to BCUC 1.38.2, FEI provided Low, Moderate and High demand growth scenarios that are based on captures rates of 10, 30 and 50 percent, respectively, of the potential demand from the emerging market sector that includes the Haida Gwaii project.

24.1 Does FEI maintain that a commercial process leading to the execution of an EPA, the construction and commissioning of a power plant, and the delivery of liquefied renewable natural gas supply to Haida Gwaii all can be completed before the beginning of 2015, as suggested by FEI's forecast of demand?

Response:

FEI would expect the earliest in service date to be first quarter 2016, given the regulatory review that is currently underway with regard to this application.

24.1.1 If FEI maintains that an in-service date by the end of 2014 is achievable, then please provide a timeline showing the completion of the three milestones identified in the previous question.

Response:

Please refer to the response to BCUC IR 2.24.1.

24.1.2 If FEI no longer believes that an in-service date by the end of 2014 can be achieved under reasonable planning assumptions, then please update the tables provided in response to BCUC IR 1.38.1 (Total Market Demand) and to BCUC IR 1.38.2 (Low, Moderate and High demand growth scenarios) to reflect the timing of the potential demand from Haida Gwaii.

Response:

Please refer to the response to BCUC IR 2.22.1.

In response to BCUC IR 1.44.5.3 and IR 1.44.5.4, FEI states that it considers that power generated using renewable liquefied natural gas (RLNG) delivered to Haida Gwaii can be competitive with these other power generation technologies in general and with electricity produced from biomass fueled generation in particular but that it "has not performed a detailed comparison of the RLNG proposal with other power generation technologies for this application."

24.2 On what basis then does FEI believe that its proposal is competitive with other power generation technologies?

Response:

FEI believes that its proposal is competitive with other power generation technologies based on several factors.

The FEI indicative energy price of $0.176/kWh is less than or comparable to energy prices for other technologies. For example, in the Sheltair Group report from April 2008, indicative energy costs are greater than $0.20/kWh for small hydro and wind, are greater than $0.38/kWh for Biomass, are greater than $0.25/kWh for tidal and roughly $0.68/kWh for waves.

The FEI proposal considers technology that is nearly identical to the existing diesel generation technology in most ways. The operational load following, reliability, availability, fast load pick up, and spinning reserve are all critical characteristics required by BC Hydro that the genset solutions provide. Controls and auxiliary systems for the FEI proposal are also very similar to the existing technology, as are maintenance considerations. Fuel supply logistics will also be similar to the existing diesel based systems and thus allow less disruption.
In comparison, other power generation technologies such as wind, solar and tidal, are not as suited to load following and are intermittent with varied supply penetration percentages. Also, additional and more sophisticated auxiliary systems, controls and maintenance processes are required.

Additional competitive characteristics of the proposed FEI technology are comparable overall system efficiencies to other technologies, and improved emissions in comparison to biomass and existing diesel generation technology.

24.2.1 How is FEI's belief in the competitive merits of its proposal reflected in the 10/30/50 percent capture rates applied to the emerging market sector in total?

Response:

FEI is aware that the volumes from the Haida Gwaii project will either materialize at a capture rate of 100 percent or 0 percent.

FEI has chosen not to use 100 percent capture rate in the high and moderate scenarios and 0 percent in the low scenario, as there are several permutations and combinations that could occur with the other projects in the different sectors that would affect the overall demand forecast for those scenarios.

FEI has applied the 10/30/50 percent capture rates to the Haida Gwaii volumes in order to be consistent with the forecast of other emerging market projects. FEI strongly believes at least one, if not all, of these projects will come online. As FEI is unable to predict which projects will materialize, FEI has applied these capture rates to provide a conservative range of volumes.

25.0 Reference: FORECAST DEMAND

Exhibit B-1, Section 4.5, pp. 59-60

Exhibit B-17, BCUC IR 1.38.1, BCUC IR 1.38.2, BCUC IR 1.38.3, BCUC IR 1.45.3,

BCUC IR 1.45.4

Emerging Markets – NGT

In response to BCUC IR 1.38.1, FEI provided a table showing the forecast total market demand for biomethane by customer segments. This forecast included total demand from the NGT segment increasing to 70,805 GJ in 2015. In response to BCUC IR 1.38.2, FEI provided Low, Moderate and High demand growth scenarios. These scenarios are based on captures rates of one, three and five percent, respectively, of the potential demand from the NGT market sector. (Exhibit B-1, pp. 59-60)

FEI also provided an electronic spreadsheet showing the development of the Low, Moderate and High demand growth scenarios in response to BCUC IR 1.38.3. This spreadsheet shows that the forecast demand for biomethane from the NGT sector is based on a 10 percent blend of biomethane and on capture rates of 5, 10 and 50 percent for the Low, Moderate and High demand growth scenarios, respectively. Applying these ratios results in effective capture rates of 0.5, 1.0 and 5.0 percent.

25.1 Please resolve the discrepancy between the capture rates as described in the application and in response to BCUC IR 1.45.3, and the rates used in developing the forecasts presented in response to BCUC IR 1.38.2 and IR 1.38.3.

<u>Response:</u>

FEI's forecast for the NGT market is based on a capture rate of 0.5 percent, 1 percent and 5 percent in the Low, Moderate and High demand scenarios. The volumes (GJ) forecasted in the Application and IR responses are correct and consistent with these capture rates. However, the description used of 1 percent, 3 percent and 5 percent in Exhibit B-1 to describe these scenarios was incorrect.

25.2 Please confirm that the forecast demand in all scenarios is based on the provision of a 10 percent blend of biomethane to the NGT segment.

Response:

Confirmed.

25.3 Please confirm that the forecast of total market demand for biomethane by the NGT sector is based on the assumption that vehicles will be fueled by a 10 percent blend of biomethane.

Response:

Confirmed.

25.3.1 Does FEI expect any significant demand at higher blends of biomethane?

Response:

Yes. Although FEI has not conducted any formal research in this regard, there is a significant demand for RNG in the NGT market as demonstrated by the City of Surrey in Exhibit D-10-1. The City of Surrey has indicated a desire to move to 100 percent biomethane supply for its contracted fleet of refuse and recycling trucks. This demand is at 80,000 GJ/yr. The currently forecasted volumes in the high case scenario would be achieved solely by this project coming online.

26.0 Reference: FORECAST DEMAND

Exhibit B-1, pp. 58-61

Exhibit B-17, BCUC IR 1.38.1, BCUC IR 1.38.2

Emerging Markets

In response to BCUC IR 1.38.1, FEI provided a table of forecast total market demand. This forecast included demand from UBC increasing to 500,000 GJ in 2015. In response to BCUC IR 1.38.2, FEI provided Low, Moderate and High demand growth scenarios that are based on captures rates of 10, 30 and 50 percent, respectively, of the potential demand from the emerging market sector that includes UBC, Haida Gwaii, and District Energy Systems.

26.1 Please rank these three customers (or customer groups in the case of the DES) based on how well developed these projects are, and therefore by the likelihood that the demand will materialize as forecast.

<u>Response:</u>

Please see chart below for in service dates and stage of development:

Project	**In – Service Date**	**Stage of Development**
UBC	2013: 20,000 GJ, 2014: 100,000 GJ, 2017: 500,000 GJ	Feasibility Stage
Haida Gwaii	2016	Pre-Feasibility Stage
DES 1	2016	Pre-Feasibility Stage
DES 2	2017	Identification Stage

26.1.1 Compare the likelihood that the demand from each of UBC, Haida Gwaii, and District Energy Systems will materialize, with the likelihood that the demand from Rate Schedule 1B, 2B and 3B customers will materialize to the extent modeled in each of the three demand growth scenarios.

<u>Response:</u>

FEI has used the best available information to forecast probable scenarios for Rate Schedule 1B, 2B and 3B customers as well as large emerging projects. FEI does not have enough historical data to comment on the likelihood that one demand materializes over the other.

Looking back on the program success to date, the residential and commercial markets are on track to meet industry averages and emerging market demand has started to materialize as demonstrated by the 20,000 GJ from UBC.

In Exhibit A2-12, BC Hydro identifies 26 parties (representing 29 projects) who responded to the recent Request for Expressions of Interest (RFEOI) process for Haida Gwai. One respondent is "FortisBC."

26.2 Would FEI agree that one method for determining the probability of FEI winning the Haida Gwai bid process would be to use the number of project bids submitted, which in this case is 29? A 1 in 29 probability results in a 3.5 percent probability that the Haida Gwai demand will materialize. Please discuss.

Response:

The suggested methodology assumes that every project that responded to the RFEOI had the same qualifications or otherwise has an equal chance of winning the Haida Gwaii bid process. FEI is unable to confirm that this is true and therefore does not believe this methodology is the most appropriate.

BCUC IR 1.39.2 requested:

"Please complete the following table. Provide the potential demand in 2017 for each customer segment or potential project, along with the likelihood, expressed as a percentage, that this potential demand will be served by FEI"s biomethane supply. Include a functional Excel spreadsheet for this table in the response."

The FEI response to BCUC IR 1.39.2 was:

"FEI believes the total market potential for RNG is currently around 4 PJ. From this, FEI has developed a low, moderate and high demand scenario for the next 10 years based on various probability scenarios of the large demand markets.

These forecasts take into account industry trends, primary market research, and emerging markets in B.C.

Although FEI believes that the moderate case scenario incorporates the most likely uptake rates for residential and commercial customers as well as a conservative growth and capture rate for Rate Schedule 11B and emerging market customers, the low or high cases have potential to occur as well. FEI is unable to make any further predictions at this time as there is not enough historical data to do so.

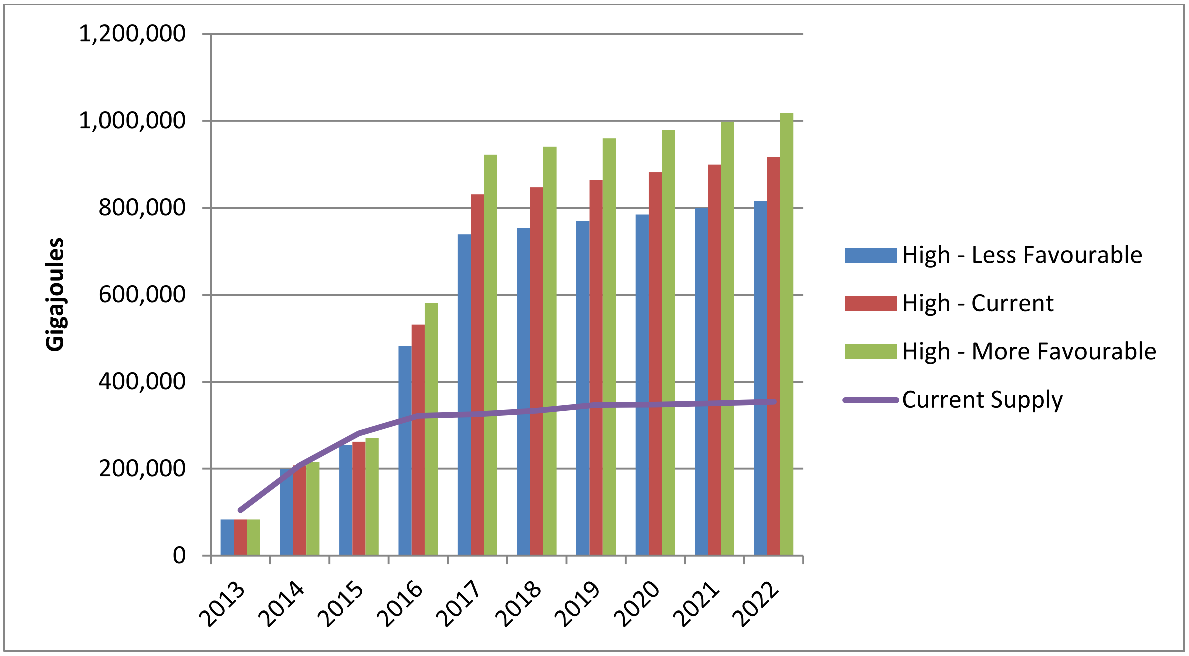
FEI has outlined this in detail in the Exhibit B-1, Section 4 and in the response to BCUC IR1.38.2."

26.3 On what basis did FEI choose captures rates of 10, 30 and 50 percent for forecasting the potential demand from the emerging market sector? What information or statistical analysis was used to justify these scenarios, rather than, for example, 5%, 15% and 40% (a less favourable scenario), or 20%, 40% and 60% (a more favourable scenario)?

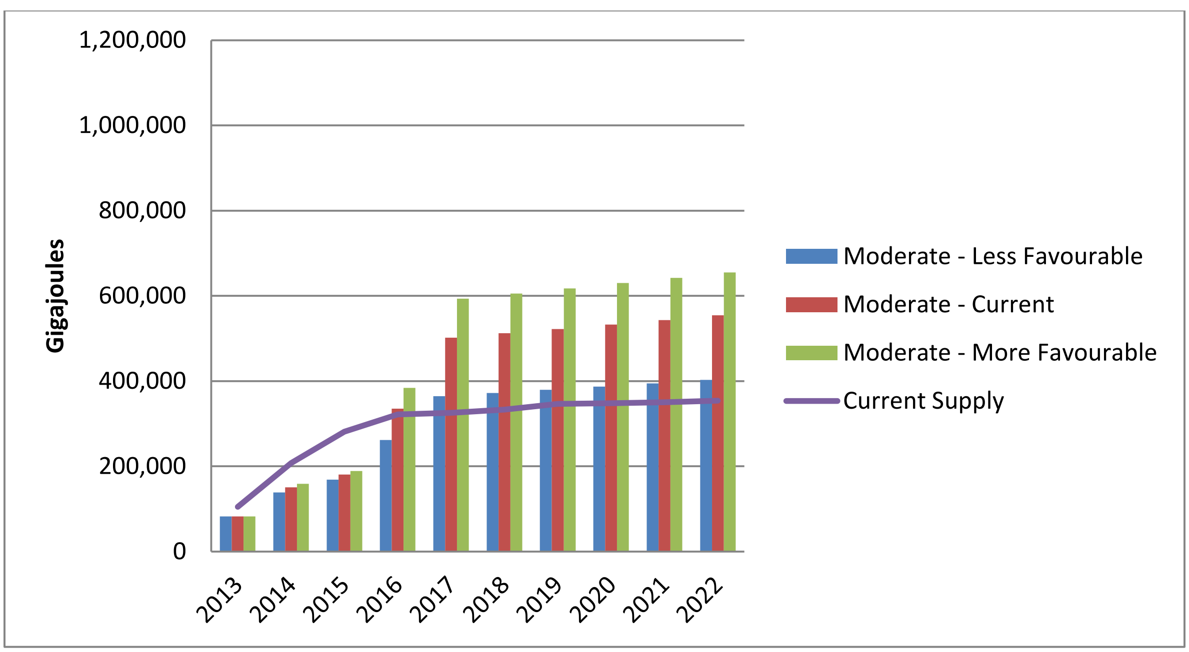
Response:

FEI chose capture rates of 10, 30, and 50 percent because they represent a conservative range of potential demand. FEI could have chosen, 5 percent, 15 percent and 40 percent (a less favourable scenario), or 20 percent, 40 percent and 60 percent (a more favourable scenario), but all of these scenarios provide a similar result. See charts below.

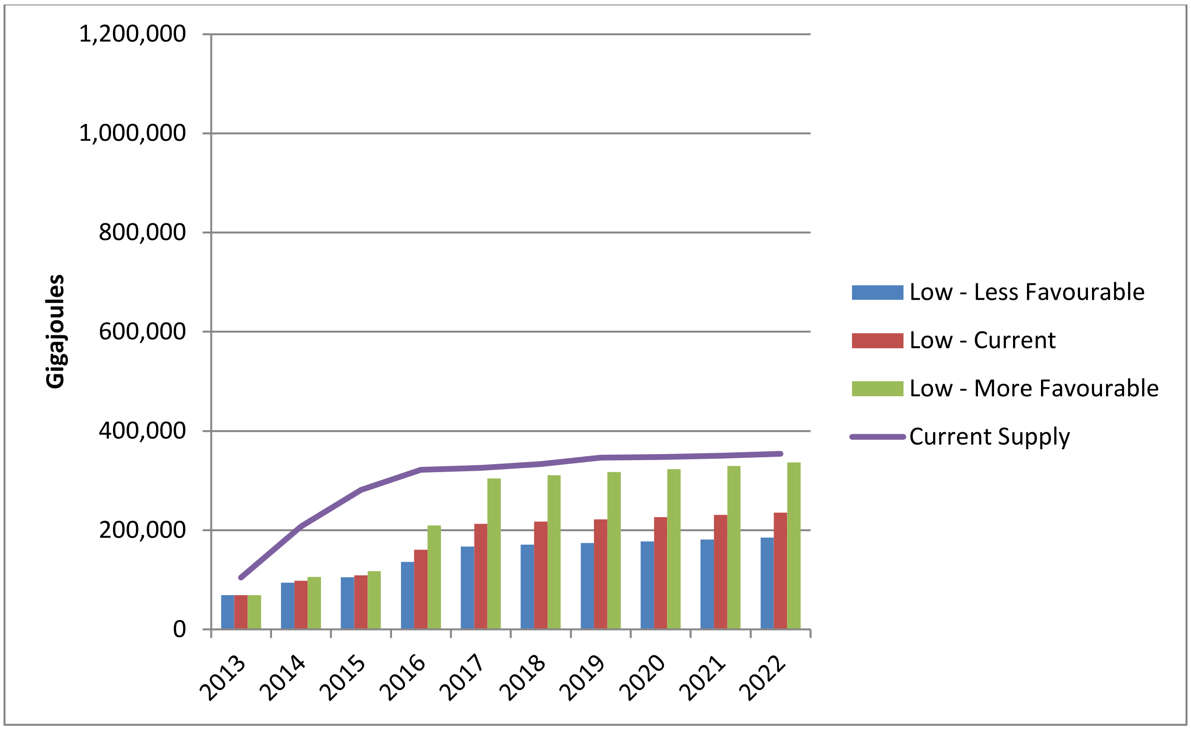
High Case Scenario



Moderate Case Scenario



Low Case Scenario



Note: current supply based on expected delivered energy from all currently approved supply contracts.

26.3.1 Is FEI's "moderate" scenario the same as the statistical "expected" value based on a 50% chance of demand being over and 50% chance of being under when compared to actual results? If not, please elaborate.

Response:

No. FEI has used the best available information to construct a demand forecast that is conservative in nature. FEI's RNG program does not have the benefit of a large residential and commercial customer base with extensive historical data to employ similar methodology to FEI's core forecasting group.

In regards to forecasting for large customers, FEI uses an annual survey which is not adjusted through scenarios. FEI's RNG forecasting for emerging markets is similar in that we have used information from letters of intent (LOI's) and RFEOI's. As FEI does not have the historical data from these customers, FEI has used scenarios to provide a conservative range.

FEI will continue to communicate and take into consideration new evidence as it comes available and modify the forecast as necessary.

26.3.2 Would FEI agree that, assuming consistent underlying assumptions are being used, a bottom-up approach to determining demand should result in approximately the same as a top-down approach to demand? Please discuss.

Response:

The question asks FEI to compare two different methodologies to forecasting. Exact definitions for bottom-up and top-down approaches can vary, but the "underlying assumptions" used for each approach would not be comparable so the results from each approach may be different. For example, a bottom up approach implies assessment of each customer and aggregation of demand. A top down approach would generally utilize broader assumptions regarding things like penetration rates of the overall set of customers. Please see BCUC IR2.26.3.1 for more information on the forecasting approach used.

26.3.3 Would FEI agree that, assuming consistent underlying assumptions are being used, a bottom-up approach to determining demand should result in approximately the same as a top-down approach to demand? Please discuss.

Response:

Please refer to the response to BCUC IR 2.26.3.2 as the exact question is repeated.

27.0 Reference: FORECAST DEMAND

Exhibit B-1, Section 3.9, p. 48; Exhibit B-17, BCUC IR 1.38.1; FEI Rate Schedule 16 Application, Exhibit B-4, p. 4

Availability of RLNG Supply

On page 48 of the Application, FEI discusses plans to expand the RNG offering to Rate Schedule 16 customers and states:

"Additionally, RLNG could be used to serve projects such as Haida Gwaii under BC Hydro's call for clean power generation43 which could result in over 200,000 GJ demand of renewable LNG or to serve other renewable LNG markets such as Wespac as discussed further in Section 4.

Under Rate Schedule 16, FEI currently offers dispensing service and sale of Liquefied Natural Gas on a pilot basis. An option of designating a portion of a customer's consumption under Rate Schedule 16 as RNG can further reduce GHG emissions. On September 24, 2012, FEI applied to the Commission, pursuant to sections 59-61 of the Act, for approval to amend Rate Schedule 16 to provide LNG sales and dispensing service on a permanent basis. Following a decision in that proceeding, FEI will evaluate whether to bring forward a proposal to include the RNG Offering under Rate Schedule 16."

In the FEI Amendment to Rate Schedule 16 on a Permanent Basis proceeding (RS16 Application), FEI updated its demand forecast to reflect the response to its vehicle grant incentive awarding process and now projects that demand for the LNG capacity available under Rate Schedule 16 will reach the maximum supply capacity in 2016 on the basis of Natural Gas for Transportation (NGT) demand alone. In response to BCUC IR 1.8.3 in the RS16 Application, FEI provided the following table showing the updated LNG demand forecast for LNG sourced from FEI's Rate Schedule 16.

LNG Demand	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
LNG Trucks	54	219	284	344	454	454	454	454	454	454	454
LNG Truck Demand (GJ)	150,000	843,000	1,116,000	1,368,000	1,830,000	1,830,000	1,830,000	1,830,000	1,830,000	1,830,000	1,830,000
LNG Marine Projects	-	-	1	2	3	3	3	3	3	3	3
LNG Marine Demand (GJ)	-	-	150,000	250,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000
Total NGT Demand (GJ)	150,000	843,000	1,266,000	1,618,000	2,180,000	2,180,000	2,180,000	2,180,000	2,180,000	2,180,000	2,180,000

*LNG truck demand is 4,200 GJ/year

**LNG Marine demand at 150,000 GJ/year for Section 18 customer and 100,000GJ/yr/project (Based on Queen of Capilano - small ferry)

***There is a 1 year lag between incentive payments and vehicle additions and load.

As shown in FEI's forecast, in 2015 there is only 562,000 GJ of capacity available to markets other than vehicles funded under FEI's NGT incentive program and there is no capacity available under Rate Schedule 16 from 2016 on.

In response to BCUC IR 1.38.1, FEI provided a table of forecast total market demand. This forecast included potential demand from deliveries for liquefied RNG of 280,000 GJ to Haida Gwaii beginning in 2015 and 750,000 GJ to WesPac also beginning in 2015 with the WesPac demand increasing to 1,500,000 GJ per year in 2016.

In response to BCUC IR 1.44.4.1, FEI states: “If the available existing capacity is indeed fully subscribed by the time BC Hydro decides upon a commercial solution for the project, and that solution is RLNG, then alternate LNG supplies would need to be negotiated. This might be met by a new LNG production facility.”

27.1 Does FEI agree that given the updated Rate Schedule 16 forecast and given FEI needs to make application to further amend Rate Schedule 16 to accommodate sales of renewable LNG that the likelihood of renewable LNG being sourced from the only two existing LNG facilities (i.e. Tilbury and Mt. Hayes) to supply Haida Gwaii and/or WesPac is unlikely and a new LNG facility would likely be required to supply these two potential customers?

Response:

Yes, FEI agrees that additional sources of LNG would likely be required to serve Haida Gwaii and / or Wespac.

27.1.1 If FEI agrees, please provide a table listing the potential new LNG facilities that FEI believes might be potential renewable LNG supply sources, whether they are FEI facilities, FEI affiliate facilities or arms length third party facilities, the date expected on-stream and whether the facility will be connected to the FEI system or not.

Response:

FEI is currently reviewing expansion capabilities within FEI and FEVI’s service territory in order to serve LNG markets but does not have any further details at this time.

27.1.2 For new LNG facilities that are connected to the FEI system, describe the means are available to FEI to ensure the LNG can be certified as renewable.

Response:

In the case of LNG facilities connected to FEI's system, FEI would make biomethane an option under the LNG tariff for dispensing such as Rate Schedule 16, similar to how Rate Schedules 1B-3B offer biomethane. In other words, the biomethane that would be purchased through the FEI LNG Tariff would be a notional delivery, the same as the existing RNG program.

27.1.3 If the new LNG facility is not connected to the FEI system, describe the means that are available to ensure the LNG can be certified as renewable.

Response:

FEI is not currently pursuing RLNG from sources not connected to the FEI system, and therefore, does not have any further details on a certification process for RLNG off-system. However, FEI would assume if biomethane is notionally delivered to the LNG facility where the LNG is being produced, then the RLNG certification requirements would be the same as if it were connected to the FEI system. In the case of a B.C. project, the biomethane needs to be shown as the commodity used in the generation of the electricity.

28.0 Reference: EMERGING MARKET – POWER GENERATION

Exhibit B-17, BCUC IR 1.42.5 & 42.6; Exhibit B-14, BCSEA, IR 1.5.3-5

In response to BCUC 1.42.5, FEI states:

> "Additionally, UBC has indicated that should they be successful in gaining a Load Displacement Agreement with BC Hydro as part of its Integrated Customer Solutions program, this will bring in revenue of approximately $5 million per year for the electricity sold, which would not only offset the premium payments as covered above, but also pay off the capital for the investment. The expected project simple payback is less than 10 years and all electrical production totally offsetting the premium payments for Biomethane."

In response to BCSEA 1.5.5FEI states:

> "A Load Displacement Agreement is an agreement with BC Hydro under BC Hydro's load displacement incentive program that provides incentives for energy generation projects to generate energy to displace all or part of the customer's site electrical load and decrease the electricity consumption supplied by BC Hydro.
>
> Biomethane fits the definition of a clean or renewable resource 1 under the *Clean Energy Act*, therefore can be used in co-generation projects that qualifies under BC Hydro's load displacement incentive program.
>
> For more information about the incentive program and process, please refer to BC Hydro"s Integrated Customer Solutions Process and Proposal Submission Guide, which is available online at: http://www.bchydro.com/energy-in-bc/customer-based_generation.html."

In response to BCUC IR 1.42.6 about alternatives for UBC if they did not buy 100 percent Biomethane for its CEC and CHP facility, FEI states that:

> "BC Hydro's Integrated Customer Solutions program requires electrical production to be CO2 neutral; therefore, no project can be approved under the ICS program unless fueled by a biofuel source or hydro based energy source."

In response to BCSEA IR 1.5.3, FEI states:

> "FEI is not aware of any special concessions for biomethane / natural gas blends in the Standing offer program (SOP) rules. In other words a 10 percent biomethane blend would not meet the definition of clean or renewable energy in

the SOP. It is clear that electricity generated from 100 percent biogas (or biomethane), which qualifies as a clean or renewable resource, would be eligible for the SOP. <u>It is also clear that projects that meet the criteria for a high efficiency co-generation project can use conventional natural gas as an energy source and qualify for the SOP.</u> However, it is FEI's understanding that a project using a 10 percent biomethane / 90 percent natural gas blend (or a different blend) would also have to meet the high efficiency cogeneration criteria in order for a project to qualify for an SOP energy purchase agreement." [emphasis added]

28.1 According to FEI's evidence, it appears that under the SOP program, BC Hydro will allow the use of conventional natural gas for those projects that meet the criteria for a high efficiency co-generation project. Would UBC's CEC and CHP facilities meet these criteria under the SOP?

<u>Response:</u>

FEI contacted BC Hydro to develop a response to this IR and BC Hydro provided the following.

<u>BCH Response</u>:

In accordance with the *Clean Energy Act*, high efficiency cogeneration projects that have a 15 MW or less nameplate capacity are eligible to participate in the SOP. BC Hydro cannot comment on the eligibility of a project that has not made application to SOP to be reviewed under the terms of the SOP. However, under BC Hydro's Integrated Customer Solutions (ICS) process, load displacement is a priority for all customer-based generation projects before supply-side opportunities, before supply-side opportunities such as SOP. Through the ICS process, BC Hydro has considered two programs in the evaluation of UBC's proposed projects: the Load Displacement Program and the Standing Offer Program. After the evaluation of the Load Displacement Pre-screening Assessment (LDPA) submitted by UBC to BC Hydro, BC Hydro determined that UBC's proposed projects should be directed to the Load Displacement Program because:

- Load Displacement is the priority for customer-based generation projects, as they can generally be acquired at a lower cost to rate-payers.
- UBC has load at the site of the generation that can be displaced with significant capacity benefits.
- The fuel and technology proposed are eligible for the Load Displacement Program (see response to BCUC IR 2.28.2).

- The proposed project meets the other eligibility requirements for the Load Displacement Program outlined in Appendix I of the ICS Process and Proposal Submission Guide.

Note that the proposed UBC CHP project is larger than the SOP maximum of 15 MW and, as currently contemplated, would not be eligible for SOP.

28.2 It appears that there is an element of discretion in the SOP program with regards to the fuel source in a high-efficiency co-generation facility. Please provide the relevant link or reference to the carbon neutral requirement of the BC Hydro Integrated Customer Solutions program, which specifically prohibits the use of natural gas in all circumstances.

Response:

FBC contacted BC Hydro to develop a response to this IR. BC Hydro states the following:

BC Hydro Response:

As noted in the response to BCUC IR 2.28.1, in accordance with the *Clean Energy Act*, high efficiency cogeneration facilities with a nameplate capacity of 15 MW or less are eligible to participate in SOP.

Please note that ICS is not a "program". Rather, ICS is an approach developed by BC Hydro for customers interested in generating their own electricity for self-supply or sale to BC Hydro. After evaluation through the ICS process, the customer may be referred to a BC Hydro rate, program or offer to support the customer's project. The priority of ICS is for customers to first displace their own electrical load before selling electricity to BC Hydro.

Consistent with section 1 of the *Clean Energy Act*, load displacement is a "*demand-side measure*" provided certain requirements are satisfied: (1) must reduce the energy demand that BC Hydro must serve and (2) must not encourage a switch from the use of one kind of energy to another such that the switch would increase greenhouse gas emissions in British Columbia. In addition, to be eligible for the BC Hydro Load Displacement program, load displacement projects must be a generating facility that generates electricity from a clean or renewable resource, as defined in the *Clean Energy Act*.

The use of natural gas to displace electrical load would increase greenhouse gas emissions in B.C. and, therefore, projects using natural gas would generally be ineligible to participate in BC Hydro's Load Displacement Program. However, since renewable natural gas (RNG) is considered renewable and will not increase greenhouse gas emissions in B.C. it is an eligible fuel source for the Load Displacement Program.

28.3 In the event of a delay in securing Biomethane supply for a large customer such as UBC, please confirm that they would have the technical and physical ability to begin a project using traditional natural gas, and could begin receiving (and claiming the environmental benefits of) notional Biomethane supply once the Biomethane becomes available? If not, please discuss.

Response:

FEI contacted both BC Hydro and UBC regarding this IR and they provided the following responses:

UBC response:

Without RNG the UBC Cogen project does not happen. Without the ability to maintain the CO2 neutrality of the Cogen project above the base natural-gas fired boiler house then 1) it does not meet the BC Hydro load displacement criteria and 2) it does not meet UBC's own CO2 targets.

BC Hydro response:

If the UBC project receives a Load Displacement Agreement the electricity generated must come from RNG such that emissions in the province do not increase. Any electricity generated by natural gas will not be eligible for a Load Displacement incentive. The capital incentive provided for the project under a Load Displacement Agreement would be refunded in an amount equivalent to the value of the electricity generated by natural gas. Both BC Hydro and UBC require the certainty of RNG to enable project development, pricing and contract execution.

E. PROPOSED SUPPLY SIDE MODEL: CRITERIA FOR ACCEPTANCE OF CONTRACTS

29.0 Reference: PROPOSED SUPPLY SIDE MODEL

Exhibit B-17, BCUC IR 1.1.2; Attachment 1.2

Contract Template for Future Supply Contracts

29.1 Please provide redacted copies of the Kelowna biogas supply agreement and the Kelowna biogas supply agreement.

<u>Response:</u>

The following questions in this set of IRs refer to differences in biomethane and biogas projects. Because FEI has already provided the most recently approved biomethane agreements, FEI has assumed that the Commission intended to ask for the Kelowna and *Salmon Arm* agreements. Redacted copies of these supply agreements have been provided in Attachment 29.1.

FEI would caution the Commission from adopting either of these agreements as a template because they are the first two biogas (rather than biomethane) agreements and FEI continues to learn from its experience. FEI does expect that the next biogas agreement it develops will be an improvement as it will incorporate the best aspects of all of its supply agreements to date and be initiated from the template already provided.

30.0 Reference: PROPOSED SUPPLY SIDE MODEL

Exhibit B-17, BCUC IR 1.1.2; Attachment 1.2

Contract Template for Future Supply Contracts

In BCUC IR 1.1.2 FEI was asked to provide a contract template that would be used as the basis for any future new supply contracts. FEI provided a contract template as Attachment 1.2 and noted it was substantially the same as those Agreements filed for the recent SRP proceeding.

30.1 Please confirm that all of the biomethane projects dealt with in the recent SRP proceeding were farm or urban digestors and FEI is buying biomethane rather than raw biogas.

Response:

Confirmed.

In response to BCUC IR 1.1.2.1, FEI describes how FEI may depart from the contract template for future supply contracts.

30.2 Please confirm that the contract template provided as Attachment 1.2 would be applicable as filed for all biogas and/or biomethane supply projects contemplated by FEI under the proposed biomethane program subject to the potential departures described in response to BCUC 1.1.2.1. If not confirmed, please elaborate.

Response:

Not Confirmed. As indicated in response to BCUC IR 1.1.2.1, FEI cannot foresee all deviations from the contract template, so the potential departures listed in that IR should not be read as a complete list of potential departures. Further, the contract template and potential departures were drafted within the context of digester-based, biomethane supply projects. As such, they are not applicable to supply projects for landfill gas or biogas agreements. For these types of agreements in general, FEI anticipates deviations due to the nature of the supplier (public vs. private) and the location (landfill vs. digester). The potential deviations that FEI foresees at this time are more fully explored in responses to BCUC IRs 2.30.2.1.1 and 2.30.2.2.1.

30.2.1 Is the contract template and contemplated departures applicable for landfill projects?

Response:

No.

30.2.1.1 If not, please describe any further departures or modifications that may be required.

Response:

As mentioned in response to BCUC IR 1.1.2.1, FEI cannot anticipate all departures from the contract template. FEI will continue to learn and incorporate improvements into future contracts to best accommodate new supply while still protecting its customers.

The following are the potential departures from the template that FEI can foresee at this time related to the purchase of biomethane from landfills:

- Supplier and Location: As FEI indicated in response to BCUC IR 2.30.2.1, for landfill and biogas supply agreements, FEI expects departures from the template provided in response to BCUC IR 1.1.2.1 based on the supplier and the location.
- Price: FEI has addressed price-related deviations in response to BCUC IR 1.1.2.1. Generally, FEI intends to ensure the price is below the approved maximum biomethane price for the duration of the contract as well as continuing to work in an open book manner to establish this price. FEI will also use a tiered-pricing approach which may vary from supplier to supplier. In this model, FEI will try to minimize cost to biomethane customers while providing a fair price to suppliers based on their project economics.
- Facilities: The description of the upstream facilities would differ from that of a digester. Typically a landfill will have a gas collection field and destruction system already in place.

- Gas Volume: FEI expects that the volume of gas associated with a landfill will vary over time (typically increase) compared to a digester project which would typically be relatively constant over its life. The contract would need to take into account the change in volume over time.
- Letter of Credit: Certain clauses may also change or be waived depending upon the supplier. For example, FEI would anticipate that a landfill supplier may be a municipality or regional government and would therefore not require a letter of credit.
- GHG Credits/Environmental Attributes: FEI expects to remain consistent in its approach of attaining a first right of refusal for upstream GHG benefits (see also response to BCUC IR 1.1.2.1). Rules for GHG credits at landfills are different than for digesters so the contract language would vary to account for this. For example, landfills required to capture gas and would not be eligible for additional GHG credits. Regardless of any GHG credits associated with the destruction of methane at landfills, FEI will retain the appropriate environmental attributes related to the displacement of traditional natural gas.
- Own Use: Municipalities or regional governements may be more amenable to purchase RNG for their own use.
- Escalators: The magnitude of the price escalator may continue to vary, though FEI intends to limit escalation to the currently approved maximum biomethane rate.
- Other: There may be other areas of departure that FEI would consider as minor, such as FEI having the right to dispose of waste directly at the landfill.

Please also refer to the response to BCUC IR 2.30.2.2.1.

30.2.1.2 Please provide a contract template for purchases of biomethane from landfill projects where FEI is not the party that owns and operates the upgrader.

Response:

FEI does not have a contract template for purchases of biomethane from landfill projects. FEI would use the template provided in response to BCUC IR 1.1.2.1 as starting point for supply agreements for the purchase of biomethane from landfill projects.

30.2.2 Is the contract template and contemplated departures applicable if FEI owns and operates the upgrader facilities and is purchasing raw biogas?

<u>Response:</u>

No.

30.2.2.1 If not, please describe any further departures or modifications that may be required.

<u>Response:</u>

FEI reiterates that not all departures from the contract template can be foreseen. However, at this time FEI can predict the following departures (in addition to any of those mentioned in response to BCUC IR 1.1.2.1) if FEI owns and operates the upgrader facilities and is purchasing raw biogas.

- <u>Supplier and Location</u>: As noted in response to BCUC IR 2.30.2., FEI expects departures to be related to the nature of the supplier and the location.
- <u>Facilities</u>: The description of the upstream facilities would differ from a biomethane supplier and the facility description would differ for landfill versus digester. For example, a landfill will have a gas collection field and destruction system that could be interfaced by FEI.
- <u>Volume and Quality</u>: FEI anticipates the requirement for an inlet gas specification for raw biogas. This specification may vary depending upon the supply. For example, FEI will have a requirement for landfills to manage their collection systems to minimize oxygen and nitrogen. In the case of digesters, which by nature do not have air inside, this may be less of a concern. In addition, the volume of a raw gas generated at a landfill will vary over time whereas digester gas flows are expected to be relatively constant over time. The contract would need to accommodate this change.

- Letter of Credit: FEI would expect that any contract with a landfill owner would typically be with a municipality or regional government. In these cases FEI would not expect the supplier to post a letter of credit.

- GHG Credits/Environmental Attributes: FEI expects to remain consistent in its approach of attaining a first right of refusal for upstream GHG benefits (see also response to BCUC IR 1.1.2.1). Rules for GHG credits at landfills are different than for digesters, so the contract language would vary to account for this. For example, landfills required to capture gas and would not be eligible for additional GHG credits. Regardless of any GHG credits associated with the destruction of methane at landfills, FEI will retain the appropriate environmental attributes related to the displacement of traditional natural gas.

- Price: First, the price for raw biogas (landfill gas) is expected to be less than the price for biomethane. This is a result of both the perceived value of raw biogas and the fact that FEI's price of biomethane includes both the cost of raw gas and the cost of service of the upgrader. Second, FEI has two primary pricing concepts. FEI has negotiated two landfill contracts awith different price structures. In one case FEI is paying a price paid based on the volumes of upgraded biomethane delivered to the FEI system and in the other, FEI pays a price for supply of raw biogas delivered to the upgrader.

- Escalators: The magnitude of the price escalator may continue to vary, though FEI intends to limit escalation to the currently approved maximum biomethane rate (cost of service + biogas purchase rate).

30.2.2.2 Please provide a contract template for purchases of raw biogas where FEI owns and operates the upgrader facilities.

Response:

FEI has not fully developed a contract template for purchases of raw biogas where FEI owns and operates the upgrader facilities. However, FEI has provided a redacted version of the contract with the City of Kelowna (BCUC IR 2.29.1). FEI will use this contract as well as the template provided in response to BCUC IR 1.1.2.1 for biomethane purchases to derive future agreements where it owns the upgrader facilities.

31.0 Reference: PROPOSED SUPPLY SIDE MODEL

Exhibit B-17, BCUC IR 1.1.2; Attachment 1.2

Contract Template for Future Supply Contracts

In response to BCUC IR1.1.2.1, when describing how FEI expects contracts may vary in terms of price FEI states:

"FEI has typically included tiered pricing, whereby higher volumes have a lower per GJ price. This was done based on the principal that project developers have a base or expected volume upon which they build their financial models. Presumably, they earn their minimum return on that base volume. Volume supplied above that base amount does not require any more capital and, therefore, is less expensive to produce on a per GJ basis. FEI reasons that developers should, therefore, be able to provide biomethane at a lower price for larger volumes."

31.1 Has FEI signed any supply contracts where higher volumes have a higher per GJ price? If so what was the rationale for this pricing structure?

Response:

Yes. In the Kelowna Agreement, FEI has provided slightly higher pricing for higher volumes of Landfill Gas.

The pricing structure provides incentive to the City of Kelowna to provide more gas at a higher quality. In this case, FEI owns the upgrade plant. The volume of LFG is expected to increase over the life of the contract and the upgrade plant is sized to process the maximum expected volume. The capital cost of the plant is fixed regardless of the volume. Therefore, if Kelowna provides more gas, FEI will effectively be lowering the cost of service for the plant over its life providing a lower final cost of biomethane. The effective lower price is partially offset by providing a slightly higher price to Kelowna on greater volumes of LFG.

In response to BCUC IR 1.1.2.1, when describing how contracts may vary in terms of volume, FEI states:

"The base supply volume is determined by the project developer. It is a primarily predicted based upon the available feedstock and a requirement to payback the capital investment as well as cover ongoing costs.

From an FEI perspective, the volume will typically be limited by the ability of the local distribution system to accept the volume of gas produced. In the last four negotiated Agreements, FEI has attempted to minimize the spread between expected volume and maximum volume in order to better manage the expected supply and demand balance."

31.2 Does FEI independently verify or confirm the base supply volume that is provided by the project developer?

Response:

No, FEI does not independently verify base supply volume except in the case where it will own the upgrade plant.

The suppliers have used an independent consultant with expertise in the biogas field to estimate volumes. In the case of both expected and maximum volumes, FEI relies upon the projections made by the supplier's expert. Though FEI has developed some internal knowledge related to raw biogas production, FEI does not have the expertise to develop its own estimates. Rather FEI continues to ensure prospective suppliers use reputable third parties to develop volume estimates. Because the suppliers have worked with FEI in an open book manner, there has not been a compelling reason to spend additional money to independently verify volumes.

The maximum volume has typically been based upon the ability of the local distribution system to accept the biomethane. Once a maximum injection volume has been established, FEI will work with the supplier to agree upon a reasonable maximum volume based upon the supplier facility design.

31.2.1 Please describe the process or means by which FEI independently verifies or confirms both the maximum volume that is set out in the Biomethane Purchase Agreement and the expected volume.

Response:

Please refer to the response to BCUC IR 3.31.2.

31.3 In the circumstance where the base supply volume required by the project developer is greater than the ability of the local distribution system to accept the volume but the FEI distribution system may be able to accommodate the base supply volume at a tie-in location further downstream, please describe the criteria FEI would use to determine the maximum length and cost of the interconnection pipeline that would be acceptable.

Response:

FEI has taken the approach of minimizing the length of pipe required to connect to an appropriate location in the existing system that can accept the maximum supply volume. FEI has excluded projects at an early stage that would require a pipe that would be so long as to make the cost per GJ of connection uneconomic. Until now FEI has used the existing approved projects to guide its evaluation. For example, a project near the Dicklands Farm project was rejected even though it was a similar volume, because it would have required an interconnection pipe that was almost twice as long.

Please also refer to the responses to BCUC IR 2.34.1 to 2.34.4 where the possibilities of a threshold test and contributions for costs in excess of the threshold are discussed.

32.0 Reference: PROPOSED SUPPLY SIDE MODEL

Exhibit B-1, Section 6.6, pp.91-92; Exhibit B-17, Attachment 1.2;

Exhibit B-17, BCUC 1.56.1

Contract Template for Future Supply Contracts

In response to BCUC IR 1.56.1, FEI was asked to elaborate on how each of the seven proposed criteria for reviewing a proposed supply agreement under section 71 of the Utilities Commission Act addresses a list of eight matters including "incentives or penalties of the supplier not meeting expected dependable original forecast supply." In response FEI states:

"The FEI supply criteria do not specifically address each of these eight matters. The supply contract criteria were developed to mitigate supply risk while some of the criteria listed above are specific to program risk. FEI has provided an item-by-item review of the eight criteria. Each item first identifies where the criteria is managed (contract or program) and then goes on to provide an explanation.

However, FEI is willing to evaluate expanding criteria for contracts to potentially accommodate

some of these criteria." ….

"4) incentives or penalties of the supplier not meeting expected dependable original forecast supply;

Contract: Each contract to date has a minimum supply requirement, with an option by FEI to terminate the contract if not met. Suppliers are all motivated to produce as much biomethane as possible to maintain the viability of their business and to maximize their revenues. In FEI's view, this provides sufficient incentive for suppliers to meet forecast supply. To date, FEI has not found it reasonable to impose any penalty clauses to enforce minimum supply volumes. FEI is concerned that penalties could impose unnecessary hardship on suppliers which could result in business failure and permanent loss of supply."

32.1 Please confirm that the only reference to a minimum supply requirement in the contract template provided as Attachment 1.2 to Exhibit B-17 is the trigger for commencing the contract term; specifically the following clause:

"Term. Subject to section 1.1, this Agreement will be for a period of commencing on the Effective Date and expiring on October 31st following the tenth (10th) anniversary of the First Delivery Date (the **"Initial Term"**), unless terminated earlier or renewed in accordance with the terms of this Agreement (the **"Term"**), where **"First Delivery Date"** means [modify description of date as applicable] the earlier of:

(a) the business day after FEI has accepted the minimum quantity of gigajoules (**"GJ"**) of Biomethane per day for seven (7) consecutive days; and

(b) the business day after FEI has accepted Biomethane for a cumulative period of 30 days."

Response:

Confirmed.

32.1.1 If not confirmed, please provide the reference to the clause in the sample contract that sets a minimum supply requirement.

Response:

Please refer to the response to BCUC IR 2.32.1.

32.1.2 In the case where FEI owns and operates the upgrader facilities and purchases raw biogas, does FEI view the minimum supply requirements set out in the contract template to be sufficient to ensure that deliveries of biogas over the term of the contract will be sufficient to recover the cost of service for the FEI owned upgrader facilities? Please explain the response.

Response:

No, the minimum supply requirements set out in the contract template are not sufficient in the case where FEI owns and operates the upgrader facilities because of the nature of the change in volumes over the life of the contract. This can be seen by looking at the two existing projects where FEI owns the upgrader. In the contracts with Columbia Shuswap Regional District

(Salmon Arm Landfill) and the City of Kelowna (Glenmore Landfill), where FEI owns the upgrading facilities, FEI has a minimum supply requirement based upon the gas available at the beginning of the life of the contract. This is a result of the fact that the volume of landfill gas will grow over the life of the contract and volumes early in the contract life are expected to be less than later in the contract life. However, each of these contracts also has an exclusivity clause which requires the landfills to provide all gas to FEI. Over time as the landfill gas generation increases the volume of gas provided to FEI will increase (due to nature of landfill where the volume increases over time and the fact that this increase in volume must be provided to FEI). The volumes required to recover the cost of assets is based upon an average expected volume. Therefore, FEI expects that the minimum volumes, when considered together with the nature of landfill gas generation over time are sufficient to ensure recovery of the cost of service over the asset life.

Please also refer to the response to BCUC IR 2.30.2.

33.0 Reference: PROPOSED SUPPLY SIDE MODEL

Exhibit B-1, Section 6.6, pp.91-92; Commission Order E-19-12

Criteria for Accepting Future Supply Contracts

FEI provides a list of the modified criteria that it proposes be used to determine whether future supply contracts should be accepted for filing under section 71 of the Act.

33.1 Does FEI agree that the proposed streamlined contract review process that consists of reviewing the contract only on the basis of the list of proposed criteria should only apply when the standard contract template is used?

Response:

No, this was not a condition of the accepted streamline review process for the Biomethane Pilot Program and it should not be a condition of the process going forward.

A streamlined review process can be used for all biomethane contracts provided they meet approved guidelines and remain below the CPCN threshold. FEI believes that it is critical to have as much certainty as possible for future project developers. This includes the certainty that if they are compliant with program rules that any review process will be limited to a streamlined process and by implication, a timely review process.

The streamlined review process can be used to review any deviations from the contract template. FEI has and will provide appropriate discussion regarding deviations from the contract template to provide adequate information to allow the Commission to make considered decisions. The Commission may ask information requests related to any such deviations to ensure that they are in the public interest.

As FEI has stated, not all deviations from the contract template can be anticipated and FEI needs flexibility to negotiate with developers. In addition, a deviation from the template is not necessarily material or significant. For this reason it would be inefficient and inappropriate to limit the streamlined process to a standard contract template.

33.2 Should all non-standard contracts (i.e. those that deviate from the standard form contract template) require a more in-depth review process in which FEI is required to provide an explanation of the deviation and justification for the deviation? If no, please explain the response.

Response:

FEI is agrees that it will provide explanation and justification for deviations from standard biomethane agreements. FEI expects to meet established guidelines for its future contracts, which should provide certainty that any contract will be reviewed expeditiously and that there is an expectation of acceptance by the Commission. However, details which deviate may require more review. FEI can make it clear to future suppliers that deviations may require additional review and possibly more time to reach acceptance.

FEI remains concerned about the necessary time required to review future contracts. Keeping in mind that FEI will remain within the established guidelines, FEI does not agree that an "in-depth" review process is necessarily required. Rather, FEI would suggest that the Commission make a determination the level of extra review required based upon the nature of the deviation.

33.2.1 Should the review of all non-standard supply contracts be reviewed under the standard section 71 of the Act review criteria? If not, why not?

Response:

No. FEI believes that all future contracts that meet the rules and guidelines established for the biomethane program should be reviewed under those rules and criteria. Deviations from the template supply contract may be minor and in any case can be explained and justified in FEI's application for approval for the contract.

The purpose of setting the criteria is to allow FEI to develop contracts that meet those criteria so that the contracts can be reviewed in a streamlined process. Establishing criteria for streamlined future review of projects provides two key benefits.

First, the criteria will allow for the safe, economic and timely development of additional Biomethane supply projects. FEI will have the ability to enter negotiations with project proponents with advance knowledge of the Commission-endorsed parameters, which will allow projects to be reviewed and evaluated expeditiously and provide a measure of commercial certainty to project proponents.

Second, establishing criteria in advance promotes regulatory efficiency. The Commission always retains the discretion to depart from the proposed criteria, and can require further process to address the public interest on a case-by-base basis as necessary. However, establishing criteria will permit a more efficient assessment of energy supply contracts going forward. Customers are the ultimate beneficiaries of an efficient process.

FEI believes that the question is effectively asking whether standard supply contract terms and conditions should be one of the supply criteria. FEI does not believe that this is feasible at this time as many deviations will be necessary from the supply contract template and it is not possible to anticipate all possible deviations from a supply contract template. Please see FEI's responses to BCUC IR 33.2 and the BCUC IR 2.32 series.

33.3 In the case of the GVS&DD supply contract, where a portion of the biomethane supply will not be purchased as part of the biomethane program, can this contract be accepted for filing under the current criteria for the Pilot Biomethane Program? Please explain the response.

Response:

The current criteria for the Pilot Biomethane Program are not designed for the review and approval of the purchase of natural gas in excess of 40,000 GJ under the GVS&DD contract that would be outside of the biomethane program. FEI will address this issue when the GVS&DD supply contract is before the Commission for approval.

33.4 When determining if the price for delivered biomethane exceeds the maximum supply price and FEI owns and operates the upgrader facilities, please confirm that the price is the sum of the biogas price under the terms of the supply agreement plus the cost of service for the upgrader facilities.

Response:

Confirmed.

33.4.1 On what basis should the maximum supply price criteria be applied: a levelized cost of service rate over the life of the facilities, a levelized cost of service rate over the term of the supply contract, the cost of service for a given period of time such as a month or a year? Please explain the rationale behind the response.

Response:

FEI believes that the best approach would be to use the levelized cost of service over the life of the facilities. The combination of the levelized cost of service and the gas purchase price should be below the approved maximum biomethane price.

To further clarify, while FEI has used the levelized cost of service for indicative purposes, the actual annual cost of service is expected to be below the currently approved maximum during the contract term. FEI intends to continue this approach with future contracts.

In regard to the length of the contract vs. the facility life, FEI has attempted to match the life of the contracts to the life of the assets. In the case of the Kelowna landfill for example, the asset life is expected to be 20 years and the contract life is 15 years plus an automatic 5 year renewal.

Commission Order E-19-12, dated October 23, 2012, accepted the Kelowna biomethane supply agreement under the Pilot Biomethane Program criteria with the following condition:

"(a) To the extent the price of delivered biomethane under the Kelowna project exceeds the cap of $15.28 per GJ set out in the criteria established in the Biomethane Decision, FEI is not to recover these costs from ratepayers."

33.4.2 Should this condition be applied as a standard condition of acceptance of filing for all biomethane supply contracts? If so, should the maximum price specified be the specific maximum supply price that was in place at the time of acceptance or the maximum supply price at the time the price is tested to ensure it does not exceed the maximum price? Please explain the response.

Response:

Where FEI is purchasing biomethane, the contract, when approved by the Commission, establishes the rate for purchase of biomethane. The rate must be below the price cap that is in place at the time that the agreement is finalized and approved by the Commission. The biomethane contracts however, typically have price escalation with a limit to the escalation imposed by any current approved maximum rate. If at some time in the future, the maximum approved rate changes, this could allow the price FEI pays for biomethane to increase. At all times, FEI will ensure that the price it pays is below the current or any future maximum approved biomethane price as a matter of course in the monitoring of its biomethane contracts.

In the case of a biogas purchase where FEI is the owner of the upgrader, the cost for biomethane (upgraded biogas) is the sum of the price paid for raw biogas plus the annual cost of service (based on a calendar year basis) for the upgrading operation. In this situation it is conceivable that the net cost for the biomethane may exceed the cap if the cost of service (COS) exceeds plan. In Commission Order E-19-12 FEI was directed not to recover these costs from ratepayers. These costs, if incurred, would be captured in the BVA; the review and disposition of such variances would be dealt with as part of the routine reporting process and would be subject to Commission approval. FEI does not anticipate incurring any variances where the annual COS will exceed the cap. However, should such an unforeseen result occur, FEI believes the full circumstances should be reviewed prior to determining the ultimate disposition.

As specified in Order G-29-13 with respect to the 4 new supply agreements, the risk of unsold amounts of biomethane up to the caps specified will be borne by FEI's ratepayers and not its shareholders, issues relating to prudency aside. FEI believes this principle should continue to apply with respect to subsequent supply additions.

With respect to timing issues on biogas purchase deals where FEI provides the upgrading, the maximum price would again be compared to the price cap in place from time to time.

33.4.3 Should this condition be applied as a standard condition of acceptance of filing for just the biomethane supply contracts where FEI owns and operates the upgrader?

Response:

Please refer to the response to BCUC IR 2.33.4.2.

33.4.3.1 If so, should the maximum price specified be the specific maximum supply price that was in place at the time of acceptance or the maximum supply price at the time the price is tested to ensure it does not exceed the maximum price? Please explain the response.

Response:

It is clear that at the onset of any contract that the current BCUC approved maximum rate is used to evaluate the biomethane price. However, biomethane contracts typically have a price escalation clause with a limit imposed by any current approved maximum rate. If at some time in the future, the maximum approved rate changes, this could allow the price FEI pays for biomethane to increase. At all times, FEI will ensure that the price it pays is below the current or any future maximum approved biomethane price as a matter of course in the monitoring of its biomethane contracts. Therefore, the maximum price specified at the time the contract is signed is used to begin with but over time the price paid should be compared to any future approved biomethane rate. Please also refer to the response to BCUC IR 33.4.2.

In the case of the Kelowna contract as indicated in the response to BCUC IR 2.33.4.1, FEI has ensured that the cost of service in any given calendar year of the contract is below the *currently* approved maximum price. That is, FEI does not expect the cost of service (including the cost of raw gas) to exceed $15.28 per GJ in any given calendar year. FEI intends to continue using this methodology for evaluating prices of future contracts.

Please refer to the response to BCUC IR 2.33.4.2 for the cost treatment for any situations where the cost exceeds the maximum.

33.4.3.2 Should the cost of service be levelized over a term or be the actual cost of service for the time period that is being tested? Please explain the response.

Response:

The annual cost of service (COS) of an individual project will fluctuate over the course of the project life as a result of front end income tax savings, volume variations, periodic maintenance programs and other considerations. Forecast annual COS amounts (on a calendar year basis) are included as a component of the prospective costs used in the determination of the BERC rate, and the actual COS amounts are charged to the BVA so that any variances between the forecast and actual COS amounts are captured in the BVA for recovery / refund in future BERC rates.

As the annual COS calculation is subject to fluctuation on a year-to-year basis, FEI believes that for the purposes of determining whether the price of raw biogas plus the upgrading cost exceeds the cap, that it would be more appropriate to evaluate the levelized cost of service over the project lifetime.

Please also refer to the responses to BCUC IRs 2.33.4.2 and 2.33.4.3.1.

F. PROPOSED SUPPLY-SIDE MODEL: INTERCONNECT TESTS

34.0 Reference: MAIN EXTENSION TEST VOLUMES AS A PROXY FOR CIAC REQUIREMENT

Exhibit B-17, BCUC IR 1.60.4, BCUC IR 1.60.9

Economic Test

In response to BCUC IR 1.60.4, FEI states that:

"the costs associated with the interconnection facilities are a necessary part of providing a biomethane program for customers and all customers have access to the program. This is the primary reason FEI has allocated interconnection costs to all customers."

In response to BCUC IR 1.60.9, FEI suggests that a contribution towards the cost of interconnection facilities may be required in some cases, depending upon the outcome of the MX Test:

"FEI did not advocate that the MX Test should be used, but rather it could be considered in determining minimum volumes that should be received before a contribution might be required."

However, in the same response, FEI states that such contributions from biomethane suppliers are not appropriate:

"In addition, the relatively low cost of the interconnect facilities that is required to allow the supply of biomethane into the distribution system to meet current and future demand and make biomethane available to all customers should not require a CIAC from biomethane suppliers."

Then, in the same response, FEI again suggests that contributions for interconnection facilities may be considered on the basis of a reasonable contribution test:

"However, FEI is amenable to a contribution test for interconnection facilities, provided it is reasonable. As discussed in the response to BCUC IR 1.60.4, if a future test is used, it is reasonable to base it on the data from the first seven projects."

34.1 Is FEI maintaining its position that the costs of interconnection facilities should be allocated to all customers of FEI?

<u>Response:</u>

This response addresses BCUC IRs 2.34.1, 2.34.2, 2.34.2.1, 2.34.2.2 and 2.34.3.

In this response, FEI clarifies its position on whether the costs of interconnection facilities should be allocated to all customers and proposes an interconnection test to be applicable to future supply projects.

FEI maintains its position that, in principle, the costs of interconnection facilities should be allocated to all customers, but is proposing an interconnection test that would require a contribution in aid of construction (CIAC) from suppliers to ensure that the amount of interconnection facilities costs recovered from all customers is reasonable.

As discussed below, the application of the proposed test may result in the indirect recovery of all of a portion of the costs of such a CIAC from biomethane customers. FEI also recognizes that this approach may preclude the development of some projects where either project developers are unwilling to pay a contribution or where the required increase in biomethane price is above the current approved maximum price.

FEI believes that the costs of the interconnection facilities of all existing supply projects under the Biomethane pilot program (including the GVS&DD supply contract) are reasonable and should continue to be allocated to all customers.

However, for future supply projects under the Biomethane program, FEI recognizes the concern that there should be a limit on the amount of interconnect facility costs that FEI will invest in to allow Biomethane supply to enter the distribution system. Setting an appropriate limit should provide comfort to the Commission that the extent of interconnection costs that will be recovered from all customers is reasonable.

On the basis that the interconnection costs of existing supply projects have been reasonable and accepted by the Commission, FEI would propose using the current maximum $/GJ of the accepted projects as a threshold for interconnection costs for future projects. FEI's response to CEC IR 1.23.1 indicates that the average capital cost for interconnection facilities per GJ (for 20 year volume) ranged from $0.34 per GJ to $1.48 per GJ.

FEI therefore proposes that a $1.50 / GJ average capital cost, based on a 20 year volume forecast, be used to set a cap on the level of investment FEI will make on interconnection facilities for future supply projects.

Under this proposed test, in those instances in the future when a new prospective supplier wishes to supply biomethane and the average cost of the interconnection facilities exceeds the $1.50 / GJ, the supplier would be required to make a CIAC such that the net average capital cost is equal to $1.50/GJ. FEI would apply the same test to projects where it owns upgraders by looking at the costs associated with the interconnection of those projects.

FEI believes this approach would be seen as fair and equitable for new prospective suppliers versus what has been accepted for existing suppliers. This approach is also a simple approach to administer and easy for prospective suppliers to apply to their planning for the sizing of facilities, costs and volume deliverability. This approach would also be simpler than using a modified MX test as discussed in the Application.

If a new supplier was required to provide a CIAC, it is anticipated the supplier would attempt to recover the cost of the contribution amount through the supply agreement price. To the extent that the contribution amount was being recovered in the supply agreement price, this would be embedded in the BVA and recovered through the BERC rate from biomethane customers. FEI would not need to make any adjustments to charge the BVA as the CIAC would offset the excessive interconnect facility costs.

The ability for the supplier to recover its CIAC in the supply agreement price would be limited by the maximum price for biomethane set by the Commission. The result may be that some biomethane supply projects cannot proceed because the contribution required from the supplier is too high to be accommodated within the maximum purchase price. In other cases, project developers may be unwilling to pay a contribution.

In summary, the advantage of the proposed approach is that the cost of interconnect facilities costs for biomethane supply that all customer bear is limited to a reasonable level. The tradeoffs of achieving this are twofold.

First, the BERC may be higher in the future than it might otherwise be. However, the maximum purchase price ensures that supply projects do not proceed that would require a contribution that would cause the purchase price to exceed the maximum price. Therefore, the increase to the BERC rate due to the contribution is limited.

Second, the development of biomethane supply may be constrained in the future if suppliers are unwilling to move forward due to the contribution. However, based on the current list of prospective suppliers for Biomethane, FEI does not foresee any CIAC requirement having to be made under this test. This reflects the fact that FEI has been seeking supply projects within proximity to its system and ruling out projects with interconnection costs that would make the project uneconomic. In effect, the combination of the maximum purchase and the CIAC requirement would formalize the assessment of what makes an interconnection cost uneconomic.

34.2 Does FEI foresee any cases where it would vary from this position and require a contribution to the cost of the interconnection facilities?

Response:

Please refer to the response to BCUC IR 2.34.1.

34.2.1 Would FEI consider a contribution from the biomethane supplier in this case?

Response:

Please refer to the response to BCUC IR 2.34.1.

34.2.2 Would FEI consider recovering a portion of the costs from subscribers to the biomethane program through the BVA?

Response:

Please refer to the response to BCUC IR 2.34.1.

34.3 How would FEI develop a contribution test based on FEI's experience with actual projects?

Response:

Please refer to the response to BCUC IR 2.34.1.

34.4 Does FEI intend to submit an application pursuant to either section 44.2(3) or section 46(3) for acceptance or approval, respectively of the capital expenditures related to interconnection facilities required for any new biomethane supply projects?

Response:

Yes.

FEI's practice has been to seek acceptance of the interconnection capital costs pursuant to section 44.2(3). Although section 44.2 acceptance is not mandatory, FEI intends to continue with its current practice as this will ensure that FEI's capital expenditures for interconnection costs are found to be in the public interest by the Commission in advance of construction. As acceptance under section 44.2 of the Act is not a rate approval, this would not be inconsistent with FEI's proposed PBR plan.

FEI would be required to seek CPCN approval pursuant to section 46(3) if the capital expenditures exceed the CPCN threshold of $5 million. FEI generally does not expect interconnection capital expenditures to exceed the CPCN threshold and therefore does not anticipate seeking CPCN approval.

35.0 Reference: INTERCONNECTION FACILITIES

Exhibit B-16, BCUC IR 1.1.2.1, Attachment 1.5

In response to BCUC IR 1.1.2, FEI states: "Further, GVS&DD does not intend to supply more than 40,000 GJ per 1 year. Rather, GVS&DD and FEI agreed that it is preferable to inject pipeline quality gas into the natural gas system to flaring the gas on site. This was considered a more responsible approach. The maximum limit of 100,000 GJ/year was simply a result of the available capacity at the proposed location and not based upon any firm plans by either GVS&DD or FEI to increase gas volumes significantly above 40,000 GJ/year."

In Exhibit B-16 in Attachment 1.5, the Biomethane Purchase Agreement between FEI and GVS&DD includes the following clauses:

> 5.2 **Biomethane Volume and Delivery Quantity**. The parties expect the volume of Biomethane produced by the Metro Vancouver Facilities to range from approximately 30,000 to 40,000 GJ per year over the Term. Subject to section 5.3, Metro Vancouver agrees to sell the Biomethane to FEI in the following quantities, as measured by equipment forming part of the Interconnection Facilities:
>
> (a) **Maximum Yearly Delivery** – 100,000 GJ per year;
>
> (b) **Maximum Daily Delivery –** 225 GJ per day, in the months of June, July and August.
>
> FEI will be responsible for measurement of Biomethane flow and the calculation of energy delivered for the purpose of determining delivery quantities.
>
> 5.3 **Excess Production** – If, from time to time, Metro Vancouver anticipates Biomethane production may exceed the maximum limits set out in section 5.2, Metro Vancouver shall notify FEI immediately of the anticipated delivery quantity, and FEI may, in its discretion, accept the additional Biomethane production volume. Metro Vancouver will notify FEI at least six (6) months in advance of any proposed changes or improvements to the Metro Vancouver Facilities or the Lands that could result in long term increase to Biomethane flow by more than 10% above the Maximum Yearly Delivery quantity set out in section 5.2 to allow FEI to evaluate the impacts of such increase on the Interconnection Facilities and its gas distribution system and FEI's ability to accommodate and accept such increased production volume.

35.1 Please confirm that 40,000 GJ per year is equivalent to an average of approximately 110 GJ per day and that 100,000 GJ per year is equivalent to an average volume of approximately 275 GJ per day.

<u>Response:</u>

Confirmed.

35.2 Please confirm that, given a maximum limit of 225 GJ per day for the months of June, July and August (92 days), in order to reach an annual volume of 100,000

GJ, it would require an average volume of 290 GJ per day being delivered on the other 273 days of the year.

Response:

Confirmed.

35.3 Please confirm that the wording in clause 5.3 implies that the FEI system can accommodate up to 110,000 GJ per year (approximately 300 GJ per day) without the need "to evaluate the impact of such increase on the Interconnection Facilities and its gas distribution system and FEI's ability to accommodate and accept such increased production volume". If not confirmed, please explain.

Response:

Confirmed.

35.4 What is the maximum volume that FEI will size the Interconnection Facilities to accommodate? Will the Interconnection Facilities accommodate a maximum of 110 GJ per day? 225 GJ per day? 275 GJ per day? 290 GJ per day? 300 GJ per day?

Response:

FEI will size the facilities to accommodate the maximum flow of 300 GJ per day. FEI notes that the standard interconnection station design used for both Salmon Arm and Fraser Valley Biogas will accommodate this full range of flows without modification. FEI intends to use the same design for the interconnection station at the GVS&DD plant.

The expected size of interconnecting pipe will likewise be the same as that used for Fraser Valley Biogas. The costs associated with additional engineering are not warranted to change the design of the interconnection station and piping, but rather, it is more cost effective to re-use the same design wherever possible.

In Exhibit B-16 in Attachment 1.5, the Biomethane Purchase Agreement between FEI and GVS&DD also includes the following clauses:

> 5.4 **Exclusivity.** Metro Vancouver covenants and agrees to exclusively sell the Biomethane to FEI; provided that if FEI is unable to accommodate and accept all the Biomethane from time to time, Metro Vancouver shall be entitled to use, sell or otherwise dispose of the Biomethane in a commercially and environmentally reasonable manner after consultation with FEI.
>
> 5.5 **Title and Warranty.** Title to and responsibility for the Biomethane shall pass from Metro Vancouver to FEI upon delivery to the connection point between the Metro Vancouver Facilities and the Interconnection Facilities. Any Biomethane not meeting the Specifications will be redirected by FEI back to the Metro Vancouver Facilities and title to and responsibility for such Biomethane shall, upon return to the Metro Vancouver Facilities, revert back to Metro Vancouver. Metro Vancouver warrants it has the right to convey and will transfer good and merchantable title to the Biomethane free and clear of all liens, encumbrances and claims.

35.5 Confirm that clause 5.4 provides for the ability for GVS&DD to sell volumes of biomethane to other parties. If not confirmed, please explain.

Response:

Confirmed.

35.5.1 Does this provision allow for the sale of biomethane from GVS&DD to other parties such that the volumes will be transported through the FEI system?

Response:

This level of detail of review of the GVS&DD supply contract is not within the scope of this proceeding. The GVS&DD supply contract will be subject to Commission review and approval in a future process, during which FEI will be pleased to respond to questions of this nature.

35.5.2 If so, what FEI transportation rate schedule(s) would the biomethane be transported under?

Response:

Please refer to the response to BCUC IR 2.35.5.1.

35.5.3 If the current transportation rate schedules do not accommodate the transport of this biomethane, please describe the amendments that would be required to accommodate the transportation of such biomethane on the FEI system.

Response:

Please refer to the response to BCUC IR 2.35.5.1.

36.0 Reference: INTERCONNECTION COSTS

Exhibit B-17, BCUC IR 1.61.3.1; BCUC IR 1.61.6.1; BCUC IR 1.61.7; BCUC IR 1.62.2

FEI stated in their response to BCUC IR 1.61.3.1 that "including all the interconnection costs in the BERC rate could be detrimental to the viability of the program, (which) would be inconsistent with the government policy and the energy objectives (of the Clean Energy Act)."

In response to BCUC IR 1.61.6.1, FEI states:

> "If suppliers must recover interconnection costs in the price they charge to FEI for biomethane, this would add a significant amount to the cost of biomethane, in the order of $3 per GJ. On the other hand recovery of these costs from all FEI non-bypass customers the cost is relatively insignificant at $0.002/GJ. While this amount will increase as more biomethane supply projects are added to the portfolio, FEI believes that having the interconnections costs borne by all non bypass ratepayers will be a small amount per customer overall and justified by the benefits of the RNG program that accrue to all FEI customers."

In response to BCUC IR 1.61.7 about the possibility of charging the capital and operating interconnection costs to the suppliers, and then crediting the revenues to the BVA account, FEI states:

> "If it is concluded, contrary to FEI's view that it is appropriate for all ratepayers to pay for the interconnection costs, that biomethane customers should pay for these costs, there is no advantage or benefit to FEI's biomethane consumers of having the cost of service from the interconnect charged to the BVA with an offsetting revenue from the Biomethane supplier that in turn must increase its price for RNG which is then in turn charged to the BVA to be recovered from FEI Biomethane customers through the BERC rate. This is a more cumbersome approach administratively than charging the cost of service for the interconnection facilities directly to the BVA for recovery through the BERC rate from FEI's biomethane customers."

In response to BCUC IR 1.62.2, FEI confirmed that they have considered a ranking of proposed suppliers based on the cost of their gas, including the cost of interconnection. "However FEI has not taken this approach because the biomethane supply market is not yet well developed. To date, FEI has taken an approach of being as flexible as possible while adhering to the principles of safety and minimum reasonable price. This approach has allowed FEI and project developers to adapt and evolve over the past two years.

Both FEI and potential developers have been able to gain a better understanding of real costs and operational issues.

To date FEI has advanced 7 projects at various different time lines over a 3 year period. There is an insufficient number of projects that can be compared all at the same time to make the proposed ranking process viable."

36.1 Is FEI's primary concern about including the supplier's interconnection costs in the BERC rate the impact this could have on customer take-up of the program?

Response:

Yes, that is correct. Including interconnection costs in the BERC rate will impact the retention and program take-up rate for current and future residential and commercial customers of the program. As explained in the response to BCUC IR 2.12.2, higher biomethane costs would be expected to lead to lower participation rates.

36.1.1 Given that under FEI's current proposed model non bypass customers will pay for unrecovered costs through the proposed MCRA mechanism, would a total "cost to market" approach (including interconnection costs) provide better value to both non-bypass customers and the Biomethane customers, , by ensuring that the most economic options are captured first? Please discuss why or why not?

Response:

FEI is unsure of what a "total cost to market" approach is and whether or not it should include interconnection costs. FEI will respond to the question on the basis that it is requesting comments about whether ranking biomethane projects inclusive of interconnection costs would provide a better overall result for customers than the same analysis without interconnection costs.

FEI is not opposed to counting the costs of interconnection in the ranking and evaluation of biomethane supply projects and FEI does in fact consider interconnection costs in the development of a biomethane project.

However, there are not a large number of projects on which to develop an optimized portfolio of projects based on combined biomethane and interconnection costs. FEI expects to be supply-constrained in the biomethane program in which case the same group of projects will be developed whether interconnection costs are included in the analysis or not.

If circumstances develop in the future whereby more biomethane projects are being proposed than FEI is able or willing to accept, then ranking the projects inclusive of interconnection costs may be appropriate to achieve a lower total cost of the program. FEI would consider this issue if such circumstances arise.

36.1.2 Please confirm that it is possible to credit the BVA with interconnection contributions made by the suppliers, to ensure that the uptake under a user-pays program is unaffected. Please discuss why this would not be desirable or possible.

Response:

Contributions In Aid of Construction (CIAC) from suppliers should be tracked separately from the BVA account as the contributions would be a contra source of fund(s) related to the tangible fixed asset plant costs.

The Biomethane Variance Account is a deferral account that records costs and revenues that would, absent of a Commission Order approving the deferral, would be recognized as period expenses or revenues and included in the Income Statement. As such it would not be appropriate to credit the CIAC to the BVA account.

If the Commission determined that the interconnect costs, or some portion of the costs, should be recovered from customers electing to purchase biomethane, the associated cost of service for the interconnect facilities could be charged to the BVA. This could include the credit value of the contribution reducing the asset value of plant asset costs.

36.2 In the event of an RPS/RPA type program, where non-bypass customers pay for all the costs of Biomethane, including interconnection costs, would FEI agree that FEI ratepayers (and BC) still benefit from the same increased use of renewable natural gas?

Response:

Yes, FEI ratepayers (and BC) still benefit from the same increased use of renewable natural gas.

36.2.1 In the event of an RPS/RPA type program, where non-bypass customers pay for the costs of Biomethane supply, would including the interconnection costs in the supply costs provide a way of comparing the relative cost of delivering the Biomethane to market between projects, even in the absence of simultaneous ranking of projects? Please discuss.

Response:

Yes, FEI agrees that summing all costs on a project by project basis could help to provide an appropriate ranking, assuming an RPS/RPA arrangement has been put in place.

Unfortunately, all accepted projects do not have their actual costs available at this time and are not for various reasons expected to be built at the same time. The difference in timing is not as problematic as the unavailability of actual costs. The forecast versus actual costs could vary between projects.

FEI does not see significant value in the present circumstances to developing relative ranking of projects in the current supply/demand environment where FEI is challenged to develop sufficient supply to meet projected demand and where the supply projects being considered have supply costs that are all below the approved price cap.

36.3 In the event of an RFP, would it be preferable if all suppliers provided bids on an equivalent basis, namely on a total "cost to market" approach? If not, please discuss why this would not allow for simplified comparison between projects, even if bids do not occur simultaneously.

Response:

The total cost to market method may be appropriate where there is an adequate network of consultants and component suppliers that have experience in the design and building of biomethane projects however at this stage of biomethane development that is not the case. The cost-to-market approach also has the potential advantage of providing a more straightforward means of comparison.

FEI is not necessarily opposed to this approach. However it may be premature to adopt it. Project support would only develop over time as more projects reach successful completion and there is experience with various successful solutions to develop biomethane systems. With the current approach, FEI has the opportunity to be more involved and gain a deeper understanding of biomethane project development which will benefit its customers. FEI can adapt its current approach to take into account purchase price while at the same time ensuring interconnection costs are below a certain threshold on a $/GJ basis as discussed in the response to BCUC IR 2.34.1. Effectively, this would operate in a similar fashion to the total cost-to-market approach.

In conclusion, FEI would not recommend a full adoption of the cost-to-market approach until more projects have been developed.

36.3.1 Is it possible to be guided by the total "cost to market" based on the existing 7 contracts which have already been identified and negotiated by FEI, even in the absence of a simultaneous ranking of all available projects? Please discuss.

Response:

FEI assumes that this question is continuing to ask about an RFP process as indicated in BCUC IR 2.36.3. FEI does not believe that the individual "total cost to market" values of the existing seven contracts or the average of the seven would provide much more information for a forward looking RFP process, than a high level reference point on which to compare the RFP bid submissions. Because of the uniqueness of individual projects the results of the seven existing projects on a total cost to market basis may not be representative of what will occur with future projects. FEI has described possible concerns with an RFP approach in the response to BCUC IR 1.49.3. These include: (1) project proponents bidding aggressively in order to win a contract with the resulting contract revenues not being adequate to sustain the project, and (2) too few projects being bid into an RFP process to conclude that the process was competitive.

FEI believes its approach to acquiring new biomethane supply is more flexible and appropriate to this stage of the biomethane market development. The cost of the project provides a guide to negotiating the contract price for biomethane. However, FEI expects to have a shortage of supply within a few years if the demand develops as expected. Therefore, there is not a real value in ranking the projects.

For future projects, FEI intends to achieve a balance between the project cost while at the same time providing a price which encourages the supplier to move ahead with the project and develop supply. The contract price cannot be so low as to put the supplier into default or so high as to be a windfall gain. However as this is a new industry where the technology is a work in progress, FEI works along with the proponent to solve problems as the project evolves to completion. Therefore FEI has a very good idea on a price level that will balance the requirements of FEI and the project owner.

G. TRANSPORTATION OF BIOMETHANE ON FEI SYSTEM

37.0 Reference: BIOMETHANE PRODUCTS

Exhibit B-14, BCSEA IR 1.6.4; 2010 Biomethane Application Proceeding, Exhibit B-1, Section 6.7.3, pp.59-60

Pricing Mechanisms Under Biomethane Rate Schedules

The following excerpt from the 2010 Biomethane Application describes the On-system and Off-system sales Tariff Offerings:

"6.7.3 SALES (ON SYSTEM AND OFF-SYSTEM) TARIFF OFFERINGS AND AMENDMENTS

The Company also seeks approval of Tariff 11B. Rate Schedule 11B – Biomethane Large Volume Interruptible Sales (see Appendix F-6 for the pro-Forma version), that will allow for the sale of 100% Biomethane to on-system transportation only customers. The approval of this rate schedule will allow for the sale of 100% Biomethane to on-system transportation customers, who currently receive service from Terasen Gas under a transportation service schedule (Rate Schedules 22, 23, 25, or 27).

The Company also requests an amendment to Rate Schedule 30 – Off-system Interruptible Sales (see Appendix F-2 for the blacklined and pro-forma versions), to include a Transaction Confirmation sheet for specific Biomethane sales transactions. This Transaction Confirmation sheet includes details that are specific to Off-system Biomethane sales, more specifically, in addition to a commodity charge, the customer will be responsible for a delivery charge, which is proposed to be the same as Rate Schedule 27's current delivery charge, and will be revised as required when Rate Schedule 27 is revised.

The delivery charge (that will be incorporated within an inclusive commodity charge to the customer), is necessary and required to facilitate the movement of Biomethane gas from the Terasen Gas distribution system to the off-system custody transfer point of Huntington, in order for the customer to purchase the gas." (2010 Biomethane Application, Exhibit B-1, pp. 59-60)

In response to BCSEA IR 1.6.4, FEI provides a table describing the biomethane Rate Schedules including the applicable pricing mechanism. The response applicable for Rate Schedule 11B and Rate Schedule 30 is extracted below:

Biomethane Rate Schedules	Description	Product	Premium	Corresponding Rate Schedule
Rate Schedule 11B – on system	On-system interruptible sales rate for customers entering into a contract for the short-term sale and purchase of biomethane	Bulk purchases of biomethane at a select volume amount for sales within FEI's service territory	BERC Rate	N/A (only through high-end charges)
Rate Schedule 30 / GasEDI – off system	Off-system interruptible sales rate for customers entering into a contract for the short-term sale and purchase of natural gas	Bulk purchases of biomethane at a select volume amount for sales outside of FEI's service territory	BERC Rate	Rate Schedule 30/ GasEDI

37.1 Please confirm that Rate Schedule 11B sales can only be made to "on-system transport customers who are currently paying for their gas deliveries through a transportation tariff" with FEI. If not confirmed, please explain.

Response:

Confirmed. Rate Schedule 11B applies to a customer in the applicable territory served by FortisBC Energy if the customer has entered into a Transportation Agreement pursuant to Rate Schedules 22, 22A, 22B, 23, 25, or 27.

37.2 Please confirm that the pricing for the sale of biomethane under Rate Schedule 30 is the BERC rate plus a delivery charge that is the same as is applicable under Rate Schedule 27.

Response:

It is confirmed that there would be a delivery charge the same as is applicable under Rate Schedule 27 for biomethane sales under Rate Schedule 30. However, the responses provided previously in BCSEA IR 1.6.4 and BCUC IR 1.29.2 did not accurately reflect the commodity price option for Rate Schedule 30.

Rate Schedule 30 does not currently specify that biomethane would need to be sold at the BERC rate. While the intent would be to sell at the BERC rate, if this mechanism is used as a last resort measure in order to sell surplus biomethane, Rate Schedule 30 as currently worded could accommodate a different price other than the BERC to counterparties.

As discussed in the response to BCUC IR 2.52.1, FEI is proposing to seek approval of the Commission before selling biomethane at a discount under Rate Schedule 30.

38.0 Reference: RNG OFFERING, PRODUCT ROLL-OUT AND RESULTS
Exhibit B-1, Section 3.9, p. 49
Rate Schedule 14A

On page 49 of the Application FEI states it "is currently evaluating options for further expansion into natural gas for transportation markets including the option for customers that are enrolled in Rate Schedule 14A."

38.1 Please confirm that when FEI sells to a transportation customer under Rate Schedule 14A that FEI is acting as Shipper Agent in the same role as a marketer, and that the same nominating and balancing rules apply to FEI in this role as would apply to a marketer. If not confirmed, please explain.

Response:

Yes, as described in sections 6.1 and 7 of Rate Schedule 14A, FEI would be subject to the same nominating and balancing rules that apply to a marketer. FEI would nominate and balance on behalf of all members of the 14A Group of Shippers on an aggregate basis in accordance with the sections of the applicable transportation Rate Schedules. FEI would undertake on behalf of the Customer the obligations for nominations and Gas balancing under sections 8 and 9 of Rate Schedule 22 or the equivalent sections under Rate Schedules 23, 25 or 27.

38.2 Please confirm that in order for FEI to supply biomethane under Rate Schedule 14A, certain terms and conditions of the transportation rate schedules would need to be modified such as the ability to accept receipt of biomethane at Receipt Points other than the interconnect between the FEI system and Transporters such as Spectra. If not confirmed, please explain.

Response:

Yes, some terms and conditions of the transportation rate schedules would need to be modified in order for FEI to supply biomethane under Rate Schedule 14A.

38.2.1 Please confirm that, given FEI's role as a Shipper Agent in selling gas under Rate Schedule 14A, the required modifications to the transportation rate schedules would be the same modifications that would be required to provide a transportation rate schedule that could be used by any transportation customer for the transportation of biomethane on the FEI system. If not confirmed, please explain. In particular, explain how FEI's role as a seller of gas under Rate Schedule 14A is different from that of a marketer.

Response:

This is not confirmed. As noted in the Application, FEI is currently evaluating further expansion into natural gas for transportation markets, which in the future may include the option of offering Biomethane to FEIs'customers enrolled in the Rate Schedule 14A that currently receive service under Transportation Rate Schedules 22, 22A, 22B, 23, 25, or 27. However FEI is not seeking approval of amendments to Rate Schedule 14A in this Application. FEI would make a separate application to the Commission with the required tariff amendments to all affected FEI Rate Schedules if and when expansion occurs at a later date. FEI does not believe that its current role under Rate Schedule 14A is relevant to this Application.

39.0 Reference: RISK MITIGATION

Exhibit B-17, BCUC IR 1.68.1 and Attachment 68.1

Union Gas Transportation Schedule

In response to BCUC IR 1.68.1, FEI provided a copy of the Union Gas tariff page for M13 "Transportation of Locally Produced Gas" as Attachment 68.1 and indicated M13 is the rate class used by the City of Hamilton with regards to its Wastewater Treatment Plant Renewable Natural Gas Project. In BCUC IR 1.68.1 FEI was asked to provide the full tariff.

39.1 Please provide a copy of the Schedule "A" referenced in M13.

Response:

Please refer to Attachment 39.1 for Schedule A as of January 2013 and Schedule A pre January 1, 2013. Due to a lack of approval for a biomethane program, Union Gas has entered into a wheeling agreement with the City of Hamilton for the biomethane production from the wastewater treatment plant. FEI does not view this type of agreement as a suitable mechanism to further the development of biomethane in B.C. as it ties one specific project to a customer, does not allow for a pooled price for biomethane, creates balancing issues and limits customer uptake.

39.2 Please provide a copy of the standard form M13 Transportation and Producer Balancing Service Contract.

Response:

Please refer to Attachment 39.2 for a copy of the M13 Transportation and Producer Balancing Service Contract. Please refer to the response to BCUC IR 2.39.1.

40.0 Reference: INJECTION OF PIPELINE BIOMETHANE

Exhibit B-17, BCUC IR 1.34.5; Attachment 79.1, p. 761

In response to BCUC IR 1.34.5 about which other gas distribution companies in North America companies currently accept pipeline Biomethane into the distribution system, under a voluntary user pays program, FEI stated:

> "PSE receives biomethane from two projects: Cedar Hills Landfill and King County's Renton Wastewater treatment facility. The Cedar Hills landfill gas is processed to pipeline quality and is delivered into Northwest Pipeline through a stand-alone PSE owned pipeline. That bio-gas is purchased by PSE, including environmental attributes, and sold to markets who utilize the fuel to meet US EPA or other compliance requirements. It is delivered through the interstate system. The Renton Wastewater bio-gas is processed to pipeline quality and delivered directly into PSE's distribution system. Currently PSE purchases this gas as system supply without any environmental attributes (due to the age of the plant). PSE is a dual-fuel utility and markets the program to its natural gas customers.
>
> Southern California Gas (SCG), Enbridge Gas, and Union 1 Gas, are the other utilities that inject renewable natural gas into the pipeline. SCG has an „open access system‟ where biomethane suppliers can interconnect with the pipeline.
>
> Enbridge has an active pilot program to inject renewable gas generated from the city of Toronto. Enbridge is collaborating with Union Gas on a province-wide program to create an opportunity for injecting biomethane. However, this collaborative project has not launched yet." [emphasis added]

Page 761 of Exhibit B-17: Farm to Fuel Developers Guide states:

> "Biomethane activity in Quebec is growing, with a municipal landfill near Montreal connected to the natural gas grid, and other municipal projects in development. However, incentives are for municipalities, not farms at this time."

40.1 Please confirm that in the case of the Renton example, there is no premium being paid above the price of conventional natural gas, as there are no environmental attributes included. If not, please clarify.

Response:

Confirmed.

40.2 In the case of Cedar Hills, please provide additional information and supporting evidence regarding the measurement, tracking, verification, retirement and other compliance procedures followed by PSE for sale to markets where Biomethane is used to meet US EPA or other compliance requirements.

Response:

In discussion with PSE, they indicated that this project is selling biomethane where the end use is to create Renewable Identification Numbers (RINs) for the US Federal Renewable Portfolio Standard. The U.S. Environmental Protection Agency (EPA) uses RINs to track the renewable component in transportation fuels and ensure producers are attaining the prescribed blended amount of biofuel in their portfolio. A summary of this process can be found below:

1. Obligated parties
   - Producers and importers of gasoline and diesel (i.e. - refiners).
   - Producers must buy credits annually (RINs) to cover renewable volume requirements.
2. Process:
   - Biogas production facility must be registered with EPA at least 60 days prior to count as a RIN.
   - Eligible feedstock includes waste water treatment plants, manure, sewage and landfills.
   - Imports are allowed.
   - Projects will need a 3rd party engineering review, permit and description of the facility.
   - Quarterly and annual reporting to the EPA.
   - Project is subject to a 3rd party audit.
3. Use
   - The biomethane must be used onsite as a vehicle fuel or show clear pathway to the transportation market through the commercial distribution system.

- Must have written contract between all parties.

PSE's Cedar Hills landfill is listed as a project on line item 5068 on the EPA's website found here:

https://cdxnodengn.epa.gov/cdx-otaq-reg-II/action/reportExternal/Part80FuelsProgramslist

Mulitple sources or information on this process can be found here on the EPA website: http://www.epa.gov/otaq/fuels/alternative-renewablefuels/index.htm

FEI has found two firms which assist companies that wish to sell biomethane into compliance markets such as Elements Markets and Weaver & Tidwell and help navigate the requirements and facilitate the process.

40.3 Please provide additional details of how SCG provides "open access" to Biomethane suppliers, allowing them to interconnect with the pipeline.

Response:

Please refer to Attachment 40.3, for a presentation from Socal Gas at the BiogasWest conference in October 2012, which outlines the business model proposed in their 04/25/12 CPUC application for Biogas Service.

Highlights include:

- SCG to design, install, own, operate & maintain biogas conditioning/upgrading equipment
- SCG provides owners of biogas additional options to upgrade their biogas while limiting upfront capital and risk.

- SCG will charge the tariff service customer a fully allocated cost under a long-term service agreement.
- SCG will not own the biogas entering or the upgraded biogas leaving the biogas conditioning/upgrading facility.

Gas suppliers must apply for an interconnect and comply with their guidance documentation for the transport and delivery of biomethane on their system.[1].

40.4 Please confirm which gas distribution company in Quebec is providing the connection to the municipal landfill near Montreal. Provide details as to what program rules are being applied, who pays for the interconnection costs, and who owns the upgrader.

Response:

The municipal landfill project referred to above is the Groupe EBI, Dépôt Rive-Nord Green Natural Gas Project. EBI Energie, a subsidiary of EBI, operates a landfill gas collection system at Dépôt Rive-Nord. Bullfrog Power purchases the environmental attributes associated with the production from this project. The project document prepared for Bullfrog, available on their website, states the gas is injected into the TransCanada Pipelines Inc. natural gas pipeline system, at TQM Sainte-Geneviere-de-Berthier (“TransCanada”). Please refer to the project document provided in Attachment 40.4 for further information. FEI is not aware of who pays for the interconnection costs.

In addition to the above project, FEI is aware that Gaz Metro is currently looking at a Biomethane program but the details of the program are still under review.

[1] http://www.socalgas.com/for-your-business/suppliers.shtml

41.0 Reference: TRANSPORTATION ARRANGEMENTS FOR PSOS

Exhibit B-17, BCUC IR 1.48.1.1; BCUC IR 1.68.1-4, Attachment 68.1

BCUC IR 1.48.1.1 asked if FEI planned to offer a wheeling arrangement to municipalities who wish to use the supply for their own corporate use. The City of Surrey provides one possible example (referenced in BCUC IR 1.45.4)

FEI responded that:

> "At this time, municipalities interested in using RNG are satisfied to supply biomethane into the program and purchase RNG at the current rate (the BERC rate).
>
> At this time FEI has no firm plans to offer wheeling arrangements. Though FEI is not opposed to this concept, it has some disadvantages. For example, it would require the municipality to match its supply and demand potentially leaving portions of biomethane unused or forcing FEI to create rules and charges to balance the inventory.
>
> Even without wheeling arrangements, the current proposed RNG program would allow municipalities to reach the same goal of using their own RNG corporately."

41.1 In the absence of the municipality being required to assume the risk of matching its supply and demand, would FEI agree that gas rate payers are assuming the risk of matching supply and demand through the MCRA, once the proposed risk mitigation options have been exhausted? If not, why not?

Response:

Yes, but this risk is small and growing supply and demand through the program as proposed allows RNG in B.C. to develop efficiently and to the benefit of the entire province through the reduction of waste and GHG emissions. In contrast, if the municipality is required to match supply and demand, various disadvantages follow, namely:

- Projects would have to be found to match particular demand from the wheeling customers. Matching supply and demand for the wheeling customers would require matching of timing of supply, volume of supply, and reliability of supply. Other terms and conditions of supply and demand, including price, would have to be acceptable to all parties.
- It is foreseeable that supply projects would not be found to match demand for a number of reasons. The result could be that demand is not met and available supply is not

developed, such that the methane from biogas sources continues to enter the atmosphere and sources of RNG are wasted or developed in less efficient ways.

- Projects would be matched to particular large demand which would mean fewer projects developed to the benefit of all participants in the program. All customers would therefore have less diversity and reliability of supply.

Ultimately, the benefit of forcing large customers such as municipalities to match their demand with supply is to limit the cost risk to all other customers. As FEI has shown in its Application and other IR responses, the cost risk to customers is small and would only materialize if all other supply risk mitigation was not successful. In FEI's view, this small and management risk is acceptable to allow the biomethane supply in B.C. to develop in an efficient manner for the benefit of the entire province.

FEI will develop biomethane supply prudently to serve projected demand from its customers. New supply contracts would be subject to BCUC review and approved if demand prospects support the supply. In the case where a municipality wants supply to serve its load, FEI could develop a long-term fixed priced agreement in order to secure part or all of the demand of the biomethane supply pool which in turn justifies adding a new supply source. All these measures would be prudent steps to ensure the efficient development of RNG in British Columbia to serve FEI customers. The last resort of utilizing the MCRA for unused biomethane is an appropriate risk mitigation measure to be borne by gas rate payers.

41.2 What types of "rules and charges to balance the inventory" would FEI need to create a biomethane transportation schedule for biomethane?

Response:

A wheeling type arrangement could be developed within the existing program, but modifications would need to be made to the overall program to accommodate for supply projects that are streamed to specific customers and the accounting for what supply gets pooled in the BERC rate. Provisions for wheeling biomethane under transportation service rate schedules have not been analyzed in detail at this time as no modifications are required to the transportation service schedules as a result of proposals under this application. However, some high level changes that would need to be considered include:

- Would the customer need to be set up as their own marketer or shipper agent?

- Would they need a segregated shipper pool?
- How would biogas supply and traditional natural gas be balanced in their pool?
- What, if any, modifications to WINS would be required to handle nominations of RNG?
- What, if any, modifications to receipt point and interconnect definitions and authorizations for nominations would be required?
- How would the balancing shortfall rules / costs change?

In summary, there are multiple areas that would need to be reviewed in detail. An end to end assessment of the impacts throughout the system including IT upgrades and gas supply impacts as well as RNG program rule changes would need to be conducted. Therefore, FEI is not able to provide rule by rule changes at this time and such changes would have to be evaluated in future applications should there become a requirement to do so.

41.3 To what extent are the existing "rules and charges to balance the inventory" for Rate Schedules 23, 25 and 27, respectively applicable or not applicable?

Response:

Please refer to the response to BCUC IR 2.41.2.

41.3.1 Please be specific on a rule-by-rule and charge-by-charge basis in explaining which rules and balancing charges would apply or would not apply.

Response:

Please refer to the response to BCUC IR 2.41.2.

41.3.2 Please describe the modifications that would be necessary to develop the terms and conditions for.

Response:

Please refer to the response to BCUC IR 2.41.2.

41.3.3 Notwithstanding the disadvantages of wheeling listed by FEI in BCUC 1.68.4, could any of these "rules and charges" be adopted or adapted from the Union Gas and City of Hamilton transportation rate schedule set out in Attachment 68.1 in Exhibit B-17?

Response:

Yes, however, FEI's current model where FEI enters into the supply agreement with the supplier and the biomethane volumes are pooled is preferable to a wheeling model such as the Union Gas City of Hamilton arrangement. Both models are similar, however, FEI's model has benefits that would not be available under a strict gas wheeling contract model as further described in the response to BCUC IR 1.68.4. All customers under FEI's model benefit from a blended biomethane price, security of supply and avoidance of gas balancing issues. Union Gas' model was only implemented as a result of their biomethane application being withdrawn and is not a preferred model for developing RNG for FEI customers.

H. ALTERNATIVE SUPPLY MODELS

42.0 Reference: RENEWABLE PORTFOLIO STANDARD OR ALLOWANCE

Exhibit B-17, BCUC IR 1.36.1-2; BCUC IR 1.49.7; Exhibit B-14, BCSEA IR 1.27.1

In response to BCUC IR 1.49.7, FEI states:

> "FEI would support an approach similar to a renewable portfolio standard, subject to a few qualifying comments.
>
> First of all, FEI's preference is that the renewable portfolio component be optional rather than mandatory as RPSs are in some jurisdictions. Since the biomethane supply opportunities are limited relative to overall natural gas consumption, FEI believes having the option rather than the obligation to pursue biomethane supplies would facilitate securing more cost-effective supply overall. Adopting a name like "renewable portfolio allowance" would better capture the optionality that FEI believes is desirable.
>
> Secondly, <u>FEI would like to continue having the option to sell higher percentage blends or pure biomethane to customers that wish to contract for these.</u> At the current proposed cap of 3 PJs the total amount of emissions offsets would be in the range of 2 percent to 3 percent of emissions (see response to BCUC IR 1.53.5). FEI believes that a certain segment of customers may either have targets for GHG reductions (such as municipalities) or may wish to voluntarily purchase larger volumes of RNG to offset emissions at their homes or businesses. Those who have targets in excess of 2 percent to 3 percent would not be satisfied with a renewable portfolio allowance.
>
> Having the ability to charge some (or all) of biomethane costs to all ratepayers (or all ratepayers in particular rate classes) would eliminate the challenge of matching supply and demand and would have only a modest impact on all rates provided the renewable portfolio allowance is in line with FEIs current proposed cap of 3 PJs. By clearly identifying an economic threshold, and presumably a price, this approach would also help to define the maximum rate impact.
>
> The option to offer RNG or higher blends of RNG on a voluntary basis first would allow FEI to continue to meet the needs of customers who wish to be "greener" than the renewable portfolio requirement. The costs of any remaining biomethane would then be rolled into the rates of all ratepayers.22."

> Footnote22 continues: "It may not be appropriate to roll the biomethane costs into the rates of all ratepayers. For instance these costs could not be charged to customers on bypass rates. A determination would have to be made as to which customers and rate classes are the appropriate ones to charge the Biomethane costs to."

In response to BCSEA IR 1.27.1, FEI states:

> "FEI's goal is to be able to develop as much biomethane as feasible for delivery to its pipeline network and meet customer demand for renewable natural gas, provide the best use of a renewable resource and contribute to GHG reductions in BC. FEI believes this to be in the range of 3 to 5 PJs. FEI is currently limited by the existing program structure and the need to tie supply with demand.
>
> FEI believes the ideal way to structure the program would be to have a user-pay program backstopped by a renewable portfolio allowance as discussed in the response to BCUC IR 1.49.7, that would be similar to the MCRA proposal included in this Application. For example, FEI would be allowed to develop RNG for the user pay market and any unsold Biomethane would be absorbed by all customers if FEI is unable to sell through its existing channels at the BERC rate. This would allow FEI to fully pursue supply projects, without having to tie customer user-pay demand to projects. This serves customers that want to select a higher percentage blend of Biomethane and large industrial customers such as UBC, while at the same time maximizing the development of Biomethane and GHG emission reductions in BC."

FEI provides some additional discussion related to the RPA in BCUC IR 1.36.1-2 and BCSEA IR 1.27.1

42.1 Please compare and contrast the following RPS/RPA programme options for FEI's Biomethane programme:

42.1.1 A hybrid user-pays RPS/RPA model based on the current proposed supply cap, where FEI continues to promote a user-pays model across all market segments to extract maximum value, and where risks are back-stopped by the MCRA?

Response:

Moving to a RPS/RPA model whereby FEI would be allowed to develop RNG for the user pay market and any unsold Biomethane could be absorbed by the MCRA includes many advantages such as:

- The RPS/RPA model aspect of the hybrid model:
    - would allow FEI to fully pursue supply projects and maximize biomethane development.
    - would allow FEI to gain broader experience in managing supply project development and building up the resources and tools to manage supply / demand imbalances.
    - would allow FEI to more fully approach the supplier market and gain regulatory efficiency for projects.
    - would enable multiple projects to be developed that could serve both markets rather than tying specific projects to demand.

- The user-pay aspect of the hybrid model:
    - would allow voluntary customers to pay for higher blends of RNG;
    - would allow voluntary customers to meet their own needs to meet GHG reduction standards, policy or objectives;
    - would keep rate impacts to non-voluntary customers smaller as there would still be user-pay demand for higher blends of RNG.

- Under this model, all voluntary customers would benefit from
    - the diversity and reliability of supply.
    - the efficiency of the blended pool price;
    - the fact that supply and demand balancing can be managed together allowing for more reliable supply.

A hybrid model which differentiates between small and large users as suggested in the IR does not realize all of the benefits listed above. Under the model which differentiates between small and large users:

- FEI would be able to pursue biomethane supply within the RPA cap for smaller customers.
- However, FEI's ability to develop supply beyond the RPA cap would be constrained. Projects would have to be found to match particular demand from large customers. Matching supply and demand for larger customers would require matching of timing of supply, volume of supply, and reliability of supply. Other terms and conditions of supply and demand, including price, would have to be acceptable to all parties.
- It is foreseeable that supply projects would not be found to match demand for a number of reasons. The result could be that demand is not met and available supply is not

developed, such that the methane from biogas sources continues to enter the atmosphere and sources of RNG are wasted or developed in less efficient ways.

- The differentiation between small and large users under different caps takes away from the flexibility and efficiency of the program.
  - Larger customers would not have the benefit of pooled biomethane supply, i.e. the diversity and reliability of supply and the efficiency of the blended pool price.
  - Supply and demand balancing would have to be managed through separate processes and there would be higher risk to larger customers of inadequate supply or failure of supply.
- The differentiation between small and large customers would also prevent FEI from meeting customer demand and needs. Customer preferences with respect to biomethane purchases are not clearly divided between small and large customers, so the division proposed for this model in the question would leave some smaller customers unable to access higher percentages of biomethane supply and some larger customers unable to opt for percentages that are less than 100 percent biomethane.

The primary benefit of the second model which differentiates between small and large users is that the costs for the small users is spread evenly over the entire group and is fixed at the cost of supply for the 1.5 PJ cap. This is in contrast to the first hybrid model, where the cost risk is potentially higher (at a maximum supply cap of 3 PJ), but also less likely as it would only materialize if supply was developed beyond demand from voluntary customers and, in addition, if all other supply risk mitigation was not successful. In FEI's view, the first hybrid model is preferable as it allows more costs to be borne by customers that voluntarily choose to participate and overall has more advantages and benefits as described above.

In any case, FEI believes that its proposed model that it is requesting the continuation and expansion of is the best way for promoting renewable natural gas in support of the established user pay model as it contains many elements of the RPA type model and high volumes of supply can be backstopped by long term customer take or pay agreements. FEI has asked for the expansion into other rate classes and blends in order to continue to grow the user pay model and extract maximum value, as well as continuation of the current, approved cost allocation in order to keep Biomethane costs reasonable. If Biomethane costs end up being too high, program participation will be effected.

42.1.2 A hybrid model which differentiates between small and large users: small users (residential and commercial) are provided under a RPA type cap, with a reduced supply cap of approximately 1.5 PJs and all costs are rolled-in; and larger customers (such as BC PSO's) who require 100 percent Biomethane are secured by a matching of supply and demand and the use of long-term purchase agreements?

Response:

Please refer to the response to BCUC IR 2.42.1.1

In response to the possibility of any savings from introducing an RPA or RPS, FEI stated in response to BCUC IR 1.36.2.1:

> "It is difficult to quantify any cost savings at this time without knowing what the Renewable Portfolio Allowance would be. There could be some regulatory efficiency, customer education, billing and administration savings if there was not a customer offering to have to promote, bill or seek Commission approval of. But there could also be an increase in supply development, procurement, and O&M resource needs should the Renewable Portfolio Allowance be mandatory and contain aggressive targets in terms of timeline and volumes."

42.2 Assuming an RPS or RPA which is aligned with the current FEI targets in terms of timelines and volumes, what cost savings or increases might accrue to the program?

Response:

FEI would expect there would be regulatory efficiency savings associated with having an allowance that allowed the full pursuit of biomethane projects without review of customer demand uptake. Customer education, billing and administration savings would be dependent on whether there continues to be a user pay program. While FEI believes that a user-pay program adds value for customers and should continue, should a user pay program be discontinued, FEI expects that resources would be allocated more on the supply development side, rather than to customer promotion.

42.2.1 What customer education or awareness costs would be required under a full RPA/RPS scenario, with no user-pays option, where all costs are rolled in?

Response:

FEI expects there to be some continued awareness required under an RPA / RPS scenario, so customers can be informed in a more general way about what is happening with respect to biomethane. Messages would be around GHG benefits, effective use of bioenergy resources, biomethane safety, and other general issues; however, costs could be reduced from current budgets.

42.2.2 What customer education or awareness costs would be required under a hybrid RPA model, where FEI continues to promote a user-pays model to extract maximum value, but where risks are back-stopped by the MCRA?

Response:

FEI expects that customer education and awareness expenditures at current levels will still be required under a hybrid model in order to continue to attract and retain voluntary customers in the user pay stream of the hybrid program.

42.2.3 What customer education or awareness costs would be required under an alternative hybrid, where small users (residential and commercial) are provided under a RPA –type cap, and larger customers who require 100% Biomethane are secured by a matching of supply and demand and the use of long-term purchase agreements?

Response:

FEI expects that similar customer education and awareness budgets would be needed under the small user-RPA / large user–100 percent biomethane scenario as under the current user pay program Customers must still be made aware of the product, and the benefits of the product must be presented so that the customer can evaluate and move into the decision making process.

42.3 To the best of FEI's knowledge, is the Commission able to institute either an RPS, or the proposed Renewable Portfolio Allowance?

Response:

To clarify, FEI has not proposed a Renewable Portfolio Allowance. FEI believes a true Renewable Portfolio Standard or Allowance would have to be established by government through a regulation or other legislation.

However, FEI believes it is within the Commission's powers to approve a biomethane program that had a similar effect by using the Commission's existing processes. For example, the Commission could approve a 3 PJ supply cap, criteria for energy supply contracts within the cap, and the recovery of all the costs of this supply within the MCRA. This would allow for the efficient development and review and approval of supply up to the cap on terms acceptable to the Commission and recovery of all costs from all customers.

42.3.1 If yes, please describe the process FEI would recommend to institute such an RPS or RPA.

Response:

Please refer to the response to BCUC IR 2.42.3.

42.3.2 If not, please confirm what the process for implementing an RPS or RPA in BC might look like. In this situation, what is the Commission able to rule on?

Response:

Please refer to the response to BCUC IR 2.42.3 for discussion of what the Commission is able to rule on in this application.

The introduction of RPS/RPA would likely be initiated by provincial legislation to apply to utilities in the province. A regulation under section 18 of the Clean Energy Act is one possible approach to establishing an RPS/RPA, but other legislative approaches are also possible. Any implications for the Commission's oversight of utilities affected by an RPS/RPA would depend on the specific nature of the legislation.

I. RISK MITIGATION

43.0 Reference: RISK MITIGATION

Exhibit A2-18, Tab 4, Page 1 and Page 2; 2010 Biomethane Proceeding, Exhibit B-10, BCUC IR 2.29.4

In the 2010 Biomethane Application Proceeding, in BCUC IR 2.29.4 FEI was asked to quantify the amount that would be added to the BVA in a particular scenario. In response to BCUC IR 2.29.4, FEI states:

"The BVA deficit balance of $673.2 K (after tax) at December 31, 2011 is before accounting for the volume of unsold green attributes of 101,593 GJ. At the recovery rate in effect during 2010 and 2011, the unsold green attributes have a recovery value of $1,006.2 K. TGI would not expect to carry a volume surplus of this magnitude and would sell excess Biomethane supply via Rate Schedule 30 off-system sales or Rate Schedule 11B on-system sales."

According to the 2013 Second Quarter Gas Cost Report, Tab 4, Page 2, the Biomethane Variance Account deferral account balance is forecast to be a deficit balance of $834,000 (after tax) before accounting for the volume of unsold green attributes of 95,100 GJ at December 31, 2013 and a deficit balance of $1,381,000 (after tax) before accounting for the volume of unsold green attributes of 157,400 GJ at December 31, 2014. (Exhibit A2-18)

43.1 Given the current and projected balances in the BVA and given FEI, in its 2010 Biomethane Application, did "not expect to carry a volume surplus of this magnitude and would sell excess Biomethane supply via Rate Schedule 30 off-system sales or Rate Schedule 11B on-system sales," how critical does FEI believe it is to ensure additional sales under Rate Schedule 11B and Rate Schedule 30 other than those currently forecast are achieved as soon as possible? Please elaborate.

Response:

FEI does not believe it is critical at this time to sell biomethane from its inventory, as currently FEI has only one project injecting at full capacity into its system. FEI believes the inventory levels at this current time are manageable given the annualized demand of 80,000 GJ and an inventory level of similar magnitude. Closer to the end of 2013, FEI could possibly move forward with a transaction for selling surplus biomethane should its additional supply source be in full production and demand has not started to deplete current levels. However, as indicated in the Application in the LOI from Wespac, Wespac is interested in purchasing large amounts of biomethane in excess of current inventory amounts at the BERC rate. In addition, FEI has received a proposal for an offsystem sale where this surplus inventory could be sold to Element Markets, a producer and marketer of renewable natural gas and environmental commodities in the U.S, in order to serve their customers' voluntary requirements. Element Markets' proposal is for a premium over conventional natural gas prices and would consume all of FEI's inventory this year. FEI will continue to assess and monitor supply and demand and review additional measures to secure the most value for the product should there be a need to secure additional sales through Rate Schedule 11B or Rate Schedule 30.

44.0 Reference: RISK MITIGATION

Exhibit B-15, CEC IR 1.27.2

Exhibit B-17, BCUC IR 1.70.2

Over-Supply Risk

"While there is no strict time limit on the inventory in the BVA, FEI would generally consider the volume of unsold Biomethane to be unmanageable when FEI has large volumes of unsold Biomethane for a period of time in its current portfolio with no large volume buyer commitments in the near term. By looking at certain industry timeline standards as explained in the response to BCUC IR 1.64.1, FEI currently believes holding a cumulative inventory in excess of 250,000 GJ for a consecutive 24-month period would be considered unmanageable.

In the event FEI determines it has unmanageable inventory of Biomethane that it is unable to sell through any channels at the BERC rate, FEI would first seek to sell the Biomethane through Rate Schedule 30 at a price lower than the BERC, but higher than the cost of conventional natural gas. This would mitigate the loss on the sale of Biomethane. Any loss on the sale (i.e. the difference between the sale price and the BERC) would be reflected in the BVA." (Exhibit B-17, BCUC IR 1.70.2)

"For example, based on the current BERC rate of $11.696/GJ, if 100 TJ of unsold Biomethane was transferred to the MCRA, the impact to the midstream rate for a Lower Mainland Rate Schedule 3

commercial customer would be approximately $0.003/GJ or 0.04% of the average annual bill. This is based on the midstream having to sell the Biomethane at the same value as conventional natural gas (i.e. maximum discount / loss scenario) and this loss in value being captured in the MCRA deferral account and amortized over three years via the MCRA rate rider. The annual bill impact for a typical Lower Mainland commercial customer can be found in Table 1, below. This is considered an extreme worst case scenario."

Table 1: Annual Bill Impacts for Typical Lower Mainland Customers (1)

	Rate 1	Rate 2	Rate 3	Rate 4	Rate 5	Rate 6	Rate 7
Average Annual Consumption (GJ)	95	300	2,800	5,400	9,700	2,900	8,100
Average Annual Bill $ / Year	889	2,446	19,594	28,488	62,637	22,206	50,266
Impact on Midstream $/GJ (A)	0.0033	0.0033	0.0026	0.0019	0.0019	0.0010	0.0019
Annual Impact $ / Year (A)	0.29	0.90	8.40	10.80	19.40	2.90	16.20
Annual Impact % / Year	0.03%	0.04%	0.04%	0.04%	0.03%	0.01%	0.03%

(Exhibit B-15, CEC 1.27.2)

44.1 Please provide a table, similar to the Table provided in response to CEC IR 1.27.2, showing the impact of transferring 250,000 GJ of unsold biomethane assuming a BERC rate equal to that applied for.

Response:

The following table shows the impact of transferring 250 TJ of unsold Biomethane to the MCRA. The table demonstrates that the expected rate impact of any recovery through the MCRA would be minimal. For example, based on the proposed BERC rate of $12.001/GJ, if 250 TJ of unsold Biomethane was transferred to the MCRA, the impact to the midstream rate for a Lower Mainland Rate Schedule 3 commercial customer would be approximately $0.007/GJ or 0.10 percent of the average annual bill. This is considered an extreme worst case scenario.

Table 1: Annual Bill Impacts for Typical Lower Mainland Customers (1)

	Rate 1	Rate 2	Rate 3	Rate 4	Rate 5	Rate 6	Rate 7
Average Annual Consumption (GJ)	95	300	2,800	5,400	9,700	2,900	8,100
Average Annual Bill $ / Year	889	2,446	19,594	28,488	62,637	22,206	50,266
Impact on Midstream $/GJ (A)	0.0086	0.0085	0.0067	0.0051	0.0051	0.0026	0.0051
Annual Impact $ / Year (A)	0.86	2.70	19.60	27.00	48.50	8.70	40.50
Annual Impact % / Year	0.10%	0.11%	0.10%	0.09%	0.08%	0.04%	0.08%

Notes:

(1) Table 1 provides the impacts of the loss associated with 250 TJ of unsold Biomethane being absorbed in the MCRA. The value of the loss, in this case approx. $2,081 thousand, has been calculated based on the difference between the proposed BERC rate (2012 Q4 Gas Cost Report) and the weighted average market price of natural gas for July 2013 – June 2014 period based on the 5-day average forward prices of May 15, 16, 17, 20, and 21, 2013, as filed in the FEI 2013 Second Quarter Gas Cost Report. The calculated loss also excludes the current value of Carbon Tax offsets of approx. $1.50 per GJ. For comparability the average annual bill amounts are based on the rates effective January 1, 2013 and Rider 6 has been amortized over three years, consistent with how the bill impacts in the response to CEC IR 1.27.2 were calculated. While noting that effective July 1, 2013 FEI delivery and commodity rates change and, as filed in the FEI Performance Based Ratemaking Revenue Requirement Application (2014-2018) to comply with US GAAP, the Rider 6 amortization period will be changed from three to two years for setting 2014 rates.

(A) Midstream riders have been calculated and shown to 4 decimals for purposes of this table; variable per GJ charges in tariff rate schedules are set at 3 decimals. Annual bill impacts, in dollars, are rounded and shown to 2 decimals.

44.2 Would FEI submit that the cost to non-biomethane customers, of effectively backstopping FEI's biomethane program in the event that the projected demand for biomethane does not materialize is acceptable in view of the environmental benefits that such a program has the potential to deliver to all customers?

Response:

Yes, FEI is undertaking the Biomethane program in support of the BC energy objectives and other government policy. The RNG program is also an example of an activity that customers expect the Company to be doing to support the environment and to be a good corporate citizen. As FEI will be taking all reasonable steps to develop the supply to meet customer demand and utilize the risk mitigation tools necessary to sell any surplus supply should the demand not materialize, it is FEI's view that these costs will be prudently incurred, and given the environmental benefits for all customers, it is reasonable that all customers would "backstop" the biomethane program.

45.0 Reference: Call for Biomethane Energy

Exhibit B-17, BCUC IR 1.55.1.1

Question 1.55.5.1.1: "What are the advantages of utilizing an Independent Evaluator?"

Response: "FEI is not convinced that there are any significant advantages to utilizing an Independent Evaluator. Please refer to the response to BCUC IR 1.55.5.1.2 for the disadvantages."

In a May 16, 2013, news release titled "FortisBC launches incentive program for heavy-duty natural gas vehicles," it states:

> "FortisBC is intending to begin accepting applications in early June. All applications will be evaluated in a competitive process measured against defined program criteria. <u>This process and the incentive awards will be reviewed by a third party fairness advisor</u>. It is expected that program demand will exceed available funding. Successful applicants will be announced publicly with disclosure of project details and amount of funding awarded. Full program details and updates are available at fortisbc.com/ngt." [Emphasis added.]

http://www.fortisbc.com/MediaCentre/NewsReleases/2012/Pages/FortisBC-launches-incentive-program-for-heavy-duty-natural-gas-vehicles.aspx

45.1 Please elaborate on the role, objectives, and purpose of the "third party fairness advisor" for the vehicle incentive program.

<u>Response</u>

Comparing the role and purpose of a third party fairness advisor for the natural gas for transportation incentive program with an independent evaluator for the Biomethane call is not the right analogy as these are two different programs serving different purposes. A third party fairness advisor makes sense for a program such as the Natural gas for transportation incentive program where an entity has been authorized to distribute a substantial amount of funds (up to $60 million) to incent eligible operators through an open and competitive process to move from diesel to Natural Gas. An independent evaluator makes sense where there is a need to compare a large number of projects at the same time through a competitive process and ensure fairness. In the incentive program, there is a start and end date for the process in that particular year and applicants are expected to be awarded.

In the biomethane program, the process is more complicated, with individual projects coming online at different times. In addition the project specifics and items to be negotiated vary from project to project. This makes it much more difficult for a fairness advisor to provide a valuable contribution to the process. The process for choosing Biomethane projects is not competitive as the projects come in at different times and are evaluated against program criteria. Further, FEI does not expect to reject any eligible supplier in order to meet the projected demand (which is expected to be in excess of available supply) negating the need for any fairness evaluation. Please refer to BCUC IR1 55.5.1.2 for additional reasons why an independent evaluator does not make sense.

With respect to the role of the fairness advisor in the awarding of vehicle incentives, the role is to oversee the natural gas for transportation incentive funding process and ensure that the evaluation process and the provision of funds is conducted in a fair and objective manner. The fairness advisor is an independent consultant who will facilitate the evaluation of all applicants, and will substantiate that the process has been carried out diligently, impartially and in a non-discriminatory fashion. The appointment of the fairness advisor will also serve to eliminate any potential or perceived bias from the process, and will ensure that the process has been carried out in a fair, open and transparent manner.

The duties of the fairness advisor include, but are not limited to:

a) Advising the FortisBC team on matters of fairness

b) Being available to answer queries related to fairness

c) Providing formal written reports at specific points during the competitive selection process

d) Observing and monitoring communications and responses undertaken during the competitive selection process

e) Observing and monitoring collaborative discussions and meetings

f) Observing and monitoring the FortisBC request for proposal evaluation process

g) Observing and monitoring relevant meetings where proponent comparisons are made and the criteria, weighting and rating systems are applied.

The main advantage of having a third party fairness advisor is to have an unbiased third party opinion on matters of fairness to ensure that the awards are distributed in an open and fair manner through the competitive process.

45.2 What are the specific responsibilities of the "third party fairness advisor"?

Response:

Please refer to the response to BCUC IR 2.45.1.

45.3 What are the advantages of utilizing the "third party fairness advisor"?

Response:

Please refer to the response to BCUC IR 2.45.1.

46.0 Reference: RISK MITIGATION: MANDATORY RPS IN OTHER JURISDICTIONS

Exhibit B-17, BCUC IR 1.47.2

RPS as a driver of demand outside of BC

On Page 113 of the Application, FEI states:

> "Second, the Company could sell the gas to third parties through an off-system transaction. The emergence of mandatory renewable power portfolios has caused electric utilities across North America to seek out Biomethane supply for their natural gas fired power production. The LOI received from Wespac for up to 1,500,000 GJ of Biomethane is a result of this policy. Such a sale would be done through FEI Rate Schedule 30, which sets out the terms and conditions for gas sold on the spot market that is notionally Biomethane."

In response to BCUC IR 1.47.3 FEI state that:

> "Based on the information available, FEI believes there are several jurisdictions where off-system sales would work such as: <u>Maine, Texas, New York and Hawaii....</u>
>
> States that have REC pricing and flexibility in their RPS programs will allow utilities to buy Biomethane for their existing infrastructure or will accept Biomethane into an RPS jurisdiction.
>
> ...
>
> Over the past few years, RNG producers have sold their pipeline distributed RNG to California utilities at long-term fixed prices. However, recent policy changes do not allow for out of state biomethane in California. This policy is currently being challenged by biogas stakeholders."

46.1 Please confirm that these states (Maine etc) would accept off-system sales from a non US source, such as BC, and provide supporting documentation.

<u>Response:</u>

Biomethane from a non US source, such as BC has not been sold into any of these jurisdictions as of yet to meet an RPS standard. Up until March of 2012, off-system biomethane sales from BC would have been accepted into California to meet their RPS requirements. For jurisdictions that have RPS standards, a specific petition would have to be filed for acceptance of FEI's biomethane and would only be worthwhile if there were very large volumes of biomethane being considered.

FEI recently engaged Element Markets, a leading producer and marketer of renewable natural gas and environmental commodities in the U.S., to provide input and feedback on additional off-system sales markets. FEI and Element Markets are in the process of defining the logistics, measurement and verification requirements in order to sell surplus biomethane into US markets. Based on the information to date, it appears that FEI would be able to meet the requirements for voluntary markets. Other compliance markets such as RINS and RECs and RPS would require extra costs and process and is currently being reviewed.

Additionally, Element Markets has indicated a desire to purchase FEI's inventory and act as a sump account for any unsold biomethane at a premium to conventional natural gas prices for their own customer base. Their intended markets would be these markets in the US:

1) Voluntary customers (such as municipalities and corporate clients)
2) The development of RINS for the Federal Low Carbon Fuel Standard
3) RPS

Element Markets indicated that the best markets would be voluntary markets and there is a large potential from their client list for this gas and the RINS market previously identified by FEI.

Further, discussions to date with officials have indicated that Hawaii would accept BC biomethane for their project purposes in order to meet their clean energy targets. Under Hawaii's Renewable Portfolio Standard (RPS), each electric utility company that sells electricity for consumption in Hawaii must establish the following percentages of "renewable electrical energy" sales:

- 10% of its net electricity sales by December 31, 2010;
- 15% of its net electricity sales by December 31, 2015;
- 25% of its net electricity sales by December 31, 2020; and
- 40% of its net electricity sales by December 31, 2030.

"Renewable electrical energy" includes "Electrical energy generated using renewable energy as the source". "Renewable energy" includes "biogas, including landfill and sewage-based digester gas". Prior to January 1, 2015, at least 50 percent of the RPS must be met with electricity generated using renewables. Beginning January 1, 2015, the RPS must be entirely met by electricity generated using renewables.

FEI states in BCUC 1.47.3.2 that:

> "Of all the state-based RPS programs in place today, no two are the same. Each has been designed taking into account state-specific policy objectives (e.g. economic growth, diversity of energy supply, environmental concerns), local resource endowment, political considerations, and the capacity to expand renewable energy production.
>
> For example, Washington's RPS allows for renewable energy for generation to be delivered from projects out of state. The facility must be located in the Pacific Northwest or the electricity from the facility must be delivered into Washington State on a real-time basis. <u>"Pacific Northwest" in this case does not include BC.</u> That leaves Renewable Energy Credit (RCS), Low Carbon Fuel Standard (LCFS), Renewable Identification Numbers (RINS) or other "financial" trade of the environmental attributes as the likely mechanism for the majority of out of state purchases. Therefore, there is an added layer of complexity and difficulty in securing contracts.
>
> <u>REC jurisdictions follow a quantification and verification process similar to carbon offsets.</u> In states with a renewable portfolio standard, the purchase of a REC enables the utility company to meet its minimum renewable electricity percentage without having to install that renewable generating capacity itself, regardless of the source of generating renewable energy." [emphasis added]

46.2 Please provide additional information on the current certification requirements which would enable the notional Biomethane to be sold into jurisdictions such as Maine, Texas, New York or Hawaii.

<u>Response:</u>

Please refer to the response to BCUC IR 2.46.1.

46.2.1 What steps is FEI currently taking to ensure that the supply of biomethane is able to meet the requirements of these programs, as a risk mitigation measure?

<u>Response:</u>

Please refer to the response to BCUC IR 2.46.1.

46.3 What is FEI doing to ensure that they are able to register, verify, track and retire these attributes, to enable the future sale of these attributes both within BC, or to other jurisdictions for compliance purposes? Please elaborate.

Response:

Please refer to the response to BCUC IR 2.46.1.

47.0 Reference: RISK MITIGATION AND CARBON OFFSETS

Exhibit B-14, BCSEA IR 1.18.4

In response to a BCSEA request to provide an update and discussion on the potential for the Biomethane Program to create GHG reductions that could be marketed as credits or carbon offsets, FEI stated in BCSEA IR 1.18.4:

> "FEI does not have any plans at this time to create carbon offsets from the Biomethane program. The supply contracts have divided the ownership over the environmental attributes between methane capture and the displacement of fossil fuel natural gas. In the case of FEI‟s user-pay program, the environmental attributes are transferred through to the end user as a result of the premium they are paying for Biomethane. Suppliers on the other hand may monetize their credits should a project be economical to proceed as an offset project and FEI would have right of first refusal of these offsets." [emphasis added]

47.1 Please confirm that FEI does not have plans currently to generate carbon offsets from the Biomethane program as a risk mitigation option in the event of an over-supply of RNG.

Response:

FEI has not considered creating offsets from the Biomethane program as a risk mitigation option; however, should this prove a more economical solution than to sell on or offsystem, this could be another risk mitigation mechanism.

48.0 Reference: RISK MITIGATION

Exhibit B-17, BCUC IR 1.47.1; Exhibit B-14, BCSEA IR 1.20.9 IR 1.29.4

WesPac

In response to BCUC IR 1.47.1, FEI states in:

> "If the UBC or other volumes do not materialize, and FEI is facing an oversupply of biomethane, FEI expects to be able to sell RNG to Wespac in order reduce its volume of biomethane inventory."

BCSEA asked FEI to describe in more detail the export arrangements for WesPac. In response to BCSEA IR 1.20.9, FEI states:

> "WesPac has indicated a desire to purchase renewable natural gas as LNG and pick it up FOB at Tilbury. They would then transport it to regional American markets where it would be used to generate electricity. The RNG portion may qualify towards the markets' RPS standards for electricity generation."

BCSEA IR 1.29.4 asked for further detail on how the WesPac agreement would mitigate an oversupply of Biomethane:

> "WesPac has provided FEI with an LOI indicating they are interested in procuring large amounts of biomethane. Their potential markets could take even more than they have indicated; therefore, FEI sees this as another assurance that there is a market to sell biomethane. WesPac's business plans are not contingent on FEI providing biomethane. Rather, FEI's provision of biomethane would be an added bonus to their business plans as a way for their natural gas electricity generation to contribute to customers' RPS requirements.
>
> At this time, WesPac and FEI have not entered into any firm agreements for the sale of biomethane on an ongoing or interruptible basis."

48.1 Please provide additional details about WesPac the company, including their "green" electrical generation activities to date; if they have purchased Biomethane for electrical generation before; their current business plans with regard to natural gas electricity generation; what other renewable energy projects they have been involved in to date; and any other information FEI believes may be relevant.

Response:

WesPac Energy Group ("WesPac") develops, constructs, owns, and operates energy infrastructure throughout North America. WesPac is based in Irvine, CA and was formed in 1998 originally to focus on jet fuel systems and customers, and now has a development an arm actively pursuing LNG infrastructure projects, including one in British Columbia. WesPac is partially owned by Primoris Services Corporation, a NASDAQ company trading under the symbol "PRIM". WesPac previously developed three airport pipeline and terminal projects, which are now owned by Buckeye Partners, L.P., and Buckeye subsidiary companies are now the operator of those projects. Since 2009, WesPac has developed or executed several additional projects in North America and Central America (Costa Rica).

As indicated in BCUC IR 1.47.3.1, Wespac is working at developing markets to supply fuel to electricity generators in US states, where biomethane would be recognized under certain jurisdictions' Renewable Portfolio Standard (RPS). In particular, the State of Hawaii has great interest in renewable natural gas, and WesPac believes FEI's RNG would be RPS-eligible. This service offering would be an extension of WesPac's current core business in providing energy infrastructure. WesPac has not been a purchaser of RNG in the past. WesPac's business plans are otherwise in process and confidential, therefore FEI does not have any further details regarding WesPac's involvement in fuel supply for green electrical generation.

Public information regarding some of WesPac's other infrastructure projects in operation or development is summarized here below:

1. Pittsburg, CA (San Francisco Bay)
   - The Pittsburg Energy Infrastructure Project is a proposed modernization and reactivation of the existing marine terminal, oil storage and transfer facilities at the GenOn Pittsburg Generating Station.

2. Los Angeles, CA
   - The WesPac Smart Energy Transport System (S.E.T.S) is a proposed state-of-the-art underground pipeline for transporting fuel for aircraft at Los Angeles International Airport (LAX) and other airports in the southwestern U.S. from off-site fuel storage facilities.

3. San Diego, CA
   - An operating jet fuel pipeline through downtown San Diego to replace 130 truck trips per day

4. Memphis, TN
    - An operating 30 miles of pipeline, storage terminal, three hydrant pumping systems, and three connection pipelines

5. Reno, NV
    - An operating pipeline through urban areas to airport / major supply security and safety increase

In summary, WesPac is a sophisticated player in the energy market, developing end to end supply solutions for their customers, and capable of taking FEI's biomethane to the volumes as indicated in their LOI.

48.1.1 If they have purchased Biomethane for RPS compliance before, was this Biomethane purchased in or out of state relative to the site of electrical generation? If so, please provide details of the relevant state, and confirmation that they accept, or plan to accept Biomethane from BC for compliance purposes.

Response:

Please refer to the response to BCUC IR 2.48.1.

49.0 Reference: RISK MITIGATION, OFFSYSTEM SALES AND THE LOW CARBON FUEL STANDARDS

Exhibit B-17, BCUC IR 1.65.1; BCUC IR 1.47.3; Exhibit B-14, BCSEA IR 1.20.10

With regard to risk mitigation opportunities, page 113 of Exhibit B-1 states:

> "Second, the Company could sell the gas to third parties through an off-system transaction. …In addition, the US and Canadian markets have Low Carbon Fuel Standards established or in progress whereby renewable energy credits could be sold."

In response to BCUC IR 1.47.3 FEI states that:

> "Other off-system markets include the California Low Carbon Fuel Standard or the US Renewable Fuel Standard 2 where biomethane can be sold as credits in order to meet vehicle fuel targets."

In response to BCUC IR 1.65.1, FEI states:

> <u>"At this time, the potential for off-system sales of low carbon compliance credits from Biomethane is limited to the US.</u> In Canada, FEI is aware of Canadian and British Columbian legislation which may impact FEI's low carbon fuels initiatives. ...
>
> ***Federal Renewable Fuel Regulation (FRFR)***
>
> Although FEI is not actively engaged in the FRFR, it appears that "renewable fuels" are limited to fuels in a liquid state. Thus, natural gas in any form is not currently recognized.
>
> ...This means FEI cannot generate compliance units from the sale of CNG, LNG or biogas under this Regulation. FEI is not aware of any protocols in development under the FRFR.
>
> ***BC Renewable and Low Carbon Fuel Requirement Regulation (LCFRR)***
>
> The LCFRR does not recognize Biomethane (or any low carbon fuels) for off-system sales or export purposes. The intent of the LCFRR is to lower the carbon intensity of fuels manufactured, imported and sold within BC, thus sales outside of the Province are not recognized. Therefore, <u>the LCFRR is not a source for</u>

FEI to sell off-system biomethane at this time. Please refer to BCUC IR 1.65.2.2 for additional information." [emphasis added]

49.1 Please clarify the response to BCUC IR 1.65.1 regarding sales of low carbon fuel compliance credits from BC sources into US markets. If there are US compliance markets that FEI could sell into currently, please provide supporting details of which US markets would accept BC based compliance units.

Response:

FEI is aware of two US compliance markets that could accept BC-based compliance units at this time. As stated in the response to BCUC IR 1.47.3, these include California's Low Carbon Fuel Standard (CA-LCFS) and the US Renewable Fuel Standard 2 (US-RFS). Other US markets may exist, but FEI has not yet explored alternatives beyond the CA-LCFS and US-RFS. Further details on the CA-LCFS have been provided below.

Under CA-LCFS, regulated fuel suppliers and importers can use various mechanisms to meet their Californian compliance targets.[2] One such mechanism is to purchase out-of-state feedstock. For example, the purchase of North American landfill gas (Biomethane) that is upgraded to pipeline quality, transported, and then compressed in California.

The following Biomethane fuels are presented recognized under the CA-LCFS:[3]

Fuel	*Pathway Identifier*	*Pathway Description*	*Carbon Intensity Values*		
			Direct Emissions	*Land Use or Other Indirect Effect*	*Total*
Compressed Natural Gas	CNG003	Landfill gas (bio-methane) cleaned up to pipeline quality NG; compressed in CA	11.26	0	11.26
	CNG004	Dairy Digester Biogas to CNG	13.45	0	13.45
Liquefied Natural Gas	LNG006	Landfill gas (bio-methane) to LNG liquefied in CA using liquefaction with 80% efficiency	26.31	0	26.31
	LNG007	Landfill gas (bio-methane) to LNG liquefied in CA using liquefaction with 90% efficiency	15.56	0	15.56
	LNG008	Dairy Digester Biogas to LNG liquefied in CA using liquefaction with 80% efficiency	28.53	0	28.53
	LNG009	Dairy Digester Biogas to LNG liquefied in CA using liquefaction with 90% efficiency	17.78	0	17.78

[2] General information available at: http://www.arb.ca.gov/fuels/lcfs/lcfs.htm

[3] Data modified from the following table: http://www.arb.ca.gov/fuels/lcfs/lu_tables_11282012.pdf

Of the fuels listed in the table above, CNG003 (landfill gas) and CNG004 (dairy digester biogas) are eligible for import from BC. The CA-LCFS definition of Biogas LNG (LNG006 – LNG009) states that liquefaction must occur within California to be eligible for compliance credits.

FEI has not actively been involved in protocol development or credit trading under the CA-LCFS or US-RFS to date. FEI resources have primarily been focused on developments within the BC market and the LCFRR. However, under these markets, if there is a pathway for biomethane sales to the transportation market, then compliance units can be generated.

49.2 Please confirm that there is no current Canadian (non-BC) low carbon fuel mechanism which provides an off-system NGT market for Biomethane at this time.

Response:

Confirmed.

In response to BCUC IR 1.65.2.1, FEI states:

> "The LCFRR, which comes into force on July 1, 2013, presently recognizes CNG and LNG but does not yet recognize Biomethane CNG or Biomethane LNG. The integration of these fuels into the LCFRR is complicated by the current definition of fuel supplier related to natural gas under the Regulation. Fuel supplier refers to someone who manufactures or imports, then sells or uses fuel in BC.
>
> The current legislation does not define "manufacture" for natural gas. Arguably there are a number of stages which could be considered the point of manufacture, which determines the ownership of low carbon compliance credits for CNG, LNG, Biomethane CNG and Biomethane LNG.

> In August 2012 the Ministry sought input from various stakeholders on this issue. FEI provided input during this period. <u>The Ministry has not yet announced an amendment or specific plans moving forward.</u>" [emphasis added]

In response to BCUC IR 1.65.2.2, FEI states:

> "No, the Province's LCFRR does not apply to the exporting of fuels (low carbon or otherwise) under the Renewable and Low Carbon Fuel Requirements Act. As a Part 3 Fuel Supplier, FEI is subject to the following exclusions under the Regulation:24
>
> *6.1 (1) The definition of "supply" in section 1 of the Act does not apply in relation to a Part 3 fuel in the following circumstances:*
>
> *(a) the Part 3 fuel supplier, at the time of sale, reasonably expects that the Part 3 fuel will be exported from British Columbia;*
>
> <u>The intent of the LCFRR is to lower the carbon intensity of fuels manufactured, imported and sold within BC, thus sales outside of the Province are excluded from this regulation.</u>
>
> <u>However FEI may still be able to pursue compliance credit sales within BC.</u> CNG and LNG are presently recognized as low carbon fuels under the LCFRR. FEI can potentially sell compliance units to fuel suppliers facing compliance penalties within BC. Biomethane is not presently recognized under the LCFRR, but if added in the future it could represent an additional mitigating measure." [emphasis added]

49.3 Please confirm that while not possible at the current time, future potential NGT Biomethane sales appear most likely to be restricted to the BC market, particularly given the intent of the LCFRR to reduce the carbon intensity of vehicle fuels within BC If not, please discuss.

<u>Response:</u>

There are currently no restrictions in the BC LCFRR that would prevent FEI from selling surplus biomethane off-system. However, FEI would likely try and sell these as credits to local BC producers if there was a market in BC / Canada to do so.

50.0 Reference: RISK MITIGATION AND THE SALE OF ENVIRONMENTAL ATTRIBUTES OUTSIDE OF BC

Exhibit B-1, p. 114; Exhibit B-17, BCUC IR 1.65.2.2

On page 112 of the Application, FEI states:

> "Third, FEI can sell the gas to on-system customers through Rate Schedule 11B. FEI had 3 customers purchase RNG for their own use over the last 2 years totaling over 10,000 GJ in annual demand. Rate Schedule 11B allows gas sales to on-system transport customers who are currently paying for their gas deliveries through a transportation tariff with FEI. Gas marketers wanting to purchase RNG as part of their portfolio could also purchase Biomethane through this Rate Schedule. <u>FEI believes this is a preferred mechanism for bulk sales as it keeps the Biomethane within FEI's service territory and the greenhouse gas benefits within the Province of BC.</u>" [emphasis added]

In response to BCUC IR 1.65.2.2, FEI states:

> "The intent of the LCFRR is to lower the carbon intensity of fuels manufactured, imported and sold within BC, thus sales outside of the Province are excluded from this regulation."

50.1 Has FEI discussed the potential sale of unbundled environmental attributes associated with Biomethane outside of BC with the relevant BC Ministries and the BC Climate Action Secretariat? If so, please confirm that the BC Government is satisfied that the associated environmental attributes, namely emissions reductions, are surplus to the needs of BC, and that BC is on track to meet its emissions reductions targets as specified in the Clean Energy Act. Provide supporting evidence where possible.

<u>Response:</u>

No, FEI has not discussed the potential sale of unbundled environmental attributes associated with Biomethane outside of BC with relevant BC Ministries. Rather, discussions to date have been around how best to support the development and sale of RNG within BC and its use by BC residents and businesses, PSOs and municipalities. FEI views off-system sales of boimethane or sales of the environmental attributes outside of BC as lower priority options that would only be pursued if there were no available means to keep these benefits within the province.

51.0 Reference: RISK MITIGATION

2010 Biomethane Application, Exhibit B-10, BCUC IR 2.20.1.1; Term Sheet appended to Commission Order G-163-11

Impact on GSMIP

In the 2012 Biomethane Application proceeding, in BCUC IR 2.20.1.1, Terasen Gas Inc. (FEI) was asked

"Since the biomethne (sic) gas supply is treated as interruptible supply and seasonal gas would remain at essentially at the same levels without biomethane being introduced to the system, does the additional biomethane supply create additional off-systems sales that works in favour of the Terasen Gas incentive through the Gas Supply Mitigation Incentive Program formula?"

In response, FEI stated:

"Initially, Terasen Gas expects that the Biomethane gas supply will create additional off-systems sales of natural gas. As outlined in the Application, Terasen Gas Midstream will manage the incremental Biomethane supply volumes by shedding seasonal supply or by increasing offsystem sales of natural gas. During the initial stages of the program Biomethane supply volumes are expected to be minimal and will not materially alter the Company's operations in terms of contracting levels or off-system sales volumes.

As with all off-system sales of natural gas, these incremental off-system sales of natural gas created by the Biomethane supply will also be included in the Gas Supply Mitigation Incentive Program formula. This is appropriate because Terasen Gas will still be required to manage these incremental supply volumes in the best manner possible on behalf of Core customers. It is important to note that, although the insignificant level of natural gas off-system sales created by Biomethane supply volumes will be considered part of commodity re-sales for GSMIP purposes, the Hurdle Discount mechanism effectively normalizes commodity re-sales by offsetting the impact of the differences in customer load due to weather or other factors. The higher the re-sale volume, the lower the Hurdle Discount, this thereby increases the benchmark to which the re-sale price is compared in determining the Total Eligible Margin in GSMIP. The Hurdle Discount ultimately ensures that the Company does not realize any windfall gains from higher volume of re-sales regardless of whether this higher volume results from weather, or any other supply factors such as the Biomethane supply." (2010 Biomethane Application, Exhibit B-10, BCUC IR 2.20.1.1)

51.1 Please confirm that, although the quantities may be small, the impact of bringing biomethane gas supply onto the FEI system has the effect of reducing the load requirement for purchasing supply contracted under FEI's annual contracting plan by an equivalent amount. If not confirmed, please explain.

Response:

At this point in time, due to the relatively small volumes of biomethane supply, the impact of bringing biomethane gas supply onto the FEI system has not had the effect of reducing the load requirement for purchasing supply contracted under FEI's Annual Contracting Plan (ACP).

Currently, the impact of bringing biomethane onto FEI's system results in a reduction of spot gas purchases during those periods when spot gas is required. For example, this may occur during winter or shoulder months when FEI may purchase spot supply to meet core loads. During the summer months, when spot gas purchases are not typically needed, biomethane supply would result in incremental off-system sales. It is only once the biomethane supply volumes become material and at least a portion of the supply deemed reliable that FEI would reduce seasonal or baseload supply requirements as set out in its ACP.

At this time, however, the excess Biomethane volumes are not material or reliable enough to warrant any changes to ACP supply volumes. Nor do they represent a material amount in terms of off-system commodity resales.

Please also refer to the response to BCUC IR 2.4.2.4.

51.2 Please confirm that as stated above by FEI in the 2010 Biomethane Application, biomethane gas supply will create additional off-system sales of gas and as with all off-system sales of natural gas these volumes will be included in the Gas Supply Mitigation Incentive Plan (GSMIP) formula.

Response:

As stated by FEI in the 2010 Biomethane Application, biomethane gas supply can create additional off-system sales of gas and as with all off-system sales of natural gas these volumes will be included in the Gas Supply Mitigation Incentive Plan (GSMIP) formula. As discussed in the response to BCUC IR 2.51.1, biomethane gas supply can create additional off-system sales when spot purchases are not reduced by an equal amount. However, the additional off-system sales of gas resulting from Biomethane are not significant at this time. At some point in the future, when the Biomethane supply becomes material in terms of the Annual Contracting Plan (ACP) portfolio and reliable in terms of daily volume consistency, then FEI would consider reducing seasonal or other supply within the ACP. This would then have the effect of reducing any additional off-system sales from Biomethane supply.

51.3 Please confirm that the GSMIP model was modified under Commission Order G-163-11 and a new GSMIP model was approved as described in the Term Sheet appended to Order G-163-11.

Response:

Confirmed. Please also refer to the responses to BCUC IRs 2.51.1 and 2.51.2.

51.4 Please confirm that the new GSMIP model no longer uses the Hurdle Discount mechanism to normalize commodity re-sales by offsetting the impact of the differences in customer load due to weather or other factors and that all off-systems sales now contribute directly to the calculation of the incentive that is paid to the shareholder. If not confirmed, please explain.

Response:

Confirmed. Please also refer to the responses to BCUC IRs 2.51.1 and 2.51.2.

51.5 Does FEI believe it is appropriate for its shareholders to receive any financial benefit through GSMIP from the supply of biomethane under the biomethane program particularly given FEI is not taking on any risk in the biomethane program? If so, why?

Response:

FEI believes it is appropriate to include all off-system sales of natural gas, including any incremental off-system sales created by the biomethane supply. Under the Biomethane Program model, FEI is required to manage the incremental supply volumes in the best manner possible on behalf of core customers and sell any excess gas as required.

Based on the experience since the start of the Biomethane Program, the incremental natural gas off-system sales created by the biomethane supply has been insignificant.

Please also refer to the responses to BCUC IRs 2.51.1 and 2.51.2.

J. COST ALLOCATION AND BVA REPORTING

52.0 Reference: COST ALLOCATION AND ACCOUNTING TREATMENT, AND RATE SETTING

Exhibit B-17, BCUC IR 1.70.3.1

Risk Mitigation – MCRA Cost Recovery Mechanism

In the response to BCUC IR 1.70.3.1, FEI refers to BCUC IR 1.70.3 which then refers to BCUC IR 1.70.2. While the response to BCUC IR 1.70.2 does note that FEI would file an application with the Commission for approval to transfer all or a portion of the balance in the BVA, this would occur after the discounted sale of biomethane had occurred.

52.1 Please answer the question posed in BCUC IR 1.70.3.1 – does FEI intend to seek Commission approval to sell biomethane volumes at a discounted rate prior to the execution of such sale?

<u>Response:</u>

Yes. In order to ensure the Commission has the opportunity to sufficiently review the rate impact to the MCRA, FEI would seek Commission approval of any proposals to sell biomethane volumes at a discounted rate prior to execution of such a sale.

Upon consideration of this IR, FEI is revising the proposed MCRA cost recovery mechanism discussed in BCUC IR 1.70.2 in two respects: first, FEI would apply to the Commission before making its discounted biomethane sale; second, the timing of the application would be driven by the timing of the sale and therefore would be filed separately from the quarterly gas report.

Under FEI's revised proposal, FEI would bring forward an application for biomethane volumes to be sold at a discount under Rate Schedule 30 or other such agreement. FEI would request that, upon approval, the sale and loss on sale would be booked into the BVA. At the same time, FEI would seek approval to transfer the loss (there would no longer be any volume) to the MCRA for recovery from core customers. Once transferred to the MCRA, FEI proposes that the balance be recovered from core customers through midstream rates in the ordinary course.

As the timing of the application would be driven by the timing of the discounted sale, FEI would file the application separately from its quarterly gas reports. FEI's application to the Commission would describe the actions it has taken to sell the Biomethane at the BERC rate and at a discounted price, and why FEI has concluded that the balance it is seeking to transfer to the MCRA is otherwise not recoverable.

FEI believes that this would be an efficient process that would also provide the Commission with oversight of the discounted sale.

FEI requests that the Commission recognize that seeking approval before each sale could be inefficient and the time needed to receive Commission approval could impede FEI's ability to execute the sale. Depending on the nature of the sale, FEI may have to request an expedited review process for such a transaction

53.0 Reference: COST ALLOCATION AND ACCOUNTING TREATMENT, AND RATE SETTING

Exhibit B-17, BCUC IR 1.70.4

Risk Mitigation – MCRA Cost Recovery Mechanism

In response to BCUC IR 1.70.4 regarding whether the purpose of the last resort MCRA transfer mechanism was to transfer costs or volumes to the MCRA, FEI referred the reader to BCUC IR 1.70.2. It is not clear that the response answered the question.

53.1 In order to clarify the nature of any transfers between the BVA and the MCRA, FEI is requested to describe specifically what volumes and costs would be transferred in the following scenarios based on the following assumptions:

Assumptions:

- The Commodity Cost Recovery Charge is $4.00 per GJ
- The BERC rate is $12.00 per GJ
- The Midstream Cost Recovery Charge is $1.50 per GJ

53.1.1 Scenario 1: The volume of unsold biomethane in the BVA has been determined to be too large and 100 GJ of biomethane is to be transferred to the MCRA. Quantify the volumes and costs that are transferred to the MCRA from the BVA.

Response:

Based on the assumptions provided, there would be a transfer of 100 GJ of biomethane valued at the BERC rate of $12.00 per GJ from the BVA to the MCRA.

The BVA would be credited for 100 GJ of volume and $1,200, and the MCRA would be charged 100 GJ of volume and $1,200.

53.1.2 Scenario 2: FEI has executed a sale of 100 GJ of biomethane at a discounted price of $8.00 per GJ. In response to BCUC IR 1.70.2 FEI notes that FEI would file an application to the Commission for approval to transfer all or a portion of the balance in the BVA. Assuming the transfer of the full imbalance resulting from the sale of the 100 GJ, quantify the volumes and costs that are transferred to the MCRA.

Response:

Based on the assumptions provided, the sale of 100 GJ of biomethane at a discounted price of $8.00 per GJ would have resulted in the BVA being credited for the 100 GJ of volume and $800 in revenue from the discounted sale, as well, there would have been a recorded loss on the sale of $400.

The transfer of the imbalance from the BVA to the MCRA would simply be a transfer of the amount of the loss on the sale of $400 from the BVA to the MCRA and zero volume (as the biomethane volume was sold and is no longer in the inventory volume).

53.1.3 Scenario 3: There is an under-supply of biomethane in the BVA resulting in the purchase of offsets equivalent to 100 GJ at a price of $6.00. Given that the purchase of offsets would still leave the BVA shot of natural gas for the biomethane customer it would seem that a volume of natural gas would potentially need to be transferred from the MCRA to the BVA. Quantify the volumes and costs that would be transferred between the BVA and the MCRA.

Response:

Based on the assumptions provided, FEI would transfer 100 GJ of natural gas that would be valued at the appropriate market price of commodity for that month from the MCRA, and FEI would also have to purchase offsets to match with the 100 GJ of natural gas. For the purposes of this scenario, FEI has assumed the market price of the commodity to be $3.75 per GJ (noting that the market price of commodity at any particular month could be very different from, and either higher or lower than, the Commodity Cost Recovery Charge in effect).

To account for the volume of natural gas required in the BVA, the BVA would be charged for 100 GJ of volume and $375, while the MCRA would be credited for 100 GJ of volume and $375.

To account for the purchase of the offsets, the BVA would be charged $600.

Thus, the BVA would have 100 GJ of biomethane equivalent gas added to its inventory at a cost of $975 ($375 + $600). FEI assumes that the under-supply was simply the result of sales exceeding inventory during that period; therefore the BVA would have already received a credit for the biomethane sale of 100 GJ and $1,200.

54.0 Reference: COST ALLOCATION AND ACCOUNTING TREATMENT, AND RATE SETTING

Exhibit B-17, BCUC IR 1.70.9

Risk Mitigation – MCRA Cost Recovery Mechanism

BCUC IR 1.70.9 incorrectly referred to the review process in BCUC IR 1.67.2 which led to FEI responding that it did not understand the question. The question is restated below.

54.1 Please confirm that the quarterly gas cost report and FEI's anticipated review process proposed as proposed to review the recovery of any costs in the MCRA is as described in the preamble to BCUC IR 1.74.2 and confirmed by FEI in its response to that IR.

Response:

Please refer to the response to BCUC IR 2.52.1.

55.0 Reference: COST ALLOCATION AND ACCOUNTING TREATMENT, AND RATE SETTING

Exhibit B-17, BCUC IR 1.75.3

Costs to be Allocated to Biomethane Customers

In response to BCUC IR 1.75.3, FEI describes the manual process required to support the sale of biomethane to the City of Vancouver under Rate Schedule 11B as follows:

"The sale quantity of RNG to the City Vancouver each month is based on the City of Vancouver's

billable consumption. Once a month has ended, the billable consumption for the customer is finalized/approved by measurement within the first 8 days of the next month. Once finalized, the RNG (based on the billable quantity) is then sold to the City of Vancouver. This quantity of RNG is transferred via WINS (FEI‟s nomination system called Web Interface Nominations System) to the marketer group in which the City of Vancouver resides. The transfer of RNG is evidenced on the marketer group's Inventory Report which can be generated in WINS."

55.1 Please confirm that the quantity of gas sold to the City of Vancouver is included in the total quantity of gas to which the applicable transportation delivery charge is applied (i.e. transportation delivery charges apply to the quantity of biomethane sold to the City of Vancouver). If not confirmed, please explain.

<u>Response:</u>

Confirmed. The City of Vancouver is invoiced their appropriate transportation delivery charges for biomethane under Rate Schedule 23.

56.0 Reference: COST ALLOCATION AND ACCOUNTING TREATMENT, AND RATE SETTING

Exhibit B-17, BCUC IR 1.77.1; Exhibit A2-18, Tab 4, Page 3

Updated Biomethane Variance Report

In response to BCUC IR 1.77.1, FEI was asked to provide an updated version of the tables on page 1 through 3 of Tab 4 of the 2012 Fourth Quarter Gas Cost Report showing actuals for those months where this data is now available. The following is an excerpt from the tables in the response to BCUC IR 1.77.1 which Commission staff note was filed on May 28, 2013 .

	Jan 13	Feb 13	Mar 13	Apr 13	May 13	Jun 13
Volume (GJ)	Recorded	Projected	Projected	Forecast	Forecast	Forecast
Rate Class 1B	6,710	5,874	5,789	4,118	2,675	1,948
Rate Class 2B	267	257	252	179	116	85
Rate Class 3B	502	464	449	347	218	158
Rate Class 11B / 30	-	737	897	1,058	1,218	1,378
Total Volume	7,479	7,332	7,388	5,701	4,227	3,569
Existing Rate	$ 11.696	$ 11.696	$ 11.696	$ 11.696	$ 11.696	$ 11.696
Cost Recovered						
Rate Class 1B	$ 78,480	$ 68,705	$ 67,712	$ 48,160	$ 31,287	$ 22,778
Rate Class 2B	3,123	3,003	2,951	2,088	1,356	995
Rate Class 3B	5,871	5,423	5,256	4,055	2,550	1,847
Rate Class 11B / 30	-	8,622	10,496	12,371	14,245	16,119
Total Recovered	87,474	85,752	86,414	66,674	49,438	41,740

(Exhibit B-17, BCUC 1.77.1)

On June 6, 2013, FEI filed the 2013 Second Quarter Gas Cost Report. The non-confidential portion of Tab 4 of this report is Exhibit A2-18 of this Application and the following is an excerpt from that filing.

Particulars	Jan 13	Feb 13	Mar 13	Apr 13	May 13	Jun 13
Volume (GJ)	Recorded	Recorded	Recorded [1]	Adjusted [2]	Projected	Projected
Rate Class 1B	502	4,814	4,321	3,135	2,675	1,948
Rate Class 2B	267	282	245	268	116	85
Rate Class 3B	502	359	355	439	218	158
Rate Class 11B / Other	-	-	4,706	2,413	1,641	1,886
Total Volume	1,271	5,455	9,627	6,255	4,650	4,076
Effective Rate	$ 11.696	$ 11.696	$ 11.696	$ 11.696	$ 11.696	$ 11.696
Cost Recovered						
Rate Class 1B	$ 5,871	$ 56,305	$ 50,538	$ 36,667	$ 31,287	$ 22,778
Rate Class 2B	3,123	3,298	2,866	3,135	1,356	995
Rate Class 3B	5,871	4,199	4,152	5,135	2,550	1,847
Rate Class 11B / Other	-	-	55,041	28,222	19,193	22,057
Total Recovered	14,866	63,802	112,597	73,158	54,387	47,678

Notes: Slight differences in totals due to rounding.
(1) Includes volumes billed to City of Vancouver November - February 2012.
(2) Includes volumes billed to City of Vancouver March and April 2012, and a one time adjustment for overstated volume that will be corrected in May.

(Exhibit A2-18, Tab 4, Page 3)

The following is extracted from the 2013 First Quarter Gas Cost Report that is Exhibit A2-17 to this Application.

	Jan 13	Feb 13	Mar 13	Apr 13	May 13	Jun 13
Volume (GJ)	Recorded	Projected	Projected	Forecast	Forecast	Forecast
Rate Class 1B	6,710	5,874	5,789	4,118	2,675	1,948
Rate Class 2B	267	257	252	179	116	85
Rate Class 3B	502	464	449	347	218	158
Rate Class 11B / Other	-	737	897	1,058	1,218	1,378
Total Volume	7,479	7,332	7,388	5,701	4,227	3,569
Effective Rate	$ 11.696	$ 11.696	$ 11.696	$ 11.696	$ 11.696	$ 11.696
Cost Recovered						
Rate Class 1B	$ 78,480	$ 68,705	$ 67,712	$ 48,160	$ 31,287	$ 22,778
Rate Class 2B	3,123	3,003	2,951	2,088	1,356	995
Rate Class 3B	5,871	5,423	5,256	4,055	2,550	1,847
Rate Class 11B / Other	-	8,622	10,496	12,371	14,245	16,119
Total Recovered	87,474	85,752	86,414	66,674	49,438	41,740

(Exhibit A2-17, Tab 3, Page 3)

56.1 Please confirm that, when asked to provide updated versions of the tables showing actuals for those months where this data was now available, FEI provided the data that was previously filed with the Commission on March 7, 2013.

Response:

FEI confirms that in its response to BCUC IR 1.77.1 FEI provided the information as was filed in the 2013 First Quarter Gas Cost Report dated March 7, 2013 as an update to the 2012 Fourth Quarter Gas Cost Report filed in the Application.

FEI misinterpreted the question.

56.2 Please explain the significant differences between the sales volumes provided on May 28, 2013 as part of Exhibit B-17 and the sales volumes provided as part of the 2013 Second Quarter Gas Cost Report (Exhibit A2-18) that was filed nine days later.

Response:

The recorded Rate Class 1B sales for January 2013 are 6,710 GJ, as reported in the 2013 First Quarter Gas Cost Report and in the response to BCUC IR 1.77.1.

The 2013 Second Quarter Gas Cost Report contains an error – the Rate Class 1B are incorrectly shown as 502 GJ for January 2013 due to a spreadsheet formula error which caused that cell to reference the Rate Class 3B volumes for January 2013. The recorded Rate Class 1B sales for January 2013 are 6,710 GJ.

56.2.1 In particular, please explain the difference between Rate Schedule 1B sales for January 2013. (i.e.6710 GJ Recorded in the response to BCUC IR 1.77.1 versus 502 GJ Recorded in the 2013 Second Quarter Gas Cost Report).

Response:

Please refer to the response to BCUC IR 2.56.2.

56.2.1.1 If this adjustment is part of a prior period adjustment why was the December 31, 2012 closing balance as recorded in the BVA not impacted.

Response:

Please refer to the response to BCUC IR 2.56.2.

56.2.1.2 Was this adjustment due to issues with the Customer Information System? If so, please explain.

Response:

Please refer to the response to BCUC IR 2.56.2.

In response to BCUC IR 1.76.2.1, FEI provided restated sales volumes for the period from December 2011 through July 2012.

56.3 Please confirm that the data provided in response to BCUC IR 1.77.1 for the period from December 2011 through July 2012 are not the actual sales volumes as restated in response to BCUC IR 1.76.2.1 accounting for the January 2012 and July 2012 adjustments.

Response:

Confirmed. The response to BCUC IR 1.77.1 provided the updated data based on the 2013 First Quarter Gas Cost Report and included the recorded sales for all the biomethane rate classes. The response to BCUC IR 1.76.2.1 provided a table which started with the recorded sales volumes for only Rate Class 1B for the period December 2011 through July 2012, as reported in the FEI Quarterly Gas Cost Reports (a subset of the data provided in the response to BCUC IR 1.77.1), and then detailed the adjustments to provide the restated monthly sales volumes for the period (the table also showed that the total restated sales volume for the period reconciled to the total recorded sales volume for that period).

56.4 For the sale of biomethane to the City of Vancouver under Rate Schedule 11B, please show all billing activity chronologically by month from the date that biomethane salesto the City of Vancouver commenced through to June 2013 showing all adjustments, transactions and details. Explain and reconcile all differences between actual sales and booked sales.

Response:

The table below shows the recorded / booked sales (in volumes and dollars) to the City of Vancouver for the period September 2012 to June 2013 (noting that the June results are preliminary estimates at this time), and the restated sales based on when the consumption occurred. The delay in the City of Vancouver consumption being recorded / booked in the sales for those periods is a result of biomethane sales to transportation service customers having to be accomplished on a one-off basis, through a manual billing process, at this time.

City of Vancouver (Rate 11B)

										Preliminary	
	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Total
Recorded	-						4,706	613	1,802	70	7,191
Adjustment	157	703	972	1,414	1,483	838	(4,093)	(57)	(1,416)	-	0
Restated (GJ)	157	703	972	1,414	1,483	838	613	556	386	70	7,191

										Preliminary	
	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Total
Recorded	-						$55,050	$7,168	$21,072	$819	$84,108
Adjustment	$1,836	$8,222	$11,364	$16,537	$17,344	$9,805	($47,881)	($666)	($16,562)	$0	$0
Restated ($)	$1,836	$8,222	$11,364	$16,537	$17,344	$9,805	$7,168	$6,503	$4,510	$819	$84,108

In response to BCUC IR 1.75.3 stated that "billable consumption is finalized/approved by measurement within the first 8 days of the next month" and in response to BCUC IR 1.75.5.1, FEI describe a manual billing process that appears to take 25 minutes once the finalized billable quantities are available.

56.5 Please explain the reason for the significant differences in the sales volumes recorded for Rate Schedule 11B/Other for each of the months in the period from January 2013 through December 2013.

Response:

The table below shows a comparison of 2013 monthly sales for Rate Schedule 11B/Other as presented in the response to BCUC IR 1.77.1 to the sales presented in the FEI 2013 Second Quarter Gas Cost Report.

Rate Shedule 11B/Other (volume in GJ)	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	
	Recorded	Projected	Projected	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Total
Response to BCUC IR 1.77.1	-	737	897	1,058	1,218	1,378	1,538	1,699	1,859	2,019	2,179	2,340	16,923
	Recorded	Recorded	Recorded	Adjusted	Projected	Projected	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Total
Filed in 2013 Second Quarter Gas Cost Report	-	-	4,706	2,413	1,641	1,886	2,131	2,376	2,621	2,865	3,110	3,355	27,104

In the response to BCUC IR 1.77.1, the February to December projected / forecast sales were based on the Moderate Demand Scenario in the Application (Exhibit B-1).

The 2013 Second Quarter Gas Cost Report was filed on June 6, 2013. The recorded January to March sales were the recorded / booked volumes for the City of Vancouver. The adjusted April sales included the recorded / booked volumes for the City of Vancouver and the adjusted sales volumes for UBC, which has a one-time adjustment of an overstated volume (please refer to the response to BCUC IR 2.56.5.2). The projected / forecast volumes for May to December were based on the Moderate Demand Scenario, filed on May 28, 2013 in the response to BCUC IR 1.38.1, which has an updated forecast volume of approximately 40 percent increase to the PIR for Rate Schedule 11B/Other.

In addition, but not reflected in the table above, the recorded / booked sales for the City of Vancouver have been restated, as shown in the response to BCUC IR 2.56.4, to more appropriately reflect when the consumption actually occurred.

56.5.1 In particular, please explain the reason for the difficulties FEI continues to experience in processing and recording the City of Vancouver sales including adjustments to the November sales volumes some six months after the time that FEI indicates the billing should ideally have originally occurred.

Response:

As discussed in the response to BCUC IR 2.56.4, the delay in the City of Vancouver consumption being recorded / booked in the sales for those periods is a result of biomethane sales to transportation service customers having to be accomplished on a one-off basis, through a manual billing process, at this time.

FEI plans to implement billing for the City of Vancouver via its CIS system, in place of the existing manual process, later this year.

56.5.2 Further to the Note recorded at the bottom of Page 3 of Tab 4 of the 2013 Second Quarter Gas Cost Report indicating that there is a one time adjustment of overstated volume that will be corrected in May, please explain the nature of the adjustment and whether this adjustment is included in the numbers provided in the 2013 Second Quarter Gas Cost Report or is yet to come.

Response:

The one-time adjustment of overstated volume in the 2013 Second Quarter Gas Cost Report referred to the April sales volume to UBC which was booked as 18,000GJ, but should have been 1,800GJ. The Rate Schedule 11B/Other volumes for April (Tab 4, Page 3, Line 5) was the adjusted to remove the known overstated amount. The reversal of the overstated sales was booked in May.

56.6 Please provide a table showing the restated sales volumes by Rate Schedule and by month for the period from January 2011 through June 2013, after adjustments, so as to more closely reflect the actual notional consumption of biomethane by these customers.

Response:

The table below shows the restated sales volumes, after adjustments, by Rate Schedule that more closely reflect to the actual notional consumption of biomethane.

2011	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Total
Rate 1B										1,294	812	1,149	3,255
Rate 2B													-
Rate 3B													-
Rate 11B						1,000							1,000
Restated Total (GJ)	-	-	-	-	-	1,000	-	-	-	1,294	812	1,149	4,255
2012	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Total
Rate 1B	1,398	1,481	1,428	1,060	777	812	861	864	915	2,074	3,631	5,629	20,930
Rate 2B			-	6	7	7	76	10	21	60	164	275	626
Rate 3B					22	15	224	165	149	261	432	456	1,724
Rate 11B			132	132	132	132	132		157	703	972	1,414	3,906
Restated Total (GJ)	1,398	1,481	1,560	1,198	938	966	1,293	1,039	1,242	3,098	5,199	7,774	27,186
						Preliminary							
2013	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13							Total
Rate 1B	6,710	4,814	4,321	3,135	1,796	1,827							22,603
Rate 2B	267	282	245	268	140	114							1,316
Rate 3B	502	359	355	439	237	228							2,120
Rate 11B	1,483	838	613	2,356	1,786	1,116							8,192
Restated Total (GJ)	8,962	6,293	5,534	6,198	3,959	3,285							34,231

The adjustments for Rate Schedule 1B include the cycle billing related over accrual in December 2011 and the July 2012 adjustment related to restating sales of prior months (as described in the response to BCUC IR 1.76.2.1).

The adjustments for Rate Schedule 11B/Other include the restatement of the City of Vancouver consumption due to the delay in recording the sales as a result of the existing manual billing process (as described in the response to BCUC IR 2.56.4) and an adjustment for overstated April sales volumes to UBC (as described in the response to BCUC IR 2.56.5.2).

56.7 Have the processes regarding the collection and determination of the final billable consumption for the City of Vancouver changed in any material way from what was in place prior to the commencement of the sale of biomethane to the City of Vancouver?

Response:

Prior to the commencement of biomethane sales to the City of Vancouver, sales under Rate Schedule 11B were not for 100 percent of the consumption at a specific location, therefore, the quantity to be invoiced and billed did not have to track to 100 percent of their consumption for the month.

Unlike the CIS system which is built to accommodate RNG sales and automatically apply the correct rate and reporting, invoicing Rate Schedule 11B is a manual process for transportation customers. Two different systems are used, one to deposit the biomethane volume amount into the gas marketer account (through WINS) and the second, Entegrate, is used to generate an invoice for the biomethane amounts. The step to actually invoice the customer after the first couple of invoices was missed and a secondary check has been put in place to ensure this is done each month.

Therefore, the issue related to billing was only associated with the Rate Schedule 11B process. The CIS system and contact center that deals with billing and managing Rate Schedules 1-3 did not experience any issues associated with enrolling and billing Rate Schedule 1B, 2B and 3B customers for RNG. As discussed in BCUC IR 1.76.4, any accounting adjustments that were made were process related, and not specifically tied to the implementation of the new CIS.

56.7.1 If so, describe the changes and the reasons for the changes.

Response:

Please refer to the response to BCUC IR 2.56.7.

56.7.2 If not, please explain the cause of the delay in accurately recording the volumes associated with this sale.

Response:

Please refer to the response to BCUC IR 2.56.7.

In response to BCUC IR 1.76.5, which asked FEI to provide "a comprehensive explanation of issues FEI has encountered in accurately enrolling customers, billing biomethane sales and/or tracking and recording financials sales in the BVA," FEI states "From a contact centre perspective FEI has not experienced any issues related to enrolling customers. Customers are billed accurately and Finance is able to track without issue." This response seems to be incomplete and/or at odds with the evidence regarding the tracking of sales in the BVA.

56.8 Please explain how FEI can state there are no issues when the evidence seems to suggest otherwise.

Response:

Please refer to the response to BCUC IR 2.56.7.

57.0 COST ALLOCATION AND ACCOUNTING TREATMENT, AND RATE SETTING

Exhibit B-17, BCUC IR 1.77.1; Exhibit A2-18, Tab 4, Page 3

Updated Biomethane Variance Report

57.1 Please complete the following table showing the number of customers enrolled in the biomethane program on the specified dates.

Rate Schedule	January 1, 2013 (number of customers)	April 1, 2013 (number of customers)	July 1, 2013 (number of customers)
Rate Schedule 1B			
Rate Schedule 2B			
Rate Schedule 3B			
Rate Schedule 11B			
Rate Schedule 30			

Response:

FEI has provided the enrolments for the specified dates.

Rate Schedule	January 1, 2013 (number of customers)	April 1, 2013 (number of customers)	July 1, 2013 (number of customers)
Rate Schedule 1B	4,777	5,183	5,392
Rate Schedule 2B	62	78	81
Rate Schedule 3B	11	11	11
Rate Schedule 11B	3	4	4
Rate Schedule 30	0	0	0

57.2 Please complete the following table showing the number of customers enrolled in the Customer Choice program on the specified dates.

Rate Schedule	January 1, 2013 (number of customers)	April 1, 2013 (number of customers)	July 1, 2013 (number of customers)

Rate Schedule 1U			
Rate Schedule 2U			
Rate Schedule 3U			

Response:

Rate Schedules:	January 1, 2013 (number of customers)	April 1, 2013 (number of customers)	July 1, 2013f (number of customers)
Rate Schedule 1U	52,875	50,913	*42,781*
Rate Schedule 2U	9,125	8,279	*7000*
Rate Schedule 3U	626	540	*436*

Note: July 2013 accounts are forecasted numbers. Actuals will not be available until August.

K. BIOMETHANE AND RENEWABLE ENERGY CERTIFICATES

58.0 Reference: GVS&DD SUPPLY CONTRACT & UNBUNDLING OF ENVIRONMENTAL ATTRIBUTES

Exhibit A2-15, p. 13; Exhibit B-14, BCSEA 1.18.4

In response to a BCSEA request to provide an update and discussion on the potential for the Biomethane Program to create GHG reductions that could be marketed as credits or carbon offsets for the purposes of risk mitigation, FEI stated in BCSEA 1.18.4:

> "FEI does not have any plans at this time to create carbon offsets from the Biomethane program."

58.1 Would FEI agree that while not impossible, it is currently unclear exactly how the unbundled Biomethane attributes could be sold into other non-FEI or non-BC markets at this time?

Response:

FEI does not agree. If it is cost effective, offsets can be created and sold in the BC market to PCT or the environmental attributes sold to third parties such as Bullfrog. As discussed in BCUC IR 2.46.1, FEI has identified voluntary markets in the US where there is a clear pathway for biomethane volumes to be sold. Markets where biomethane would need to be transformed into another commodity before it could be sold in the US, such as REC's and RIN's, are less clear, because they are more costly and complex.

In the FEI Application for Reconsideration of Commission Order G-29-13 on page 13 in reference to purchases from the Greater Vancouver Sewerage and Drainage District (GVS&DD), FEI provided the following clarification on volumes from the GVS&DD supply agreement:

> "The contract is unique among the four new supply contracts with regard to the structure around the volumes. At the request of the GVS&DD, there are two maximum volumes. The first maximum at 40,000 GJ per year is the maximum amount of annually purchased biomethane. The second maximum at 100,000 GJ per year is the maximum volume that FEI can accept in the local distribution system based upon a capacity analysis.

From the perspective of biomethane pricing, FEI only pays a biomethane rate on the first 40,000 GJ per year. GVS&DD indicated a desire to potentially add to their project in the future and therefore increase volumes. However, they also indicated a desire to potentially use the biomethane for their own purposes, but wanted to have the ability to use the FEI system to inject potentially more than 40,000 GJ annually. To further clarify, any gas provided above 40,000 GJ per year is purchased at standard natural gas rates and is therefore not considered part of the RNG supply pool by FEI." (Exhibit A2-15, p. 13)

58.2 Would FEI agree that the GVS&DD contract is a different model from that of the other Biomethane supply contracts concluded to date, in that the environmental attributes associated with the displacement of fossil fuel natural gas is unbundled from the gas commodity for any gas provided above 40,000 GJ per year?

Response:

FEI agrees. FEI notes that this is not a preferred model. FEI will likely avoid using a similar approach in the future due to the administrative complexity of distinguishing between biomethane and regular natural gas.

58.3 Would FEI agree that in the GVS&DD contract, there are two different commodities being contemplated?

1. The gas molecule itself, which is chemically indistinguishable from fossil-fuel natural gas; and

2. The renewable attribute associated with the production of Biomethane?

Response:

Yes. However, in FEI's view, the two commodities contemplated in the GVS&DD contract are biomethane and natural gas. The GVS&DD supply contract is meant to be a biomethane supply contract, but with the added flexibility on environmental attributes should GVS&DD reach a volume above 40,000 GJ per year. Neither FEI nor GVS&DD intended to split the attributes to create separately saleable renewable attributes but rather to provide GVS&DD an ability to inject any potential excess into the FEI system, while, providing GVS&DD an opportunity to offset some its own use of fossil fuel.

58.3.1 Would FEI agree that these two attributes can be sold together (as for the first 40,000 GJ to be provided annually by GVS&DD), or separately?

Response:

Yes. Please refer to the response to BCUC IR 2.58.3.

58.3.2 Would FEI agree that is possible to price all three components on a per GJ basis: The bundled product can be sold at the BERC rate, the gas molecule stripped of its attributes can be sold at the SUMAS or going natural gas rate; and the unbundled attribute can be priced at the BERC rate minus the SUMAS rate?

Response:

Yes. However, please refer to the response to BCUC IR 2.58.3.

59.0 Reference: RELEVANCE OF THE ELECTRICITY REC MARKET FOR BIOMETHANE

Exhibit B-1, Appendix C-6, Letter from the BC Climate Action Secretariat; Appendix C-3, BC Ministry of Finance Carbon Tax notice; Exhibit A2-19, p. 6

A conventional renewable energy certificate (REC) is associated with the production of renewable electricity, and is issued when one megawatt-hour of electricity is generated and delivered to the grid from a qualifying renewable energy source, such as wind, solar, or biomass.

59.1 Would FEI agree that a "Biomethane-REC" could be used in a similar way to conventional electricity RECs, but would instead be measured in CAD$/GJ or USD$/MBtu? Could the unbundled B-REC be priced at the difference between the price of conventional gas in BC, and the BERC rate?

Response:

FEI agrees that it would be possible to create something like a Biomethane-REC or B-REC that would be analogous to conventional RECs available in electricity markets. If a concept such as B-RECs was established it would make sense to use the commonly used units such as gigajoules or mmbtus as the basis for valuing the item.

However, since the biomethane market is miniscule (or non-existent) in comparison to the market for renewable electricity that gives rise to conventional electricity RECs, FEI believes that pursuing the development of B-RECs is not warranted. FEI believes that the level of cost and effort needed to establish suitable B-REC rules and protocols, validate and measure B-RECs, assign certificates, and carry out program administration would constitute an unnecessary burden in view of the small scale of biomethane development.

If something like a B-REC was put in place, any parties seeking to sell B-RECs would have to conform to the established rules in order to qualify for a certificate that is tradable. Once the B-REC is marketable, the market would determine the price. At today's market prices, it does not make sense to convert a high price commodity into something that actually is valued at something less in the market such as offsets or REC's[4].

[4] As discussed in BCUC IR 1.58.5, current offset prices are between $10-15 tonne CO2E and the price equivalent price per tonne of Biomethane's $7.23 GJ premium is $144/ tonne CO2e

59.1.1 Could the actual gas molecule, stripped of its renewable attribute, be transferred to the MCRA and sold and priced as conventional gas supply?

Response:

As stated in the response to BCUC IR 2.59.1 the biomethane market is too small to warrant the establishment of a B-REC mechanism that could be used to strip biomethane of its renewable attributes. However in the hypothetical situation where this has occurred the actual gas molecule and its residual cost could be commingled with another conventional natural gas stream and costs such as those in the MCRA. Additionally, a deal to sell the environmental attributes only to vendors such as Bullfrog Power could be developed.

59.2 Does FEI think it would be possible to generate an equivalent REC for Biomethane, but with new underlying rules adapted for natural gas? If no, please explain why not.

Response:

FEI believes it would be possible to generate an equivalent REC for biomethane, but not warranted. Please see the response to BCUC IR 2.59.1.

59.2.1 If yes, does FEI know if this has been done elsewhere? If not, would FEI have any interest in pioneering a Biomethane-REC?

Response:

Electricity RECs are being created from biomass in the U.S. in response to various Renewable Portfolio Standards but FEI is not aware of any biomethane-based RECs similar to those proposed in this series of questions. FEI is not interested in pioneering a Biomethane-REC as a primary market for its biomethane offering for the reasons discussed in BCUC IR 2.59.1. However, if FEI were to sell biomethane off-system into the U.S., the end use for the purchaser could be converting this to a REC but the definition requirements of this instrument may depend on the state.

59.2.2 If yes, would it be possible to utilize this tool to facilitate the purchase and sale of large amounts of Biomethane onto the FEI system, or to facilitate the off-system sales? Is there any reason why it could not be used alongside the current model of blended Biomethane for residential and smaller commercial users? Please discuss.

Response:

Please refer to the response to BCUC 2.59.1. Although it would be possible to use a B-REC system to promote sales or purchases of biomethane-equivalent gas from or to the FEI system, FEI does not believe the market is large enough at this time to warrant formal development of this capability or using B-RECs or equivalent for anything more than a stop gap risk mitigation measure.

An international association called the Offset Quality Initiative (OQI) released a Briefing Paper in 2009 to inform best practice development of rules in the international carbon market. Due in large part to concerns over additionality, they provided the following guidance on the best practice use of electricity RECs:

> "In the interest of the renewable energy markets and to ensure that claims being made in these markets are credible and substantiated, OQI recommends the following:
>
> • RECs should not be treated as equivalent to GHG offsets.
>
> • The definition of a REC should be clearly established and consistently applied. A suggested definition would be the following: A Renewable Energy Certificate (REC) is the unique and exclusive proof that one megawatt-hour of electricity has been generated from a qualified renewable resource connected to the grid.
>
> • It is inappropriate to treat RECs as an environmental commodity that conveys ownership of indirect "emission attributes" such as GHG emission reductions.

OQI strongly recommends against the inclusion of indirect or derived “environmental attributes” or “benefits” in any definition of a REC, including those used in the various certificate tracking systems (e.g., Generation Attribute Tracking System [GATS] and Western Renewable Energy Generation Information System [WREGIS]).

• Purchasers of RECs should not make GHG emission reduction claims associated with the retirement of RECs.” (http://ghginstitute.org/wp-content/uploads/2010/01/OQI-REC-Brief-Web_Jun09.pdf)

59.3 One possible definition for a “Biomethane-REC,” based on the best practice advice suggested above, is: “A Biomethane renewable energy certificate (B-REC) is the unique and exclusive proof that one GJ of Biomethane has been accepted onto a utility distribution network, displacing a GJ of fossil-fuel natural gas.” Please comment on this proposed definition, and amend where necessary.

Response:

As stated in the response to BCUC IR 2.59.1 FEI does not believe that development of a B-REC market is warranted at this time based on the relatively small potential market size and current state of biomethane development. With that context the following discussion is provided in order to be responsive.

The proposed definition of a B-REC in the question is reasonable, although there may be minor variations in the one GJ to one GJ displacement of natural gas with biomethane. FEI notes that the issues and concerns expressed in Exhibit A2-19 as between offsets and RECs for the electricity industry are not likely to be the same in the natural gas industry. Since biomethane is a physical commodity that displaces conventional natural gas, which consists almost entirely of methane (from a fossil fuel source) that is chemically identical to biomethane, there is relative certainty (subject to minor energy content variations in the natural gas stream) that insertion of biomethane into a utility system will displace the same quantity of energy and fossil-fuel based emissions in the natural gas stream. On the other hand electricity RECs are concerned with electricity generation from a number of different sources that are considered renewable in a particular jurisdiction (e.g. wind, solar, run-of-river hydro and others). Further, there are variations from one jurisdiction to the next as to what types of generation are considered renewable and whether or not RECs from other jurisdictions are acceptable in meeting the RPS requirements of local utilities. States that do not accept RECs from other jurisdictions may have objectives and priorities for their Renewable Portfolio Standard other than simply requiring a certain percentage of renewable electricity generation in utility supply portfolios, such as for example using the RPS as a vehicle to promote green energy development (and the associated economic development) within the state.

Since the biomethane market is much smaller in scale and a lower priority issue than electricity generation, FEI believes that a B-REC market, if developed, would be simpler than the electricity REC market. However given the small potential size of a B-REC market FEI does not believe trying to establish such a market would gain traction.

It should be pointed out that the suggested definition from the Offset Quantity Initiative (OQI), Exhibit A2-19, page 6, is based on a quantity of output from the generated energy and is stated as follows:

> *"A Renewable Energy Certificate (REC) is the unique and exclusive proof that one megawatt-hour of electricity has been generated from a qualified renewable resource connected to the grid."*

The proposed definition is based on the displacement of energy on input and assumes that the same amount of energy (natural gas) is displaced by a fuel (biomethane) in order to reduce GHGs to offset an emission made elsewhere. A better definition would be that the Biomethane-REC is the unique and exclusive proof that X megawatt-hours of electricity has been generated from a biomethane resource connected to the grid. Otherwise it is an offset since biomethane is displacing the natural gas as an input quantity to the generation plant (to lower GHGs) and the environmental attributes are what is being traded. As suggested by OQI in Exhibit A2-19, page 6, RECs should not be treated as equivalent to GHG offsets.

59.4 Does FEI agree with the statement that it is inappropriate to include ownership of indirect emissions attributes in a REC? If international best practice has changed in this regard since 2009, please provide supporting evidence.

Response:

FEI does not have expertise or experience in dealing with electricity RECs but the recommendation from Exhibit A2-19 being referred to in the question seems reasonable in the context of the electricity REC market, as FEI understands it. However, FEI notes that on page 3 of Exhibit A2-19 it appears that the California Public Utilities Commission definition of a REC does not comply with the recommendations of the report (quoted above), and in particular the recommendation being asked about in this question. The fact that the regulatory body in such a large and influential jurisdiction as California takes a different view of how RECs should be defined raises questions about how widely the recommendations of Exhibit A2-19 are accepted or have been adopted as international best practice.

59.4.1 In the case of electricity RECs, the reductions are considered to be indirect, as explained in detail in Exhibit A2-19. Is the fact that gas is purchased for combustion a possible reason to allow a more explicit ownership of the specific environmental attributes which result from the displacement of fossil-fuel natural gas by bringing Biomethane onto the system?

Response:

As stated in the response to BCUC IR 2.59.3 the issues and circumstances that would affect a B-REC market (if one was to be established) would not be the same as those experienced in the electricity REC markets. In fact it is uncertain what the definition of a B-REC is or if it is germane to the Application under consideration.

The fact that gas (either conventional natural gas or biomethane) is purchased for combustion may be a reason to allow specific ownership of environmental attributes to be attached to a B-REC. However, since a B-REC market does not currently exist this is an assessment based on a hypothetical situation only and this would have to reconsider in light of the specific circumstances if such a market was being established.

59.4.2 Would FEI agree that the creation of a B-REC would simplify reporting, tracking and verification of Biomethane attributes for all concerned, as many of the procedures are already largely in place? This includes the monitoring of Biomethane quality, the metering of Biomethane entering FEI's system by FEI, and the accounting or tracking of the Biomethane units by FEI until they are finally purchased, and retired. If not, please comment on what additional rules or procedures would be required to allow for the sale of both bundled Biomethane (commodity and renewable attribute), and the off-system sale of the unbundled renewable attribute (B-REC).

Response:

No, the biomethane information would still need to be collected to monitor performance on a continuing basis. The information for the B-REC would be in addition to this data required for the biomethane program.

In order for the B-REC to have value the entire trading infrastructure has to be created. This would require development of a standardized certificate, the verification of environmental attributes by an independent third party, acceptance of the B-REC credit on a national and international basis (as the British Columbia market alone is too small) and enough counter parties willing to trade the certificates in order to establish a market. FEI does not believe the biomethane market is large enough at this time to warrant pursuing and developing all of these items, nor is it large enough to absorb all the associated costs. Please also refer to the response to BCUC IR 2.59.1.

59.4.3 Would FEI agree that, even if a B-REC did not explicitly include the environmental attributes in the certificates, the treatment of these B-RECs would be at the discretion of the receiving jurisdiction?

Response:

This would depend, of course, on the definition of a B-REC and the associated rules and protocols. These have not been established at this stage but it is reasonable to expect that participating jurisdictions would retain discretion with respect to the use of B-RECs for purposes within their respective jurisdictions.

For example: The Climate Action Secretariat (Appendix C-6) and BC Ministry of Finance (Appendix C-3) have issued policy statements regarding the use of Biomethane for PSO compliance, and treatment of Biomethane under the *Carbon Tax Act*.

The BC Climate Action Secretariat recognises the GJ value of Biomethane being purchased by PSOs, and releases PSO's from the obligation to buy offsets "for the BioCO2 portion of their natural gas that comes from Fortis BC's renewable natural gas program. Since international rules requires the separate reporting of biogenic emissions from combustion, the CO2 emissions from Biomethane (BioCO2) will need to be calculated and reported separately from those of the fossil fuel component. PSOs will not be required to offset theBioCO2 component of their emissions but will continue to be required to offset the CH4 and N2O emissions from their biogenic combustion.

Modifications will be made to account for this policy change in the province of British Columbia's web-based applications for GHG measurement and reporting "SMARTTool." Moving forward, for any given volume of reported FortisBC natural gas where the Biomethane premium has been purchased, customers will enter the premium portion as Biomethane consumption in GJs into SMARTTool, and the remainder will be entered as natural gas consumption in GJs into SMARTTool. The attribution of emissions factors per GJ of Biomethane and natural gas are outlined in Table 1." (Exhibit B-1, Appendix C-6, Table not repeated)

59.5 Does FEI agree that, based on the above, the proposed definition of a B-REC would appear to be consistent with current BC Policy, and to meet the needs of PSOs and other entities for compliance in BC, and not only in FEI's service territory? If not, please explain why not.

Response:

FEI does not believe under current legislation that PSOs could purchase B-RECs as a means to reduce their GHG emissions. PSOs are required to purchase offsets for GHG emissions only from the Pacific Carbon Trust. FEI's program is acceptable for these entities because it is a direct purchase of energy that is carbon neutral, so there is an avoided cost of purchasing offsets for volumes of biomethane consumed.

60.0 Reference: BIOMETHANE RECs AND RISK MITIGATION

Exhibit B-1, p. 114

As a possible risk mitigation in the event of an over-supply, FEI states on page 114 that:

> "Additionally, the environmental attributes or carbon credits of the Biomethane being delivered to the grid could be sold to third parties."

60.1 Once unbundled from the gas, would a Biomethane-REC allow the beneficiary to purchase the environmental attributes attached to a GJ of Biomethane, and then to combine these attributes with the natural gas, CNG or LNG which they've purchased from their local provider? Would this be a possible way for them to claim that they are burning RNG?

Response:

Hypothetically, if biomethane-RECs (B-RECs) were available for purchase, a party that had acquired B-RECs could claim they are burning natural gas with attributes equivalent to RNG.

60.2 For customers (such as UBC) who are concerned about "real" attributes, could a B-REC provide a guarantee to the purchaser from FEI that an equivalent amount of renewable Biomethane is being metering and purchased into the FEI service territory, displacing fossil-fuel natural gas on FEI's system?

Response:

Hypothetically yes; however, a B-REC is not necessary as FEI is currently receiving a set amount of biomethane into its system.

In the quote noted in the question FEI is commenting on a method of reducing the impact of biomethane on the core market if a situation of oversupply occurred where the core market had taken up the surplus through the MCRA.

60.2.1 What reporting or gas balancing would be required to verify or substantiate this guarantee?

Response:

Assuming a hypothetical B-REC mechanism had been established, the reporting or gas balancing protocols would likewise be need to be established to measure and validate the claims with respect to the environmental attributes for customers such as UBC and other parties. In simple terms, the amount of biomethane generated on a yearly basis (or other defined period of time) must balance with the carbon credits attributed to this commodity accumulated over the same period

60.3 Please comment on the merits of a B-REC tool to facilitate the sale of Biomethane in the following scenarios and market segments:

Response:

The scenarios in BCUC IRs 2.60.3.1 to 2.60.3.5 are hypothetical as there is no B-REC tool in existence and it would not make sense to develop such a tool in the B.C. market.

60.3.1 Would a B-REC mechanism allow another gas utility, such as PNG, or FEW to provide Biomethane to their customers, thereby providing another risk mitigation measure to FEI?

Response:

Hypothetically yes, if the B-REC mechanism had been established. However a B-REC mechanism would not be the driving force for FEW to provide biomethane to its customers as participation levels would be the determinant. If there was sufficient demand in FEW for a biomethane program, biomethane sales could be accomplished there through an amended tariff as a less costly alternative than creating B-REC's for the sale of environmental attributes between FEI and FEW.

FEI does not know whether PNG plans to enter the biomethane market or what their requirements would be to do so.

60.3.2 Would a B-REC facilitate the sale of Biomethane to potential customers such as Haida Gwaii or other remote power generation customers, by allowing them to purchase conventional LNG from the most convenient source, and then pay the Biomethane premium to FEI? Would this also avoid the need, cost and related emissions from transporting the required LNG volumes?

Response:

The Haida Gwaii business case requires the purchase of LNG at the lowest price including transportation cost, in order for the project to be viable. The “most convenient” source of LNG may not be the least costly all in, so the remote generation project may still secure supply from a more distant source in order to have a lower delivered price. Therefore the purchase of B-RECs may make the project uneconomic. Clearly the demand for biomethane requires Haida Gwaii or customers of the project to recognize the benefits of the B-REC and be willing to pay the premium.

The purchase of the B-REC would effectively convert an equivalent amount of LNG to biomethane at the source of LNG and therefore would be independent of the GHG emissions from transporting the LNG volumes. The LNG for a remote generation project has to be transported from somewhere. The emissions associated with transporting the LNG to the remote site may be more or less using a B-REC mechanism to reduce the LNG carbon emission than acquiring the biomethane directly from FEI.

60.3.3 Would a B-REC allow for a customer to specifically say they want to purchase RECs from Lulu Island (for example), pay the BERC rate, but have specific project volumes tracked through regular accounting?

Response:

FEI cannot speculate on what the hypothetical B-REC would allow a customer to purchase, but notes that RECs in general are supposed to have common elements so they can be traded and therefore monetized after certification. If the intention is to move away from this concept it is uncertain what the value of a REC would be.

60.3.4 Would PSOs and other large purchasers in BC be able to purchase B-RECs or the bundled Biomethane, and still be able to calculate the emissions reductions for their compliance purposes, using the BC Climate Action Secretariat approved methodology and emission factors? (Exhibit B-1, Appendix C-6)

Response:

Since B-RECs do not exist and market rules are not established, it is not possible to answer this question. As discussed in BCUC IR 2.59.5, current regulations specify that PSO's can only purchase carbon offsets through the Pacific Carbon Trust, so it is unclear as to whether B-RECs would fall under the same umbrella or whether an exception would be made. FEI was able to attain clarity from the Climate Action Secretariat that PSO's do not have to purchase carbon offsets for the biomethane portion of their natural gas usage. Also, any production shortfalls in the RNG program where carbon offsets would need to be purchased would be procured through the PCT, therefore, selling biomethane in its current form meets all the existing Provincial government requirements to be recognized as clean, carbon neutral energy.

Please also refer to the response to BCUC IR 2.59.5.

60.3.5 Could NGT customers who wish to purchase Biomethane for fueling their vehicles, use existing CNG & LNG infrastructure, and then pay an additional premium to FEI for the B-REC and its renewable attribute?

Response:

They could purchase carbon credits as stated in the quotation. However, NGT customers could just as well purchase RNG under a FEI tariff to the same effect.

> "Inter-market transparency and cooperation help substantiate ownership and strengthen the respective markets for offsets and RECs. In cases where a renewable energy project in the U.S. has been proven additional in accordance with an offset project standard and is generating offsets, the RECs for the MWh of generation for which the project received carbon credits should always be retired to prevent RECs and offsets being sold for the same MWh. RECs from that facility can be used to track and substantiate proper retirement of the emissions reductions associated with the renewable energy generation.
>
> <u>Using RECs to substantiate carbon claims associated with renewable energy generation from a facility that meets carbon offset additionality standards can significantly lower transaction costs because it uses existing infrastructure and mechanisms for tracking and verification. RECs are not being "sold as offsets" in this case, but are merely being used to track and ensure proper retirement of emissions reductions associated with the renewable energy generation.</u> This can be done as long as the additionality of the facility has been established using a credible test through an offset project standard." (Centre for Resource Solutions, p. 5, http://www.resource-solutions.org/pub_pdfs/RECs&OffsetsQ&A.pdf)

60.3.6 What other information or arrangements would be required to establish a new Biomethane-REC? What would be required to trade this B-REC? What is required for conventional electricity REC's?

<u>Response:</u>

Renewable Energy Credits, Renewable Electricity Certificates, or Tradable Renewable Certificates (TRCs), are tradable, non-tangible energy commodities in the United States that represent proof that 1 megawatt-hour (MWh) of electricity was generated from an eligible renewable energy resource (renewable electricity).

A new Biomethane REC would have to meet standards of this nature. Once the established standard is verified then it becomes tradable. However, given the small potential market size, FEI does not believe it is warranted to go about establishing B-RECs and any associated standards and protocols. Please also refer to the responses to BCUC IRs 2.59.1 and 2.59.4.2.

Attachment 29.1

PURCHASE OF LANDFILL GAS AGREEMENT

THIS AGREEMENT made as of February 27, 2012 (the "**Effective Date**")

BETWEEN:

FORTISBC ENERGY INC., 16705 Fraser Highway, Surrey, BC V4N 0E8

("**FEI**")

AND:

CITY OF KELOWNA, 1435 Water Street, Kelowna, BC V1Y 1J4

(the "**City**")

WHEREAS:

A. FEI is a combined electric and natural gas utility with a transmission and distribution system in British Columbia;

B. Kelowna owns and operates a landfill located at 2105 North Glenmore Road, Kelowna on lands legally described as follows:

Lot 5, Sections 15, 16, 21 and 22
Township 23, ODYD Plan KAP63448

(the "**Lands**")

C. The Lands produce landfill gas ("**LFG**") through an anaerobic digestion process;

D. The City wishes to sell and FEI wishes to purchase LFG from the City and convert it to biomethane to be injected into FEI's existing natural gas distribution system.

E. In order to enable the transfer of LFG from the City to FEI, the City intends to finance, design, construct, operate and maintain an LFG collection system on the Lands and FEI intends to finance, design, construct, operate and maintain an LFG upgrading system on the Lands, which systems will be interconnected to convert the LFG to biomethane;

NOW THEREFORE, in consideration of the mutual promises set out herein and other good and valuable consideration (the receipt and sufficiency of which is hereby acknowledged) the parties agree as follows:

ARTICLE 1 – CONDITIONS PRECEDENT

1.1 **Conditions Precedent of the City.** The City's obligations under this Agreement are subject to the fulfillment of the following condition on or before August 31, 2012, which is for the sole and absolute benefit of the City and which may, where permitted by law, be waived by the City in whole or in part:

(a) The City obtaining the necessary approvals of all regulatory or other applicable governmental authorities having jurisdiction for the financing, construction and operation of the City Facilities (as hereinafter defined) on terms and conditions which are satisfactory to the City, acting reasonably, having regard to its bona fide business interests.

1.2 **Conditions Precedent of FEI.** The obligations of FEI under this Agreement are subject to fulfillment of the following condition on or before August 31, 2012, which is for the sole benefit of FEI, and which may be waived by FEI in whole or in part:

(a) FEI obtaining the necessary approvals of all regulatory or other applicable governmental authorities having jurisdiction, including the British Columbia Utilities Commission ("**BCUC**"), to allow for the installation and operation of the FEI Facilities (as hereinafter defined) in accordance with this Agreement on terms and conditions which are satisfactory to FEI acting reasonably having regard to its bona fide business interests.

1.3 **Delivery of Notice.** If a party's condition precedent has not been satisfied by the required date, such party may deliver notice to the other party that the condition has not been satisfied, whereupon this Agreement will be null and void without liability between the parties and neither party will be under further obligation to the other to complete the transactions contemplated by this Agreement.

1.4 **Failure to Deliver Notice.** If a party fails to deliver notice to the other party of the non-satisfaction of a condition precedent by the required date, then such party will be deemed to have waived the condition.

1.5 **Costs Incurred Prior to Condition Removal.** The parties acknowledge and agree that if either party elects to undertake any work or incur any costs with respect to this Agreement prior to the waiver or satisfaction of the foregoing conditions precedent, such party will be solely responsible for all costs so incurred.

ARTICLE 2 TERM

2.1 **Initial Term.** Subject to section 1.1, this Agreement will be for a period commencing on the Effective Date and expiring on October 31st following the [redacted] anniversary of the date the FEI Facilities and the City Facilities (collectively, the "**LFG Processing System**") is declared Functional by FEI, acting reasonably (the "**Initial Term**"), where "**Functional**" means the LFG Processing System has produced biomethane that meets the specifications set out in Schedule C for a period of seven (7) consecutive days.

2.2 **Renewal Term.** This Agreement will renew automatically for [redacted] (each a "**Renewal Term**") unless terminated earlier in accordance with the provisions of this Agreement.

2.3 **Advance Notice of Termination.** Either party may provide the other party with written notice of its intention to terminate this Agreement at the end of the Initial Term by giving at least one (1) year notice prior to the expiry of the Initial Term or at the end of any Renewal Term by giving at least six (6) months' notice prior to the expiry of any Renewal Term.

2.4 **Term.** The term of this Agreement shall include the Initial Term and two Renewal Term unless terminated earlier in accordance with the provisions of this Agreement, including the provisions in this Agreement for termination in the event of default (the "**Term**").

ARTICLE 3 – RESPONSIBILITY AND OWNERSHIP

3.1 **City Facilities.** The City will design, build, own, operate and maintain an LFG collection facility on the Lands as more particularly described in Schedule A (the "**City Facilities**").

3.2 **FEI Facilities** - FEI will design, build, own, operate and maintain an LFG upgrading system and interconnection facilities on the Lands, as more particularly described in Schedule A (the "**FEI Facilities**").

3.3 **Electrical Infrastructure.** FEI will build electrical infrastructure on the Lands, including electricity poles, and interconnection points, if such infrastructure is not otherwise available on the Lands to power the FEI Facilities.

3.4 **FEI Ownership.** The FEI Facilities are, and shall at all times remain, the property of FEI despite the degree to which they may be annexed or affixed to the Lands and despite any rule of law or equity to the contrary. FEI shall be entitled at any time and from time to time to remove the FEI Facilities in whole or in part, and the FEI Facilities shall be freely alienable by FEI as its own property. FEI shall be entitled to install signage and notices on the FEI Facilities identifying FEI's ownership.

3.5 **Government Approvals.** Each party shall obtain and maintain all consents, permits, filings, orders or other approvals, including governmental consents and approvals, building and construction permits, environmental permits, zoning changes or variances (collectively the "**Approvals**") required, affecting or necessary for the ownership, installation, maintenance, repair and operation of their respective facilities.

3.6 **BCUC Approval.** The City acknowledges FEI is a public utility as defined in the *Utilities Commission Act (British Columbia)* and this Agreement, including the terms and conditions contained herein and any amendments thereto, are subject to BCUC approval. If BCUC approval is granted subject to terms and conditions which are not reasonably satisfactory to FEI having regard to its *bona fide* business interests, the parties will negotiate in good faith to address the impacts thereof, including mitigation of costs.

3.7 **Future Opportunities.** The parties acknowledge the scope of this agreement is the conversion of LFG into biomethane for injection into FEI natural gas pipeline and agree that in the event of change in market conditions, economic shifts or alternative technologies and methodologies that utilize LFG as an energy source, the parties agree to review such alternate future opportunities at the request of the other party for its feasibility and financial impact. Any such review and consideration of future opportunities will in not way affect the terms and conditions of this Agreement.

ARTICLE 4 - CONSTRUCTION AND DESIGN

4.1 **Standard of Design and Construction.** Each party will design and develop their respective facilities in accordance with best engineering practices in order to maximize the capture, delivery and efficiency in the collection of LFG and upgrading the LFG into biomethane. Final design specifications must be approved by a professional engineer prior to the commencement of construction. Each party will design, build, operate and maintain their respective facilities in accordance with all applicable codes and standards.

4.2 **Interface and Interconnection Design.**

(a) In order to facilitate the connectivity between the City Facilities and the FEI Facilities, FEI and the City agree to:

i. cooperate in the design, permitting, construction and connection of the respective facilities, including any upgrades and modifications to such facilities;

ii. design facilities in such a way that each party can share routine operating data as available and work with the other party to optimize operation of their respective facilities;

iii. notify each other in advance of proposed operational changes or system modifications or upgrades to their respective facilities to avoid such changes, modifications or upgrades negatively impacting the operation of the other party's facilities; and

iv. within one Business Day advise the other party of any unexpected operational issues that may negatively impact the other party's facilities or their operation, where a "**Business Day**" anywhere in this Agreement means a day other than a Saturday, Sunday or statutory holiday, (including a day in lieu of a statutory holiday, where the statutory holiday falls on a Saturday or Sunday) and if the last day for doing an act or delivering a notice falls on a day other than a business day then such date shall be deemed extended to the next following Business Day.

(b) The City will seek input from FEI regarding interconnection points and interconnection specifications during the design phase of the City Facilities. Prior to the commencement of construction of the City Facilities, the City shall provide to FEI for review and input a copy of the drawings and design specifications of the City Facilities and will incorporate any specific design or construction standards that FEI may require in order to ensure connectivity of the City Facilities with the FEI Facilities, provided that in no event will FEI be responsible in any way for the engineering, design, construction or operation of the City Facilities.

4.3 **Connection to Utilities.** Each party is responsible for connecting their respective facilities to the utilities infrastructure on the Lands, whether pre-existing or constructed by either party pursuant to this Agreement.

4.4 **Notice of Completion of the City Facilities.** The City shall provide FEI a minimum of thirty (30) days' written notice of the anticipated completion date of the construction of the City Facilities in order to allow FEI adequate time to prepare for and coordinate the interconnection of the FEI Facilities and the City Facilities.

4.5 **Connection of Facilities.** FEI will connect the City Facilities to the FEI Facilities. The City shall be present during the interconnection to provide assistance as required.

4.6 **Project Manager**. Each party shall appoint a project manager to oversee the design and construction of their respective facilities and advise the other party of the name and contact information of such project manager upon execution of this agreement.

4.7 **Project Schedule** – Each party will use commercially reasonable efforts to design and install their respective facilities commencing immediately upon removal of the conditions precedents in accordance with ARTICLE 1 to enable the LFG Processing Facility to be Functional within one year of condition removal. Upon execution of this Agreement, FEI will provide to the City a proposed project schedule and will provide an updated schedule upon receipt of BCUC project approval.

ARTICLE 5 – OPERATION AND MAINTENANCE

5.1 **City Maintenance.** Except in the event of emergency, the City shall provide FEI with a minimum of thirty (30) business days' written notice of any maintenance or repair of the City Facilities that will affect the quality or quantity of LFG delivered to the FEI Facilities, including the scheduled start and end date and reasonable detail of the impact of the maintenance or repair on the quality or quantity of LFG and will use commercially reasonable efforts to schedule maintenance and repair activities between the months of May through September.

5.2 **City Process Changes.** The City shall provide FEI with ninety (90) days' written notice of any material process change or equipment upgrades that may affect the quality or quantity of the LFG including details of how the change(s) may affect the quantity or quality of the LFG.

5.3 **FEI Maintenance.** Except in the event of emergency, FEI shall provide the City thirty (30) business days' written notice of any proposed maintenance or repair of the FEI Facilities that will affect the delivery of LFG to the FEI Facilities, including requiring the City to shut off its delivery of LFG during the maintenance or repair period. Such notice shall provide reasonable detail of the impact of the maintenance or repair on the receipt of LFG and its conversion into biomethane.

5.4 **Emergency Work.** In the event of emergency repair or maintenance work, each party will provide verbal notice to the other party as soon as possible and follow-up with written details as soon as practical thereafter.

5.5 **Emergency Contacts.** Each party will provide the other party with a twenty four (24) hour emergency contact number which can be used to notify the other party of emergencies.

5.6 **Emergency On-Call Services.** FEI will provide twenty four (24) hour a day on-call emergency services for the FEI Facilities to respond to any leak or suspected leak of any contaminants from the FEI Facilities.

5.7 **Non-Emergency Services.** In the event of a non-emergency interruption in the operation of the FEI Facilities, FEI shall not be obligated to perform any response or maintenance or repair service until the next business day.

5.8 **Excuse from Non-Performance for Maintenance.** Neither party will be considered to be in default under this Agreement where such party's non-performance is as a result of undertaking maintenance or repair on their portion of the LFG Processing System provided that such party is diligently undertaking such maintenance or repair to minimize its impacts and it being the intention of the parties that maintenance or repair work will not exceed 5 days per month.

5.9 **Landfill Regulation Change.** In the event that the British Columbia Ministry of Environment Landfill Gas Management Regulation changes such that the efficiency of the collection system becomes a requirement rather than a guideline and the resulting operational change results in a material change in LFG composition, the City not will be considered in default under this agreement provided that the City makes commercially reasonable efforts to continue to provide gas that meets the LFG Specifications in Schedule B.

5.10 **Data Sharing.** The parties shall extend cooperation to each other to provide for the orderly management and operation of the LFG Processing System and shall:

(a) upon request, share the operating data of their respective facilities with the other party; and

(b) meet a minimum of once per calendar year to discuss methods and additional projects that may improve LFG Processing System operability or increase the environmental benefits of the LFG Processing System.

FEI and City agree to share information related to any spot-check of the LFG quality data with each other, including, but not limited to, information related to the parameter measured, the date of the sample and the date of the analysis, the sampling methodology, the sampling equipment, detection limits, lab testing and equipment, and independent certified lab analysis of samples, that FEI or City may decide to obtain.

5.11 **Downtime.** The City recognizes that FEI intends to run the FEI Facilities continually and that a consistent source of LFG is critical to FEI's utilization process. Accordingly, the City agrees to use commercially reasonable efforts to avoid downtime for the City Facilities beyond a maximum of five (5) days per month.

5.12 **System Improvement.** Recognizing the value in continued improvement in operating efficiency and LFG production, the parties agree to meet periodically to discuss methods and future initiatives that may improve system operability or improve the environmental benefit of the project.

5.13 **Operating Certificates.** Each party will update and maintain any relevant permits or operating certificates to reflect the operation of the LFG Processing System on the Lands.

5.14 **Utilities.** FEI will be responsible for utility operating costs with respect to the FEI Facilities.

ARTICLE 6 – ACCESS TO AND USE OF LANDS

6.1 **Grant of License.** Subject to section 1.1, in order to enable the construction, operation, maintenance and repair of the FEI Facilities on the Lands and any electrical infrastructure constructed on the Lands by FEI as provided herein, the City agrees to grant to FEI a non-exclusive irrevocable license to a portion of the Lands and access over the Lands by way of written agreement made concurrent with this Agreement (the "**License of Occupation**").

6.2 **Termination of License of Occupation.** The parties acknowledge and agree that this Agreement will automatically terminate upon expiration or termination of the License of Occupation.

6.3 **License of Occupation.** Upon completion of design of the FEI Facilities a License of Occupation will be granted by the City to FEI which License of Occupation shall detail the specific location of the FEI Facilities.

ARTICLE 7 – QUALITY, QUANTITY, AND TITLE

7.1 **LFG Specifications.** The City will make commercially reasonable efforts to work cooperatively with FEI to optimize LFG composition such that it can be converted to biomethane using the FEI Facilities. In order to be accepted by FEI, the LFG must meet the specifications set out in Schedule B (the "**LFG Specifications**"). Any LFG not meeting the LFG Specifications will be returned to the City Facilities and may be used, sold or otherwise disposed of by the City in a commercially and environmentally reasonable manner or flared for the purpose of environmental regulatory compliance.

7.2 **Volume and Delivery Quantity.** The parties expect the average volume of LFG delivered to the receipt point as shown on the diagram included in Schedule A (the "**Receipt Point**") to be approximately 51,000 gigajoules ("**GJ**") per year. Subject to section 7.6, the City agrees to deliver LFG to the Receipt Point in the following quantities and subject to the following limitations, as measured by equipment forming part of the FEI Facilities:

(a) **Minimum Monthly Average Flow Rate** - 240 m3/hr (at STP);

(b) **Maximum Monthly Average Flow Rate** - 880 m3/hr (at STP); and

(c) **Base Monthly Average Flow** ("BMAF") **Rate** - 415 m3/hr (at STP),

Where, "**STP**" means standard temperature and pressure or 15°C and 101.325kPA.

7.3 **Future Specification.**

(a) Both parties agree to review the operation of the LFG Processing System at a time no earlier than one year and no later than two years after the LFG Processing System is declared Functional. At that time the existing LFG Specifications will be compared to actual data. If the City cannot meet the LFG Specifications, FEI may modify the LFG Specifications such that the City can reasonably be expected to meet the revised LFG Specifications.

(b) Any changes to the LFG Specifications would be subject to confirmation that the FEI Facilities could successfully produce biomethane using LFG that meets a revised specification;

(c) If the existing LFG Specifications is changed, FEI and the City agree to adjust the Purchase Rate to account for any additional capital or operational costs that FEI may incur as a result of changing the LFG Specifications.

7.4 **Energy Content and Measurement.**

(a) FEI will be responsible for measuring the flow at the Receipt Point and determining compliance of the LFG with the LFG Specifications. Where required, FEI will meet all Measurement Canada standards. Upon request by the City, FEI will provide evidence of compliance to measurement standards.

(b) If at any time FEI, acting reasonably, determines the LFG does not meet the LFG Specifications or there is an imminent safety risk, FEI may immediately shut off flow of the LFG to the FEI Facilities and notify the City thereafter of reason therefore. Upon resolution of the cause for the shut off by the appropriate party, FEI will re-initiate LFG flow.

7.5 **Exclusivity.** Subject to section 7.6, FEI shall have the sole right to purchase all volumes of LFG produced by the City Facilities up to the Maximum Supply. The City shall have access to 100 m3/hr of LFG to power its existing micro-turbine power generation assets for 3 years from the date the LFG Processing System is declared Functional provided the LFG meets the minimum LFG flow requirements, as stated in Section 7.2.

7.6 **Excess Production.** If, from time to time, the City anticipates LFG production may exceed the Maximum Monthly Average Flow, the City shall notify FEI immediately of the anticipated delivery quantity, and FEI may, in its discretion, accept the additional LFG production volume. Any excess LFG not accepted by FEI remains the sole property of the City and may be used, sold or otherwise disposed of by the City in a commercially and environmentally reasonable manner or flared for the purpose of environmental regulatory compliance.

7.7 **Shortfall in Supply.** If the quantities of LFG are not regularly provided by the City to FEI in accordance with section 7.2 and the LFG Specifications, and in any event for more than any 6 months in a year, the City will use commercially reasonable efforts to rectify the deficiency in an expedited manner.

7.8 **Return Flow to City Facilities.** All return flow of raw LFG shall meet the flow and pressure requirements of the delivery system for the current City flare and any expanded system for flaring required by the City during the term of this Agreement.

7.9 **Title and Warranty.** Title to and responsibility for the LFG shall pass from the City to FEI upon delivery to Receipt Point. The City warrants that it has the right to convey and will transfer good and merchantable title to the LFG free and clear of all liens, encumbrances and claims.

7.10 **Option to Purchase Biomethane.** FEI agrees to offer the City the right to purchase up to 20% of the biomethane produced at the FEI Facilities at a price equal to the then current FEI biomethane rate.

ARTICLE 8 – PURCHASE PRICE AND PAYMENT

[redacted] **Purchase Price.** [redacted]

$$\text{Purchase Rate} = \text{Base Rate} \times \left(\frac{\text{AAMC}}{\text{BMMC}}\right) \times \left(\frac{\text{AAMF}}{\text{BMAF}}\right)^{\frac{1}{3}}$$

[redacted]

[redacted]

8.2 **Failure to Meet Average Requirements.**

If either:

(i) the Actual Average Methane Concentration does not meet the minimum average methane content requirement set out in the LFG Specifications; or

(ii) the Actual Average Monthly Flow does not meet the Minimum Monthly Average Flow rate as set out in section 7.2(a);

FEI is not required to make any payment to the City for any LFG delivered to the Receipt Point in such month.

8.3 **Excuse from Specifications.**

Provided the average requirements in section 8.2 have been meet, if when measured:

(i) the Oxygen or Nitrogen content of the LFG exceeds the requirement set out in the LFG Specifications; or

(ii) the flow in is below 240 m3/hr;

for a cumulative period not exceeding 5 Days (where "Day" means a 24 hour period) per Month and provided FEI has accepted such non-compliant LFG, FEI shall make payment to the City for such non-compliant LFG delivered to the Receipt Point in such Month.

8.4 **Base Rate Adjustment.** [redacted]

8.5 **Base Rate at Renewal.** [redacted]

8.6 **Maximum Base Rate.** [redacted]

8.7 **Provision of Calculation.** If requested, FEI will provide to the City its calculations of Purchase Rate and the adjusted Base Rate, along with all production, cost and other information used in calculating the biomethane rate.

8.8 **Payment Terms.**

(a) On or about the 15th day of each month, FEI shall generate a statement for the preceding month showing the quantity of LFG delivered to the Receipt Point in GJ, the Purchase Rate, and the amount payable. If the quantity of LFG delivered is not known by the billing date, FEI will issue the statement based on a reasonable estimate of the amount delivered and make the necessary adjustments as soon as practical and in any event by the next billing period.

(b) FEI will make payment within 30 days of delivery of the LFG delivery statement to the City.

(c) Any errors in any statement or disputes as to amounts due shall be promptly reported to FEI and any resulting underpayments or overpayments identified will be refunded or repaid.

ARTICLE 9 - GREENHOUSE GAS (GHG)

9.1 **Offsets for Natural Gas Displacement.** The parties expect the operation of the LFG Processing System to qualify for GHG offsets through the displacement of traditional natural gas by carbon neutral biomethane. FEI will administer the GHG offsets associated with such displacement, including quantifying, validating and registering the GHG offsets, and FEI will retain the associated GHG offsets for the supply of biomethane into FEI's distribution system after receiving supply from the City Facilities at the Receipt Point.

9.2 **Right of First Refusal.** If the City generates and is entitled to any GHG offsets for the capture and destruction of methane through the use and operation of the City Facilities, FEI retains the first right of refusal to purchase such GHG offsets in excess of those the City may retain for its own use at fair market price.

9.3 **Cooperation.** Each Party agrees to use commercially reasonable efforts to provide documentation and assistance needed by the other Party to verify displacement and methane destruction and otherwise qualify for GHG credits in accordance with the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. The parties agree to explore ways to cooperate in the administration of GHG credits.

ARTICLE 10 – DEFAULT

10.1 **Default.** Either party (the **"Defaulting Party"**) shall be in default of this Agreement if the Defaulting Party is in breach of any term, covenant, agreement, condition or obligation imposed on it under this Agreement, provided that:

(a) the other party (the **"Non-Defaulting Party"**) provides the Defaulting Party with a written notice of such default and a period of thirty (30) Business Days within which to cure such a default (the **"Cure Period"**); and

(b) the Defaulting Party fails to cure such default during the Cure Period, or if such default is not capable of being cured within the Cure Period, fails in good faith to commence the curing of such default upon receipt of notice of default and to continue to diligently pursue the curing of such default thereafter until cured. Where a Defaulting Party is aware the Cure Period will be in excess of 30 business days they shall provide the other Party with an estimate of the time required to cure as soon as practicable and no less after the default.

10.2 **Effect of Default.** Upon default, the Non-Defaulting Party may, at its option and in addition to and without liability therefore or prejudice to any other right or remedy it may have:

(a) cease performing its obligations under this Agreement, including suspending or refusing to make any payment due hereunder, until the default has been fully remedied, and no such action shall relieve the Defaulting Party from any of its obligations under this Agreement;

(b) undertake the necessary steps to remedy the default at the Defaulting Party's expense, and such action shall not relieve the Defaulting Party from any of its obligations under this Agreement; or

(c) terminate this Agreement immediately upon notice to the other party, whereupon the provisions of ARTICLE 11 shall apply.

ARTICLE 11 - EFFECT OF EXPIRY OR TERMINATION

11.1 **Removal of FEI Facilities.** Upon the expiry of this Agreement, termination of the License of Occupation or in the event of termination upon default pursuant to section 10.2(c), FEI will, within 6 months following the expiry date or termination date, as the case may be, decommission and remove the FEI Facilities from the Lands; provided that FEI will be obligated to remove only those portions of the FEI Facilities located above ground and any portion of the FEI Facilities not removed by FEI will become the property of the City.

11.2 **Termination by FEI under 10.2(c).** In the event of termination by FEI pursuant to section 10.2(c), and subject to 10.1, in addition to FEI's right or obligation to remove the FEI Facilities pursuant to the License of Occupation, FEI may waive any other right or remedy it may have against the City by requiring the City to pay, as a pre-determined amount of final liquidated damages in lieu of pursuing any other right or remedy it may have against the City and the City shall pay to FEI, within 6 months of the effective date of such termination, an amount of final liquidated damages equal to:

(a) the un-depreciated value of below ground assets; and

(b) FEI's costs associated with the removal and decommissioning of the FEI Facilities pursuant to the License of Occupation, including equipment removal and restoration of the License Area (as defined in the License of Occupation).

ARTICLE 12 - INSURANCE REQUIREMENTS

12.1 **Insurance.** Each party shall obtain and maintain during the Term the following insurance coverage, each with respect to its own facilities referred to in this Agreement, and provide proof of coverage to the other party:

(a) General Commercial Liability Insurance from insurers registered in and licensed to underwrite insurance in British Columbia for bodily injury, death and property damage in the amount of $5,000,000 per occurrence naming the other party as an additional insured with respect to this Agreement; and

(b) Such other insurance as reasonably required by the other party from time to time.

Each party shall be responsible for payment of any deductibles of their policies. All such policies shall provide that the insurance shall not be cancelled or changed in any way without the insurer giving at least 10 days written notice to the other party.

ARTICLE 13 - INDEMNIFICATION AND LIMITATION OF LIABILITY.

13.1 **Indemnification.** Each party shall indemnify and hold harmless the other party and its employees, directors and officers 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:

(a) the negligence or wilful misconduct of such party, its employees, directors, officers or contractors; or

(b) the breach by such party of any of the provisions contained in this Agreement.

13.2 **Limitation of Liability.** Each party's liability to the other party under this ARTICLE 13 shall be limited to the payment of direct damages. In no event shall either party be responsible or liable to the other party for any indirect, consequential, punitive, exemplary or incidental damages of the other party or any third party arising out of or related to this Agreement even if the loss is directly attributable to the gross negligence or wilful misconduct of such party, its employees, or contractors

13.3 **Duty to Mitigate.** Each party has a duty to mitigate the damages that would otherwise be recoverable from the other party pursuant to this Agreement by taking appropriate and commercially reasonable actions to reduce or limit the amount of such damages or amounts.

ARTICLE 14 - FORCE MAJEURE

14.1 **Effect of Force Majeure.** Neither party will be in default of this Agreement by reason only of any failure in the performance of such party's obligations pursuant to this Agreement if such failure is caused by any event of Force Majeure (as defined below) that makes it commercially impracticable or unreasonable for such party to perform its obligations under this Agreement and, in such event, the obligations of the parties will be suspended to the extent necessary for the period of the Force Majeure condition, save and except neither party will be relieved of or released from its obligations to make payments to the other party as a result of an event of Force Majeure. For the purpose of this section, **"Force Majeure"** means any cause which is unavoidable or beyond the reasonable control of any party to this Agreement and which, by the exercise of its reasonable efforts, such party is unable to prevent or overcome, including, acts of God, war, riots, intervention by civil or military authority, strikes, lockouts, accidents, acts of civil or military authority, or orders of government or regulatory bodies having jurisdiction, or breakage or accident to machinery or lines of pipes, or freezing of wells or pipelines or the failure of gas supply, temporary or otherwise; provided however, the lack of funds or other financial cause shall not be an event of Force Majeure.

14.2 **Notice of Force Majeure.** The party whose performance is prevented by an event of Force Majeure must provide notification to the other party of the occurrence of such event as soon as reasonably possible.

ARTICLE 15 - DISPUTE RESOLUTION

15.1 **Dispute Resolution.** Where any dispute arises out of or in connection with this Agreement, including failure of the parties to reach agreement hereunder, either party may give notice of the dispute to the other and request the other party to appoint senior representatives to meet and attempt to resolve the dispute either by direct negotiations or mediation. Disputes that are not resolved through negotiation or mediation within 30 business days of the delivery of the notice of dispute may be submitted for final resolution by arbitration before a single arbitrator and administered by the British Columbia International Commercial Arbitration Centre ("BCICAC") under its "Shorter Rules for Domestic Commercial Arbitration" in Vancouver, British Columbia, Canada. The language of that arbitration will be English. Alternatively, the Parties may agree, within 20 business days of the delivery of a notice of dispute, to submit that dispute for final resolution by arbitration in another manner.

15.2 **Performance of Obligations.** The parties shall continue to fulfill their respective obligations pursuant to this Agreement during the resolution of any dispute in accordance with this section.

ARTICLE 16 - CONFIDENTIALITY

16.1 **Confidentiality.** All material, data, information or documentation received by a party (the "**Receiving Party**") which has been specifically marked by other party (the "**Disclosing Party**") as confidential (the "**Information**") shall be deemed to be confidential and proprietary to the Disclosing Party. Except as otherwise provided herein, the Receiving Party shall not directly or indirectly disclose the Information to any third party without the prior written consent of the Disclosing Party. Such consent is not required where the third party is another contractor or consultant retained by the Receiving Party for the purposes contemplated in this Agreement and to the extent that such disclosure is necessary for the proper performance of this Agreement or such disclosure is required by law, including the *Freedom of Information and Protection of Privacy Act.*

16.2 **Exception for Regulatory Submission.** Despite the foregoing, the Receiving Party may use the Information in the preparation of and submissions to regulatory agencies.

16.3 **Exclusions.** The obligation of confidentiality set out above shall not apply to Information which is known to either party prior to their receipt thereof, which is generally available to the public or which has been obtained from a third party which has the right to disclose the same.

ARTICLE 17 – GENERAL

17.1 **Costs.** Except as otherwise set out in this Agreement, each party will be responsible for the payment of its own costs related to performing its obligations under this Agreement.

17.2 **Publicity.** Neither party shall initiate any media releases, interviews, or presentations to the media relating to this Agreement without the agreement and approval of the other party, not to be unreasonably withheld or delayed. To the extent possible, each party will use reasonable efforts to consult with the other party prior to public discussions relating to this Agreement and, in any event, will notify the other party of the details of such disclosure thereafter, such disclosure subject always to the confidentiality obligations set out in Article 16.

17.3 **Compliance with Laws.** Each party covenants, as a material provision of this Agreement, it will comply with all codes, statutes, by-laws, regulations or other laws in force in British Columbia during the Term.

17.4 **No Derogation of Power**: Nothing contained or implied in this Agreement shall prejudice or affect the rights and powers of the City in the exercise of its functions under the *Local Government Act* and *Community Charter* or its rights and powers under any other statute, bylaw, order, and regulation to the extent that the same are applicable to the Lands, all such functions, powers and duties which may be fully and effectively exercised as if this Agreement had not been executed.

17.5 **Governing law.** This Agreement shall be governed by and construed in accordance with the laws of the Province of British Columbia and the laws of Canada. The parties hereby attorn to the jurisdiction of the courts of British Columbia and all courts competent to hear appeals therefrom.

17.6 **Notice.** Any invoices, payments, notices or other communication required to be given or made pursuant to the Agreement shall, unless otherwise expressly provided herein, be in writing and be personally delivered to or sent by facsimile , to either party at its address set forth below and be deemed to have been received the next business day following delivery by facsimile :

If to: **FortisBC Energy Inc.**
16705 Fraser Highway, Surrey, BC V4N 0E8

Attention: Doug Stout, VP Energy Solutions & External Relations
Fax: 604-592-7670

With a copy to: scott.gramm@fortisbc.com

If to: **City of Kelowna**
1435 Water Street, Kelowna, BC V1Y 1J4

Attention: Mark Watt
Fax: 250-862-3363

With a copy to: denevoldson@kelowna.ca

17.7 **Schedules.** The schedules attached to this agreement are an integral part of this Agreement and are hereby incorporated into this Agreement as a part thereof.

17.8 **Amendments to be in writing.** Except as set out in this Agreement, no amendment or variation of the Agreement shall be effective or binding upon the parties unless such amendment or variation is set forth in writing and duly executed by the parties.

17.9 **Waiver.** No party is bound by any waiver of any provision of this Agreement unless such waiver is in writing. No waiver of any provisions of this Agreement constitutes a waiver of any other provision, nor does any waiver constitute a continuing waiver unless otherwise provided.

17.10 **Enurement.** This Agreement enures to the benefit of and is binding on the parties and their respective successors and permitted assigns.

17.11 **Survival.** The following provisions shall survive the termination or expiration of this Agreement: ARTICLE 11, ARTICLE 13, ARTICLE 15, ARTICLE 16 and sections 17.5, 17.6 and this section 17.11.

17.12 **Remedies Cumulative.** All rights and remedies of each party under this Agreement are cumulative and may be exercised at any time and from time to time, independently and in combination.

17.13 **Severability.** If any provision of this Agreement is determined by a court of competent jurisdiction to be invalid, illegal or unenforceable in any respect, such determination does not impair or affect the validity, legality or enforceability of any other provision of this Agreement.

17.14 **Further Assurances.** The parties shall sign such further and other documents and do and perform and cause to be done and performed such further and other acts and things as may be necessary or desirable in order to give full effect to this Agreement.

17.15 **Entire Agreement.** This Agreement, together with the License of Occupation, constitutes the entire agreement between the parties with respect to the subject matter of this Agreement and supersedes all prior agreements, understandings, negotiations and discussions, whether oral or written. There are no conditions, covenants, representations, warranties or other provisions, whether express or implied, collateral, statutory, or otherwise, relating to the subject matter of this Agreement except as provided in this Agreement.

17.16 **Time is of the essence.** Time is of the essence of this Agreement.

17.17 **Execution.** This Agreement may be executed in counterparts, each of which shall be deemed as an original, but all of which shall constitute one and the same instrument. Delivery of an executed counterpart of this Agreement by facsimile or electronic transmission hereof shall be as effective as delivery of an originally executed counterpart hereof.

17.18 **Interpretation.** In and for the purpose of this Agreement

(a) this "**Agreement**" means this agreement as the same may from time to time be modified, supplemented or amended in effect,

(b) the headings are for convenience only and do not form a part of this Agreement and are not intended to interpret, define or limit the scope, extent or intent of this Agreement, and

(c) the singular of any term includes the plural, and vice versa; the use of any term is generally applicable to any gender and, where applicable, a corporation; the word "or" is not exclusive and the word "including" is not limiting (whether or not non-limiting language (such as "without limitation" or "but not limited to" or words of similar import) is used with reference thereto).

IN WITNESS WHEREOF the parties hereto have executed this Agreement as of the day and year first above written.

FORTISBC ENERGY INC., by its authorized signatory:	**CITY OF KELOWNA**, by its authorized signatory:
John C. Walker President & CEO FortisBC	Walter Gray, MAYOR
	Karen Needham, Deputy City Clerk

Schedules attached:

Schedule A – City Facilities and FEI Facilities

Schedule B – LFG Specifications

Schedule C – Biomethane Specifications

Schedule D – LFG Measurement

SCHEDULE A

CITY FACILITIES AND FEI FACILITIES

A. City Facilities

The City Facilities are comprised of the LFG collection facility, which include, but is not limited to, the following components:

(a) the LFG collection header;

(b) the LFG collection system (vertical or horizontal wells);

(c) all associated valves, monitoring points, and supports;

(d) a raw LFG flow meter;

(e) a real-time raw LFG methane level monitor;

(f) condensate removal (traps and knockouts);

(g) a real-time oxygen level monitor;

(h) a blower for the collection system;

(i) flare system and a provision for connection to the existing flare piping from the FEI Facilities; and

(j) piping up to the FEI Facilities for delivery of LFG to Connection Point;

B. FEI Facilities

The FEI Facilities are comprised of the LFG upgrading system and interconnection facilities, which include, but are not limited to, the following components:

(a) Receipt piping connection (a flange);

(b) LFG measurement (flow, O_2%, N_2%, CH_4% and CO_2%)

(c) water removal and connection to existing condensate system;

(d) sulfur compound removal;

(e) siloxane removal;

(f) volatile organic compound removal;

(g) carbon dioxide removal;

(h) monitoring for safe operation;

(i) compression;

(j) upstream shut-off and safety-relief;

(k) a means to destroy methane that is a direct product of the process;

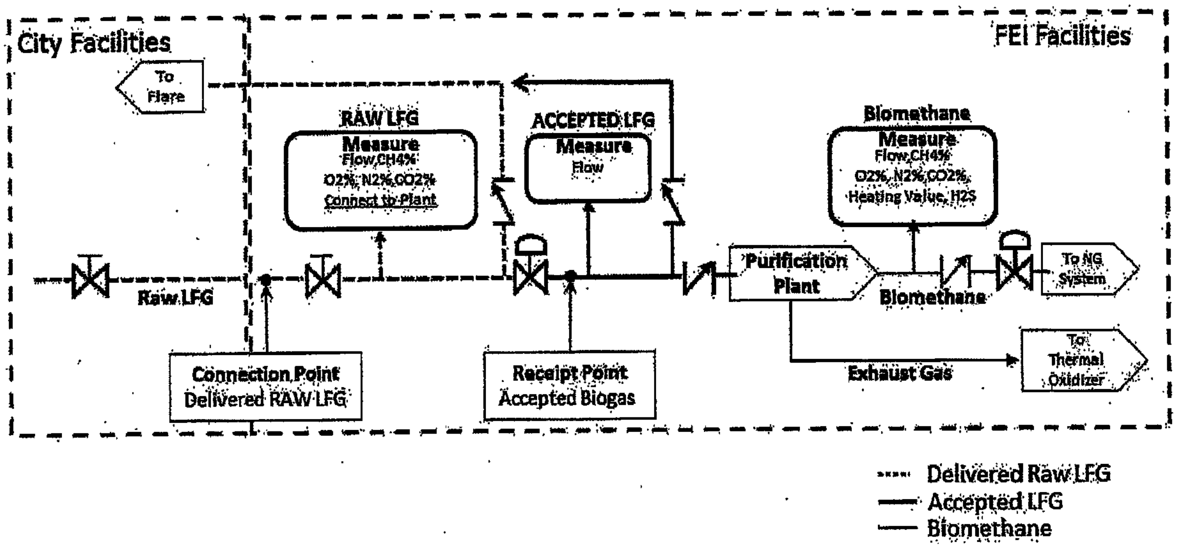
(l) thermal oxidization of waste gas if required;

(m) interconnection between the LFG upgrade equipment and the existing FEI natural gas distribution system; and

(n) metering, composition monitoring and odorizing of biomethane.

C. Interconnection Schematic

The schematic below is intended to describe the interface between the City Facilities and the FEI Facilities.



SCHEDULE D

LFG MEASURMENT

1. The parameters indicated below will be measured at a minimum of 10 minute intervals "Instantaneous Measurements":

   (a) Methane concentration (%)

   (b) Nitrogen concentration (%)

   (c) Oxygen concentration (%)

   (d) Flow (m^3/hr)

   (e) Temperature (°C)

   (f) Pressure (kPa)

2. Actual Average Monthly Flow ("AAMF") shall refer to the monthly arithmetic mean (in m^3/hr) of the LFG flow data obtained from a certified flow meter within a given Month at STP.

$$\textbf{Actual Average Monthly Flow}\left(\frac{m3}{hr}\right) = \frac{1}{n}\sum_{k=1}^{n} FLOW_k$$

   Where:

   - n is the number of samples in a Month taken at a minimum of once every 10 minutes.
   - FLOW is the flow in m^3/hr measured at a minimum of once every 10 minutes.

3. Actual Average Methane Concentration ("AAMC") shall refer to the weighted arithmetic mean of the methane concentration data within the LFG obtained from a certified methane detector within a given Month.

$$\textbf{Average Monthly Methane Concentration(Vol \%)} = \frac{\sum_{k=1}^{n}(FLOW_k\ x\ MC_k)}{\sum_{k=1}^{n} FLOW_k}$$

   Where:

   - n is the number of samples in a Month taken at a minimum of once every 10 minutes.
   - MC is the methane concentration measured at a minimum of once every 10 minutes.
   - FLOW is the flow in m^3/hr measured at a minimum of once every 10 minutes.

SCHEDULE C

BIOMETHANE SPECIFICATIONS

1. The Biomethane must meet the pipeline quality specifications identified in the Westcoast Energy General Terms and Conditions, Article 12, item 12.06, as may be amended, replaced or superseded from time to time, provided that if, during the Term, such terms and conditions cease to exist, then the applicable specifications shall be those prescribed by FEI, acting reasonably, at such time and from time to time.

For references purposes only, the applicable Westcoast Energy General Terms and Conditions, Article 12, item 12.06 as at the Effective Date of this Agreement are recreated below:

> 12.06 *Residue Gas at Receipt Points - Residue gas delivered to Westcoast by or for the account of a Shipper at a Receipt Point shall:*
>
> *(a)* *not contain sand, dust, gums, oils and other impurities or other objectionable substances in such quantities as may be injurious to pipelines or may interfere with the transmission or commercial utilization of the gas;*
>
> *(b)* *not contain more than six milligrams per cubic meter of hydrogen sulphide;*
>
> *(c)* *not contain water in the liquid phase and not contain more than 65 milligrams per cubic meter of water vapour;*
>
> *(d)* *be free of hydrocarbons in liquid form and not have a hydrocarbon dew-point in excess of minus 9°C at the delivery pressure;*
>
> *(e)* *not contain more than 23 milligrams per cubic meter of total sulphur;*
>
> *(f)* *not contain more than two percent by volume of carbon dioxide;*
>
> *(g)* *be as free of oxygen as Shipper can keep it through the exercise of all reasonable precautions and shall not in any event contain more than 0.4 percent by volume of oxygen;*
>
> *(h)* *have a temperature not exceeding 54°C; and*
>
> *(i)* *have a total heating value of not less than 36.00 megajoules per cubic meter."*

2. In addition to the foregoing, the Biomethane shall:

(a) contain not more than 1 milligram per cubic meter of total siloxanes; and

(b) must be free of objectionable materials.

SCHEDULE B

LFG SPECIFICATIONS

In order to be accepted by FEI, the LFG must meet the following specifications:

(a) be provided downstream of a water knockout;

(b) have an average higher heating value of approximately 18.6 MJ/m3;

(c) have a minimum monthly average methane content of 50% by volume;

(d) have a maximum Nitrogen content of 4.0% by volume;

(e) have a maximum Oxygen content of 0.8% by volume;

(f) be delivered to the FEI Facilities at a delivery pressure of 2.5 kPag;

Agreement

Terasen Gas Inc. and
Columbia Shuswap Regional District
Purchase of Biogas Agreement

May 2010

Terasen Gas

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PURCHASE OF BIOGAS AGREEMENT

THIS AGREEMENT made as of the 25th day of May, 2010.

AMONG:

TERASEN GAS INC.
16705 Fraser Highway
Surrey, British Columbia
V4N 0E8

(hereinafter referred to as "TGI")

AND:

COLUMBIA SHUSWAP REGIONAL DISTRICT
781 Marine Park Drive NE
Salmon Arm, British Columbia
V1E 4P1

(hereinafter referred to as "CSRD")

WHEREAS:

A. TGI is a natural gas utility with a transmission and distribution system in British Columbia;

B. CSRD is a regional district and the owner of a landfill located at 4290 20th Avenue SE, Salmon Arm, British Columbia, which lands are legally described as: Parcel Identifier: 017-462-886, Lot 1, Section 7, Township 20, Range West of the 6th Meridian, Kamloops Division, District Plan KAP45716 (the "Land");

C. CSRD intends to finance, construct and operate of a Landfill Gas ("LFG") collection system (the "CSRD Facilities") and TGI intends to finance, construct and operate a LFG upgrading system (the "TGI Facilities") to convert the LFG to Biogas on the Land;

D. The CSRD Facilities and the TGI Facilities (collectively, the "LFG Processing System") will be interconnected to convert the LFG into Biogas;

E. CSRD has agreed to grant TGI a non-exclusive license for the Land for such purposes and on the terms contained in this Agreement; and

F. TGI wishes to purchase and CSRD wishes to sell LFG under the following terms and conditions.

NOW THEREFORE, in consideration of the mutual promises set out herein and other good and valuable consideration (the receipt and sufficiency of which is hereby acknowledged) the parties agree as follows:

1. SCHEDULES

The following schedules are incorporated into and form part of this Agreement:

Schedule "A" – Terms and Conditions
Schedule "B" – Raw LFG Specifications
Schedule "C" – Gas Specifications
Schedule "D" – Sample Incentive Payment Calculation
Schedule "E" – Drawing of the License Area

2. INTERPRETATION

In and for the purpose of this Agreement

(a) this "Agreement" means this agreement as the same may from time to time be modified, supplemented or amended in effect,

(b) any reference in this Agreement to a designated "Article", "section" or other subdivision is to the designated Article, section or other subdivision of this Agreement,

(c) the headings are for convenience only and do not form a part of this Agreement and are not intended to interpret, define or limit the scope, extent or intent of this Agreement,

(d) the singular of any term includes the plural, and vice versa, the use of any term is generally applicable to any gender and, where applicable, a corporation, the word "or" is not exclusive and the word "including" is not limiting (whether or not non-limiting language (such as "without limitation" or "but not limited to" or words of similar import) is used with reference thereto),

(e) unless otherwise specified herein, all capitalized terms used herein shall bear the meanings set out in Schedule "A" and each word and phrase used herein and not otherwise defined herein, but which has an accepted meaning in the custom and usage of the Western Canadian oil and gas transportation industry, shall have such accepted meaning, and

(f) in the event that the terms herein are inconsistent with the terms and conditions found in Schedule "A", the terms herein shall govern.

3. **TERM**

3.1 **Term.** The Term of this Agreement shall commence on the Effective Date and expire on the November 1st following the fifteenth (15th) anniversary of the date that the LFG Processing System is declared Functional by TGI (the "First Delivery Date").

3.2 **Renewal.** This Agreement will renew automatically for additional one (1) year terms (each a "Renewal Term") unless a party provides the other party with written notice of its intention to terminate this Agreement at least one (1) year prior to the expiry of the Term and six (6) months prior to the expiry of any Renewal Term.

3.3 **Definition.** For the purposes of this Agreement, any reference to the Term shall include all Renewal Terms.

4. **DELIVERY**

4.1 **Delivery Rate.** TGI is not required to take delivery of any LFG supplied at an hourly delivery rate that exceeds 10 GJ (the "Maximum Delivery Rate").

4.2 **Maximum Daily Delivery.** TGI shall not be required to take delivery of any LFG supplied to it by CSRD in excess of the TGI Facilities maximum processing capacity of 125 GJ per Day (the "Maximum Daily Delivery").

4.3 **Maximum Annual Supply.** TGI shall not be required to take delivery of any LFG in excess of 40,000 GJ per year (the "Maximum Annual Supply").

4.4 **Delivery Pressure.** CSRD shall deliver the LFG to the TGI Facilities at a minimum delivery pressure of 35 kPa.

4.5 **Baseline Volume.** The parties anticipate the volume of LFG produced by the LFG Processing System to be approximately between 20,000 GJ and 45,000 GJ per year. The baseline volume of LFG (the "Baseline Volume") is all volumes of LFG up to 30,000 GJ per year.

4.6 **Minimum Supply Requirement.** Starting on the First Delivery Date, CSRD must deliver a minimum of 20,000 GJ of LFG per year (the "Minimum Supply Requirement").

4.7 **Failure to meet Minimum Supply Requirement.** In the event that CSRD fails to meet the Minimum Supply Requirement for any year of the Term, representatives from CSRD and TGI will meet to consider if there are improvements to the LFG Processing System that could result in an increase in LFG that would meet the Minimum Supply Requirement and, if such improvements are possible, discuss whether CSRD or TGI or both desires to undertake such improvements. Notwithstanding the above and except as set out elsewhere in this Agreement, neither CSRD nor TGI is obligated to contribute any additional capital to undertake any of the said improvements.

4.8 **Right to Purchase Maximum Annual Supply.** TGI shall have the sole right to purchase from CSRD all volumes of LFG produced by the CSRD Facilities up to the Maximum Annual Supply.

4.9 **Right to Purchase Excess LFG.** Before accepting an offer from a third party to purchase any excess LFG, CSRD agrees to offer any LFG volumes in excess of the Maximum Annual Supply to TGI first at the price offered by the third party.

4.10 **Projected LFG Supply.** In order to assist TGI with its gas supply planning, every six (6) Months CSRD shall provide estimates to TGI of the CSRD's projected delivery of LFG for the next six (6) Months.

4.11 **LFG Source.** The LFG shall be produced as a result of the naturally-occurring anaerobic digestion process in the landfill and collected in the CSRD Facilities located on the Land and converted to Biogas by the TGI Facilities.

5. PRICE OF BIOGAS

5.1 **Base Price.** TGI shall pay CSRD a fee for the Biogas produced by the LFG Processing System (the "Base Price") for the Baseline Volume, calculated in accordance with Section 5.3.

5.2 [redacted]

5.3 [redacted]

[redacted]

5.4 **Renewal Term Base Price Calculation.** TGI will calculate the Base Price for any Renewal Term at least three (3) Months prior to the expiration of the Term and every Renewal Term using the Pricing Formula and updated Biogas production and Unit COS information.

5.5 [redacted]

5.6 **Base Price Documentation.** On an annual basis, TGI will provide to CSRD with its calculations of, along with all production, cost and other information used in calculating, the Base Price under Sections 5.3(b) and 5.4 above.

6. INCENTIVE PAYMENT

6.1 **Incentive Volumes.** TGI will make an incentive payment to CSRD (the "Incentive Payment") for those volumes of Biogas production that exceeds the Baseline Volume (the "Incentive Volume") on an annual basis.

6.2 **Incentive Costs.** TGI will calculate any incremental annual costs incurred by TGI to produce the Incentive Volume (the "Incentive Costs").

6.3 **Incentive Revenue.** TGI will calculate the incentive revenue (the "Incentive Revenue") by multiplying the Incentive Volume (as measured in GJ) with the greater of:

(a) the average Sumas Monthly Index Price per GJ for the previous year; or

(b) TGI's average cost per GJ of third party Biogas purchases for the previous year as determined by TGI.

6.4 [redacted]

6.5 **Incentive Payment Documentation.** On an annual basis, TGI will provide the actual costs, Incentive Volumes and calculations related to the Incentive Payment to CSRD.

7. DESIGN AND CONSTRUCTION OF CSRD FACILITIES

7.1 **CSRD Facilities.** At the Effective Date, CSRD shall, at its sole cost, design, engineer, construct and operate on the Land the CSRD Facilities in a good and workmanlike manner consistent with industry standards and in compliance with all applicable Laws. Specifically, the CSRD Facilities will include but not be limited to, the following components:

(a) the landfill cap system;

(b) the LFG collection header;

(c) the LFG collection system (vertical or horizontal wells);

(d) all associated valves, monitoring points, and supports;

(e) a raw LFG flow meter;

(f) a real-time raw LFG methane level monitor;

(g) condensate removal (traps and knockouts);

(h) a real-time oxygen level monitor;

(i) a blower for the collection system; and

(j) a flare, with provision for connection from the TGI facilities.

7.2 **Design of the CSRD Facilities.** CSRD shall design and develop the CSRD Facilities in accordance with best engineering practices in order to maximize the capture, delivery and efficiency in the collection of raw LFG and the final design specifications for the CSRD Facilities must be approved by a professional engineer prior to construction of the CSRD Facilities.

7.3 **Interface and Interconnection Design.** CSRD will seek input from TGI regarding interconnection points between CSRD facilities and TGI facilities during the design process.

7.4 **Review of Design.** Prior to the start of construction of the CSRD Facilities, CSRD shall provide to TGI for review a copy of the drawings and design specifications of the CSRD Facilities and TGI may advise CSRD on any special design or construction standards that TGI may have to ensure compatibility with the TGI Facilities, provided in no case will TGI bear any responsibility for the engineering, design, construction and operation of the CSRD Facilities.

7.5 **Permitting.** CSRD shall obtain, at its sole cost, all consents, permits and approvals from regulatory or other applicable Governmental Authorities required to construct and operate the CSRD Facilities.

7.6 **CSRD Project Manager.** CSRD shall appoint a project manager (the "CSRD Project Manager") to oversee the design and construction of the CSRD Facilities and, on or before the Effective Date provide TGI with the name and contact information of the CSRD Project Manager.

8. DESIGN AND CONSTRUCTION OF TGI FACILITIES

8.1 **TGI Facilities.** At the Effective Date, TGI shall, at its sole cost, design, engineer, construct and operate on the License Area the TGI Facilities in a good and workmanlike manner consistent with industry standards and in compliance with all applicable Laws. Specifically, the TGI Facilities will include but not be limited to, the following components:

(a) dryers (for water removal);

(b) sulfur compound removal;

(c) siloxane removal;

(d) volatile organic compound removal;

(e) carbon dioxide removal;

(f) associated monitoring to ensure safe operation of the upgrading equipment;

(g) compression;

(h) Biogas quantity measuring equipment;

(i) shut-off valve and safety-relief downstream of the blower;

(j) a means of to destroy methane that is a direct produce of the TGI facilities;

(k) interconnection piping back to the flare if required; and

(l) shut-off valve downstream of the upgrading unit.

8.2 **Design of the TGI Facilities.** TGI shall design and develop the TGI Facilities in accordance with best engineering practices in order to maximize the efficiency of upgrading LFG into Biogas and the final design specifications for the TGI Facilities must be approved by a professional engineer prior to construction of the TGI Facilities.

8.3 **Odorant.** The TGI Facilities will incorporate odorant into the Biogas before the Biogas is injected into the local TGI distribution system (the "TGI Distribution System"). TGI shall design the TGI Facilities to comply with all applicable Laws (in place at the time of the design) with respect to the release of odors from the TGI Facilities. In the event that adjacent landowners complain that the odor from the TGI Facilities is creating a nuisance and is in excess of what is permitted under applicable Laws, then TGI shall use commercially reasonably efforts to mitigate the release of odors from the TGI Facilities.

8.4 **Permitting.** TGI shall obtain, at its sole cost, all consents, permits and approvals from regulatory or other applicable Governmental Authorities required to construct and operate the TGI Facilities.

8.5 **TGI Project Manager.** TGI shall appoint a project manager (the "TGI Project Manager") to oversee the design and construction of the TGI

Facilities and on or before the Effective Date, provide CSRD with the name and contact information of the TGI Project Manager.

9. ELECTRICAL INFRASTRUCTURE

9.1 **Design and Construction of Electrical Infrastructure.** In the event that electrical infrastructure required to operate the TGI Facilities and CSRD Facilities is not available on the Land:

(a) TGI will design and construct or cause to be designed and constructed the electrical infrastructure, including electricity poles and interconnection points, to bring the required electricity to the Land to power the TGI Facilities and the CSRD Facilities; and

(b) CSRD must reimburse TGI for fifty percent (50%) of the total costs, including internal costs and third party costs, incurred by TGI in the design and construction of the electrical infrastructure to bring the required electricity to the Lands.

9.2 **Connection to Electrical Infrastructure.** Each of TGI and CSRD shall be responsible, at their sole cost to connect their respective facilities to the electrical infrastructure on the Lands required to power their respective facilities.

10. INTERCONNECTION OF CSRD FACILITIES AND TGI FACILITIES

10.1 **Interconnection Specifications.** TGI will cause its engineer to provide the interconnection specifications to CSRD during the design phase of the CSRD Facilities.

10.2 **Compatibility.** CSRD and TGI shall ensure the final engineering, design and construction of the CSRD and TGI Facilities are compatible with and can be connected to each other.

10.3 **Interconnection.** TGI shall be responsible for constructing the interconnection between the CSRD Facilities and the TGI Facilities, which interconnection shall form part of the TGI Facilities.

10.4 **Notice of Completion of CSRD Facilities.** CSRD shall provide to TGI a minimum of thirty (30) days notice of the anticipated completion date of the construction of the CSRD Facilities in order to allow TGI adequate time to prepare for and coordinate the interconnection of the TGI Facilities and the CSRD Facilities.

10.5 **Attendance of CSRD Project Manager.** CSRD shall cause the CSRD Project Manager to be present during the interconnection to the CSRD Facilities and TGI Facilities to provide assistance with the interconnection, if required.

11. LICENSE TO USE LAND

11.1 **License.** CSRD grants a non-exclusive license to TGI and its authorized employees, contractors and agents to install, operate, maintain, and replace the TGI Facilities on the portion of the Land shown approximately on Schedule "E" (the "License Area") and to enter upon and cross over the Land in order to access the License Area and have continual access to the TGI Facilities over the License Area. CSRD agrees to allow TGI and its authorized employees, contractors and agents, to bring such materials, supplies, equipment, machinery and vehicles onto the License Area required by TGI for the purposes set out in this Agreement and have unimpeded use of the TGI Facilities on a continuous basis throughout the Term.

11.2 **License Terms.** In connection with its license to use the License Area under Section 11.1, TGI shall:

(a) not do, suffer or permit any thing in, on or from the License Area that may be or become a nuisance or annoyance to the owners, occupiers or users of land or premises adjacent to or near the Land or to the public, including the accumulation of rubbish or unused personal property of any kind;

(b) not do, suffer or permit any act or neglect that may in any manner directly or indirectly cause injury to the License Area;

(c) use the License Area only for the purposes set out in this Agreement;

(d) keep the License Area in a safe, tidy and sanitary condition;

(e) take all reasonable precautions to ensure the safety of all persons using the License Area;

(f) keep the License Area free of any rubbish, litter and debris and keep the areas adjacent to the License Area free of any rubbish, litter and debris arising out of or resulting from TGI's use of the License Area;

(g) pay all costs and expenses of any kind whatsoever associated with and payable in respect of the License Area, the TGI Facilities and all equipment, furniture and other personal property brought onto the License Area by TGI and all activities conducted on or from the License Area by TGI, including without limitation, property all taxes, levies, charges and assessments, permit and license fees, repair and maintenance costs, administration and service fees, telephone, electrical, gas, water, sewage disposal and other utility and service charges and payments for work and materials;

(h) carry on and conduct its activities in, on and from the License Area in compliance with any and all Laws from time to time in force, and to obtain all required approvals and permits thereunder, and not to do or omit to do anything in, on or from the License Area in contravention thereof;

(i) not erect or place any sign or advertising of any kind on the License Area, without the prior written approval of CSRD, acting reasonably;

(j) in its use of and activities on the License Area, comply with the *Workers Compensation Act* (British Columbia) and all regulations and orders from time to time in force thereunder, including the Occupational Health and Safety Regulations, and, upon request from CSRD, provide evidence of any required registration under that Act and evidence of compliance with any requirement under that Act to make any payments or pay assessments;

(k) shall be the "prime contractor" under the *Workers Compensation Act* (British Columbia) for the License Area and fulfill all of the "prime contractor's" obligations under that Act, including by ensuring that the activities of any employers, workers and other persons on the License Area relating to occupational health and safety are coordinated and by doing everything that is reasonably possible to establish and maintain a process that shall ensure compliance with that Act and regulations thereunder, including the Occupational Health and Safety Regulations; and

(l) discharge any builders lien which may be filed against the title to the Land in the land title office within 30 days of filing in the land title office, and comply at all times with the *Builders Lien Act* (British Columbia), in respect of any improvements, work or other activities undertaken by or on behalf of TGI.

11.3 **Acknowledgment of TGI Respecting the Land** – TGI acknowledges and agrees that:

(a) other than the representation and warranty contained in Section 11.5, CSRD has given no representations or warranties with respect to the License Area or its condition, including with respect to the suitability of the License Area for TGI's intended use of the License Area, the subsurface nature or condition of the License Area or the environmental condition of the License Area;

(b) TGI shall use the License Area on an "as-is" basis and conditions;

(c) it is the sole responsibility of TGI to satisfy itself with respect to the condition of the License Area (including the subsurface nature or condition of the License Area and the environmental condition of the License Area), including by conducting any reports, tests, investigations, studies, audits and other inquiries as TGI, in its sole discretion, considers necessary in order to satisfy itself as to the condition of the License Area and notwithstanding Section 17, TGI may enter on to the License Area upon execution of this Agreement to conduct all reports, tests, investigations, studies, audits and other inquiries that TGI considers necessary to satisfy itself with respect to the condition of the License Area; and

(d) CSRD may register a *Builders Lien Act* "notice of interest" against title to the Land in the land title office.

11.4 **Environmental Reports.** On or before the Effective Date, CSRD shall provide TGI with all environmental and health safety reports in its possession on the Land and all adjacent lands (in order to allow TGI to confirm if there is any migrating contamination from the Land), subject to any disclosure restrictions contained in the said reports.

11.5 **Environmental Representations and Warranties.** CSRD represents and warrants to TGI that to the best of its knowledge but without having made any inquiry as of the date of this Agreement there are no actions, proceedings, investigations, claims (including remediation cost recovery claims) pending, or threatened, that would interfere with TGI's use or occupancy of the Land or that relate to the presence of Contaminants in, on, under or migrating to or from the Land.

11.6 **CSRD Environmental Indemnity.** CSRD shall release and indemnify TGI and its directors, officers, employees, agents, successors and permitted assigns, from any and all liabilities, actions, damages, claims (including remediation cost recovery claims), losses, costs, orders, fines, penalties and expenses whatsoever (including all consulting and legal fees and expenses on a solicitor-client basis and the cost of remediation of the Land) arising from or in connection with any release or alleged release of any Contaminants at or from the Land related to or as a result of any pre-existing Contaminants at the Land, at the date of this Agreement or as a result of the operations of CSRD, the CSRD Facilities or any act or omission of the CSRD or any person for whom it is in law responsible. The foregoing indemnity shall not include or apply to any costs incurred or that are required to be incurred in order to remediate the Land so as to permit TGI to construct the TGI Facilities, which cost shall be TGI's sole responsibility.

11.7 **TGI Environmental Covenants.** TGI shall not use or permit the License Area to be used for the sale, storage, manufacture, disposal, handling, treatment, use or any other dealing with any Contaminants, except in compliance with all Laws. TGI shall comply with all Laws, regulations and bylaws in its use and occupancy of the Land.

11.8 **TGI Environmental Indemnity.** TGI shall release and indemnify CSRD and its directors, officers, employees, agents, tenants, successors and permitted assigns, from any and all liabilities, actions, damages, claims (including remediation cost recovery claims), losses, costs, orders, fines, penalties and expenses whatsoever (including all consulting and legal fees and expenses on a solicitor-client basis and the cost of remediation of the Land) arising from or in connection with:

(a) any breach of or non-compliance with the provisions of Section 11.7; or

(b) any release or alleged release of any Contaminants at or from the License Area related to or as a result of the operations of TGI, the TGI Facilities or any act or omission of TGI or any person for whom it is in law responsible.

11.9 **Removal of the TGI Facilities.** Notwithstanding any rule of law or equity to the contrary, the TGI Facilities shall remain the property of TGI. Upon termination or expiration of this Agreement, TGI must remove all above-ground TGI Facilities.

11.10 **Location of TGI Facilities.** CSRD and TGI will mutually agree on the location of the TGI Facilities on the Land during the design phase of the TGI Facilities and prior to the construction of the TGI Facilities on the Land, which shall be within the area shown on Schedule "E". The agreed upon area shall become the "License Area" for the purpose of this Agreement.

11.11 **Disposal of waste.** CSRD agrees to allow disposal of waste products on the Land generated by the TGI facilities provided such disposal is in accordance with all Laws and any reasonable CSRD requirements, including as to the location and method of such disposal. TGI will be responsible for disposing any waste generated by TGI facilities that cannot be disposed of on the Land in accordance with the requirements of the rest this Section 11.

12. CHANGE IN OWNERSHIP OF THE LAND

12.1 **Consent to Sale.** CSRD may sell the Land subject to the following conditions:

(a) CSRD causes the purchaser to enter into an assumption agreement with TGI, in a form satisfactory to TGI, causing the purchaser to assume all of CSRD's obligations under this Agreement; and

(b) CSRD obtains the written consent of TGI to the sale of the Land to the purchaser, such consent not to be unreasonably withheld.

12.2 **Information Required for Consent.** For the purposes of providing consent under Section 12.1(b), CSRD shall cause the purchaser to provide TGI with the following information with respect to the purchaser:

(a) nature of the business;

(b) number of years in business;

(c) number of employees;

(d) base of operations;

(e) bank certification of financial resources; and

(f) audited profit and loss statements and balance sheets or consolidated financial statements for the preceding three (3) years.

13. CARBON CREDIT OWNERSHIP

13.1 **Greenhouse Gas ("GHG") Reduction Credits.** The parties intend to apply for GHG reduction credits (the "GHG Credits") related to the operation of the LFG Processing System. The LFG Processing System may qualify for GHG Credits in the following ways:

(a) the installation and operation of the LFG Processing System; and

(b) the Biogas supplied to TGI under this Agreement resulting in the displacement of an equivalent amount of conventionally produced natural gas that TGI would otherwise purchase in order to supply its customers.

13.2 **Ownership of GHG Credits.**

(a) CSRD will administer and quantify the GHG reduction associated with the capture and destruction of the LFG and retain the associated GHG Credits;

(b) TGI will administer and quantify the GHG offsets associated with the displacement of natural gas in the TGI Distribution System by the Biogas and retain the associated GHG Credits;

(c) Subject to Section 13.3(b), each party will at its own cost quantify, validate and register its respective GHG Credits;

(d) CSRD acknowledges that the value of the Biogas to TGI is based on the GHG Credits associated with the displacement of natural gas with Biogas and CSRD agrees that it will not do anything that will affect or encumber TGI's ability to claim the GHG Credits associated with the displacement of natural gas with Biogas; and

(e) TGI acknowledges that the value and ownership of the GHG Credits associated with the destruction of the LFG is imperative to the CSRD and TGI agrees that it will not do anything that will affect or encumber the CSRD's ability to claim ownership of the GHG Credits associated with the destruction of the LFG.

13.3 **Mutual Cooperation.** Each party shall:

(a) use commercially reasonable efforts to provide all documentation and assistance needed by the other party to apply for that party's respective GHG Credits ; and

(b) in the event that there is cost savings associated with the parties sharing the quantification, validation and registration of the GHG Credits which will result in mutual benefit to the parties, then the parties agree to discuss cost-sharing mechanisms.

14. OPERATION AND MAINTENANCE

14.1 **CSRD Maintenance.** Subject to Section 14.6, CSRD shall use commercially reasonable efforts to schedule all maintenance activities of the CSRD Facilities that will affect its ability to deliver LFG between the months of May through September. CSRD shall provide TGI with a minimum of thirty (30) days Notice of any maintenance plans that will affect the delivery of LFG to TGI (including maintenance and repair to be done outside of the aforementioned summer period) and such Notice shall include:

(a) the start date of the maintenance;

(b) the estimated completion date of the maintenance; and

(c) details on how the maintenance plans will affect the quality and quantity of LFG delivered to TGI.

14.2 **CSRD Process Changes**. CSRD shall provide TGI with ninety (90) days Notice of any process change(s) that may affect the quality or quantity of LFG delivered to TGI and such Notice shall provide details of how the change(s) in the process may affect the quantity or quality of LFG delivered to TGI. TGI may decide, in its sole discretion, to accommodate any process change(s) with less than ninety (90) days Notice.

14.3 **TGI Maintenance.** Subject to Section 14.6, TGI shall give CSRD thirty (30) days Notice of TGI's intention to maintain the TGI Facilities or the TGI Distribution System that will require CSRD to shut off its delivery to TGI or adjust the delivery rate or otherwise affect CSRD's delivery of LFG to TGI under this Agreement. Such Notice shall provide reasonable detail of how the maintenance plans will affect the receipt of LFG and the conversion of the LFG into Biogas.

14.4 **Excuse from Non-Performance for Maintenance.** Each party shall be excused from Non-Performance for no more than thirty (30) consecutive days of Non-Performance, or for no more than forty (40) days in any twelve (12) month period, in order to carry out maintenance or repair on their respective facilities.

14.5 **Operating Costs.**

(a) CSRD shall be solely responsible for the all costs, including electricity and other utility charges, for the operation and maintenance of the CSRD Facilities.

(b) TGI shall be solely responsible for the all costs, including electricity and other utility charges, for the operation and maintenance of the TGI Facilities.

14.6 **Exception for Emergency Work.** Where either party is required to carry out any work urgently on its respective facilities in the interest of public safety or health or to preserve the safety of its facilities, it shall not be required to give prior notice but shall do so as soon as possible thereafter and, for clarity, in the case of CSRD work, CSRD may do such work outside of the scheduling period under Section 14.1.

14.7 **Emergency Contacts.** Each party will provide the other party with a twenty four (24) hour emergency contact number which can be used to notify the other party of emergencies.

14.8 **Emergency On-Call Services.** TGI will, at its sole cost, provide or will cause to be provided twenty four (24) hour a day on-call emergency services for the TGI Facilities to respond to any leak or suspected leak of Contaminants from the TGI Facilities.

14.9 **Non-Emergency Services.** In the event of a system interruption of the TGI Facilities which is not an emergency under Section 14.8, TGI shall not be obligated to perform any work on the TGI Facilities until the next Business Day.

14.10 **Mutual Cooperation.** CSRD and TGI shall extend cooperation to each other to ensure the orderly management and operation of the LFG Processing System and shall:

(a) upon request, CSRD and TGI will share the operating data of their respective facilities with the other party; and

(b) CSRD and TGI agree to meet a minimum of once every year of the term to discuss methods and additional projects that may improve LFG Processing System operability or increase the environmental benefits of the LFG Processing System.

15. GAS QUALITY SPECIFICATIONS

15.1 **LFG Quality.** TGI upgrading equipment will be designed and operated to accept and upgrade LFG which meets the Raw LFG Specifications contained in Schedule "B". TGI may elect to accept LFG that does not meet the Raw LFG Specification contained in Schedule "B", but is not obligated to accept LFG that does not meet the Raw LFG Specifications contained in Schedule "B". In order for LFG to be calculated as part of the Baseline Volume or the Minimum Supply Requirement, the LFG must meet the specifications contained in Schedule "B".

15.2 **Biogas Quality.** In the event that gas produced by the LFG Processing System does not qualify as Biogas because it does not meet the Gas Quality Specifications contained in Schedule "C", TGI shall not be obligated to deliver the gas into the TGI Distribution System or make any payments to CSRD for that gas.

15.3 **Biogas Processing.** TGI will make commercially reasonable efforts to maximize the production of Biogas from the LFG supplied by CSRD.

16. LIABILITY LIMIT

16.1 **Termination.** In the event that CSRD commits an Event of Default and TGI terminates the Agreement:

(a) TGI shall remove the TGI Facilities from the Land within six (6) months of termination; and

(b) CSRD shall make a termination payment to TGI (the "Termination Payment") calculated in accordance with Section 16.2.

Except as provided under this Section as limited by Section 16.2, CSRD shall have no further liability to TGI in connection with TGI's termination of this Agreement, the Event of Default giving rise to such termination or for any other prior or ongoing Event of Default.

16.2 **Maximum Liability & Termination Payment.** The cumulative liability of CSRD with respect to the Termination Payment will be limited to the greater of:

[redacted]

17. CONDITIONS PRECEDENT

17.1 **Conditions Precedent of CSRD.** CSRD's obligation to carry out any of the transactions contemplated by this Agreement is subject to the fulfillment of each of the following conditions on or before September 1, 2010 which conditions are for the sole and absolute benefit of CSRD and which may be waived by CSRD in whole or in part, in its sole discretion:

(a) CSRD obtaining from the Ministry of Environment the required revisions to its Operational Certificate for the landfill operated on the Land to allow for the installation and operation of the LFG Processing System on the Land; and

(b) CSRD obtaining all consents, permits and approvals from regulatory or other applicable Governmental Authorities required to construct and operate the CSRD Facilities on terms and conditions which are satisfactory to CSRD acting reasonably having regard to its bona fide business interests

(collectively, the "CSRD Conditions").

If the CSRD Conditions have not been satisfied by September 1, 2010, then CSRD may deliver notice to TGI that the CSRD Conditions have not been satisfied and this Agreement will be null and void, without liability between CSRD and TGI and neither CSRD or TGI will be under further obligation to the other to complete the transactions contemplated by this Agreement.

If CSRD fails to deliver notice of the non-satisfaction of the CSRD Conditions to TGI by September 1, 2010, then CSRD will be deemed to have waived the CSRD Conditions.

17.2 **Conditions Precedent of TGI.** TGI's obligation to carry out any of the transactions contemplated by this Agreement is subject to the fulfillment of each of the following conditions on or before September 1, 2010 which conditions are for the sole and absolute benefit of TGI and which may be waived by TGI in whole or in part, in its sole discretion:

(a) the British Columbia Utilities Commission approving this Agreement on terms and conditions satisfactory to TGI acting reasonably having regard to its bona fide business interests;

(b) TGI being satisfied in its sole discretion with its environmental due diligence on the Land; and

(c) TGI obtaining all consents, permits and approvals from regulatory or other applicable Governmental Authorities required to construct and operate the TGI Facilities on terms and conditions which are satisfactory to TGI acting reasonably having regard to its bona fide business interests

(collectively, the "TGI Conditions").

If the TGI Conditions have not been satisfied by September 1, 2010, then TGI may deliver notice to CSRD that the TGI Conditions have not been satisfied and this Agreement will be null and void, without liability between TGI and CSRD and neither TGI or CSRD will be under further obligation to the other to complete the transactions contemplated by this Agreement.

If TGI fails to deliver notice of the non-satisfaction of the TGI Conditions to CSRD by September 1, 2010, then TGI will be deemed to have waived the TGI Conditions.

17.3 **Effective Date.** The Effective Date of this Agreement shall be the date that both the CSRD Conditions and TGI Conditions have been waived or satisfied.

17.4 **Mutual Acknowledgement.** CSRD and TGI each acknowledge that if either party elects to undertake any work or incur any costs with respect to this Agreement prior to the waiver or satisfaction of the CSRD Conditions and the TGI Conditions, that party will be solely responsible for all costs incurred and shall not claim for any reimbursement from the other party.

18. GOVERNMENT FUNDING

18.1 CSRD and TGI each acknowledge and agree that the other party may apply for funding or grants ("Funding") from government agencies or non-profit agencies to finance its respective facilities.

18.2 CSRD and TGI agree to use commercially reasonable efforts to provide all documentation and assistance needed by the other party to apply for and receive Funding, including consenting to tours of the LFG Processing System with reasonable notice and consenting to the release of data on the quantity and quality of LFG and Biogas produced by the LFG Processing System.

18.3 Any publicity in any way related to the Funding will remain subject to the restriction contained in Section 19.

19. PUBLICITY

Neither party shall initiate any media releases, interviews, or presentations to the media relating to this Agreement without the agreement and approval of the other party, not to be unreasonably withheld.

20. ELECTRONIC TRANSMISSION

This Agreement may be executed by the parties and transmitted by facsimile transmission or electronic transmission and, if so executed and transmitted, this Agreement will be for all purposes as effective as if the parties had delivered an executed original agreement.

21. COUNTERPARTS

This Agreement may be executed in counterparts with the same effect as if all parties had signed the same document. All counterparts will be construed together and will constitute one agreement.

IN WITNESS WHEREOF the parties have executed this Agreement by their duly authorized representative effective as of the day and year first above written.

TERASEN GAS INC.

Per: ______________________
Authorized Signatory

COLUMBIA SHUSWAP REGIONAL DISTRICT

Per: ______________________
Authorized Signatory

Schedule "A"

Terms and Conditions

TABLE OF CONTENTS

1. DEFINITIONS

"Base Price" shall mean the base price expressed in Canadian Dollars per Biogas GJ, as adjusted from time to time in accordance with the terms of the Agreement, unless specified otherwise.

"Business Day" shall mean any day except Saturday, Sunday, or a statutory or banking holiday observed in British Columbia. A Business Day shall open at 8:00 a.m. and close at 3:00 p.m. local time for the relevant party's principal place of business. The relevant party, in each instance unless otherwise specified, shall be the party to whom the notice, payment or delivery is being sent and by whom the notice or payment or delivery is to be received.

"Biogas" shall mean natural gas that is the end result of purification of LFG by the TGI Facilities and meets the specifications contained in Schedule "C" of the Agreement.

"Biogas Quantity Measuring Equipment" shall have the meaning set forth in Section 3.2.

"Contaminant" shall mean collectively, any contaminant, toxic substances, dangerous goods, or pollutant or any other substance which when released to the natural environment is likely to cause, at some immediate or future time, material harm or degradation to the natural environment or material risk to human health, and includes any radioactive materials, asbestos materials, urea formaldehyde, underground or aboveground tanks, pollutants, contaminants, deleterious substances, dangerous substances or goods, hazardous, corrosive or toxic substances, hazardous waste or waste of any kind, pesticides, defoliants, or any other solid, liquid, gas, vapour, odour or any other substance the storage, manufacture, disposal, handling, treatment, generation, use, transport, remediation or release into the Environment of which is now or hereafter prohibited, controlled or regulated under Environmental Laws.

"Day" shall mean 7:00 a.m. to 7:00 a.m. Pacific time.

"Defaulting Party" shall have the meaning given in Section 9.

"Delivery Point(s)" shall mean the interconnection point at which CSRD Facilities connect to the TGI Facilities.

"Environment" shall mean the air (including all layers of the atmosphere), land (including soil, sediment deposited on land, fill, lands submerged under water, buildings, and improvements), water (including oceans, lakes, rivers, streams, groundwater, and surface water), and all other external conditions and influences under which humans, animals, and plants live or are developed and "Environmental" will have a corresponding meaning.

"Environmental Laws" means any and all statutes, laws, regulations, orders, bylaws, standards, guidelines, protocols, permits, and other lawful requirements of any Governmental Authority having jurisdiction over the Land or the LFG System now or hereafter in force with respect in any way to the Environment, environmental assessment, health, occupational health and safety, protection of any form of plant or animal life, or transportation of dangerous goods, including the principles of common law and equity.

"ETA" shall mean the Excise Tax Act (Canada).

"Event of Default" shall mean (i) the failure to make payment when due under the Agreement, which is not remedied within ten (10) Business Days after receiving Notice thereof; (ii) the making of an assignment or any general arrangement for the benefit of creditors, the filing of a petition or otherwise commencing, authorizing, or acquiescing in the commencement of a proceeding or cause under any bankruptcy or similar law for the protection of creditors or having such petition filed or proceeding commenced against it, any bankruptcy or insolvency (however evidenced) or the inability to pay debts as they fall due; (iii) a party's failure to deliver or receive LFG, unless excused by the other party's Non-Performance or prevented by Force Majeure; (iv) the failure to perform any other material obligation under the Agreement if not remedied within ten (10) Business Days, or in the sole discretion of the Non-Defaulting Party such longer period as may be reasonably required to remedy the default given the nature of the failure to perform, after receiving Notice thereof; (v) failure of CSRD or TGI to achieve the First Delivery Date within two (2) years of the Effective Date; (vi) failure of CSRD to meet the Minimum Supply Requirement for two (2) consecutive years; or (vii) the sale of the Land by CSRD to a third party without the prior written consent of TGI.

"Functional" shall occur once the TGI Project Manager certifies that the LFG System is complete, operating and producing Biogas in accordance with the design specifications.

"Gas Quantity Measuring Equipment" means collectively the Biogas Quantity Measuring Equipment and the LFG Quantity Measuring Equipment.

"GJ" shall mean 1 gigajoule; 1 gigajoule = 1,000,000,000 Joules.

"Governmental Authority" shall mean any federal, provincial, regional, municipal, local or other government, governmental or public department, court, tribunal, arbitral body, commission, board, bureau or agency and any subdivision, agent, commission, board or authority thereof.

"GST" shall have the meaning set forth in Section 4.2.

"Joule" shall mean the joule specified in the SI system of units.

"kPa" shall mean pressure as measured in kilo-pascals.

"LFG" shall mean landfill gas with is naturally produced in the landfill as the result of anaerobic digestion.

"LFG Quantity Measuring Equipment" shall have the meaning set forth in Section 3.2.

"Laws" shall mean all laws, statutes, regulations, bylaws, permits and orders of any Governmental Authority having jurisdiction as they are enacted, amended or replaced from time to time, including without limitation, Environmental Laws.

"Month" shall mean the period beginning on the first Day of the calendar month and ending immediately prior to the commencement of the first Day of the next calendar month.

"Non-Defaulting Party" shall have the meaning set forth in Section 9.

"Non-Performance" shall mean the failure by CSRD to deliver LFG or the failure of TGI to accept delivery of LFG required under the Agreement.

"Notice" shall have the meaning set forth in Section 8.

"Sumas Monthly Index Price" shall mean the Sumas Monthly Index Price as set out in Inside F.E.R.C.'s Gas Market Report for gas delivered to Northwest Pipeline Corporation at Sumas, converted to Canadian dollars using the noon exchange rate as quoted by the Bank of Canada for the first Day of each Month in which the Sumas Monthly index Price shall apply. Energy units are converted from MMBtu to Gigajoule by application of a conversion factor equal to 1.055056 Gigajoule per MMBtu.

"Taxes" shall have the meaning set forth in Section 4.1.

2. TRANSPORTATION RESPONSIBILITY

CSRD shall have the sole responsibility for transporting the LFG to the Delivery Point and for delivering such LFG at a pressure sufficient to effect such delivery but not to exceed the Maximum Delivery Rate. TGI shall have the sole responsibility for transporting the LFG from the Delivery Point.

3. MEASUREMENT

3.1 The unit of quantity measurement for purposes of the Agreement shall be specified as one GJ.

3.2 CSRD will install LFG quantity measuring equipment (the "LFG Quantity Measuring Equipment") on the CSRD Facilities to measure the quantities of LFG produced by the CSRD Facilities and TGI will install Biogas quantity measuring equipment (the "Biogas Quantity Measuring Equipment") on the TGI Facilities to measure the quantities of Biogas produced by the TGI Facilities.

3.3 The accuracy of the Biogas Quantity Measuring Equipment of TGI shall be verified by standard tests and methods at regular intervals and at other times at the initiative of TGI or upon the reasonable request of CSRD. Notice of the time and nature of each test conducted in response to communications with or at the request of CSRD shall be given by TGI to CSRD sufficiently in advance to permit a representative of CSRD to be present. If during a test the Biogas Quantity Measuring Equipment is found to be registering inaccurately, it shall be adjusted to read as accurately as possible in a timely manner by TGI. The results of each test and adjustment, if any, made by TGI, whether or not CSRD is present for such test, shall be accepted until the next test. All tests of such measuring equipment of TGI shall be made at the expense of TGI, except that CSRD shall 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.

3.4 The accuracy of the LFG Quantity Measuring Equipment of CSRD shall be verified by standard tests and methods at regular intervals and at other times at the initiative of CSRD or upon the reasonable request of TGI. Notice of the time and nature of each test conducted in response to communications with or at the request of TGI shall be given by CSRD to TGI sufficiently in advance to permit a representative of TGI to be present. If during a test the LFG Quantity Measuring Equipment is found to be registering inaccurately, it shall be adjusted to read as accurately as possible in a timely manner by CSRD. The results of each test and adjustment, if any, made by CSRD, whether or not TGI is present for such test, shall be accepted until the next test. All tests of such measuring equipment of CSRD shall be made at the expense of CSRD, except that TGI shall 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.

3.5 If upon any test any Gas Quantity Measuring Equipment is found to be inaccurate by an amount exceeding 2%, any previous readings of such equipment shall 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 shall be for a period covering the last half of the time elapsed since the date of the last test, provided that under no circumstances shall an adjustment be made for a period of more than the preceding twelve (12) months.

3.6 If any Gas Quantity Measuring Equipment is out of service or out of repair so that the quantity of LFG and Biogas produced cannot be correctly determined by the reading thereof, the LFG and Biogas produced during the period such measuring equipment is out of service or out of repair shall 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 LFG and Biogas produced by the LFG Processing System during the preceding period under similar conditions when the meter was registering accurately.

3.7 TGI and CSRD may at its own expense install, maintain and operate its own measuring equipment for the purposes of monitoring or checking the Gas Quantity Measuring Equipment of the other party, provided that TGI and CSRD shall install such equipment so as not to interfere with the operation of the Gas Quantity Measuring Equipment of the other party.

3.8 TGI and CSRD shall have the right to inspect all the Gas Quantity Measuring Equipment installed or furnished by the other and the charts and other measurement or test data of the other at all times during regular 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 shall be performed by the party furnishing the measuring equipment.

3.9 Both parties shall cause to be preserved each test datum, chart and other record from its respective Gas Quantity Measuring Equipment for a period of two (2) years.

4. TAXES

4.1 CSRD shall pay or cause to be paid all taxes, fees, levies, penalties, licenses, interest or charges imposed by any government authority ("Taxes") on or with respect to the LFG prior to the Delivery Point and all Taxes at the Delivery Point. TGI shall pay or cause to be paid all Taxes on or with respect to the Biogas after the Delivery Point. If a party is required to remit or pay Taxes which are the other party's responsibility hereunder, the party responsible for such Taxes shall promptly reimburse the other party for such Taxes. Any party entitled to an exemption from any such Taxes or charges shall furnish the other party any necessary documentation thereof.

4.2 The Base Price and Incentive Purchase Price does not include any amounts payable by TGI for the goods and services tax ("GST") imposed pursuant to the ETA or any similar or replacement value added or sales or use tax enacted under successor legislation. Notwithstanding the election made pursuant to Section 4.1, TGI will pay to CSRD the amount of GST payable for the purchase of Biogas in addition to all other amounts payable under the Agreement. CSRD will hold the GST paid by TGI and will remit such GST as required by law. CSRD shall provide to TGI the information required to make such GST remittance or claim any corresponding input tax credits, including GST registration numbers.

4.3 In the event that any amount becomes payable pursuant to the Agreement as a result of a breach, modification or termination of the Agreement, the amount payable shall be increased by any applicable Taxes or GST remittable by the recipient in respect of that amount.

5. BILLING AND PAYMENT

5.1 On or before the seventh (7th) Day of each Month TGI shall provide CSRD with the quantity of Biogas produced in the preceding Month. On or before the fifteenth (15th) Day of each Month CSRD shall invoice TGI for Biogas produced and received in the preceding Month and for any other applicable charges. If the actual quantity produced is not known by the billing date, billing will be prepared based on the quantity of Biogas scheduled to be delivered pursuant to the Agreement. The invoiced quantity will then be adjusted to the actual quantity on the following Month's billing or as soon thereafter as actual delivery information is available.

5.2 Parties shall remit amount due pursuant to the Agreement in immediately available funds, on or before thirty (30) days after receipt of the invoice.

5.3 If either party, in good faith, disputes the amount of any invoice or any part thereof, the disputing party will pay such amount as it concedes to be correct; provided, however, the disputing party must provide supporting documentation acceptable in industry practice to support the amount paid or disputed. Upon resolution of the billing dispute, any underpayments or overpayments shall be paid or refunded with accrued interest at the rate specified in Section 5.4 for the period until such underpayments or overpayments are made. All retroactive adjustments made pursuant to this Section 5.3 shall be paid in full by the party owing payment within thirty (30) days of notice and substantiation of such inaccuracy

5.4 If a party fails to remit the full amount payable by it when due, interest on the unpaid portion shall accrue from the date due until the date of payment at a rate equal to the lower of: the per annum rate of interest identified from time to time as the prime lending rate charged to its most credit worthy customers for commercial loans by The Toronto Dominion Bank, Main Branch, Vancouver, British Columbia, Canada, plus two percent per annum, compounded monthly; or (ii) the maximum applicable lawful interest rate.

5.5 Payment shall be made in Canadian dollars.

5.6 All invoices and billings shall be conclusively presumed final and accurate unless objected to in writing, with explanation and/or documentation, within two (2) years after the Month of Biogas production.

6. INSURANCE

6.1 Each of TGI and CSRD shall obtain at its own expense and shall provide the other party, at its request, with proof of the following insurance coverage:

(a) Workers' Compensation Insurance in accordance with the statutory requirements in British Columbia for all its employee's engaged in performing any work or services under the Agreement; and

(b) General Commercial Liability for bodily injury, death and property damage in the minimum amount of $2 million per occurrence naming the other party as an additional insured with respect to the Agreement.

7. TITLE, WARRANTY AND INDEMNITY

7.1 Unless otherwise specifically agreed, title to the LFG shall pass from CSRD to TGI at the Delivery Point. CSRD shall have responsibility for and assume any liability with respect to the LFG prior to its delivery to TGI at the specified Delivery Point. TGI shall have responsibility for and assume any liability with respect to said LFG after its delivery to TGI at the Delivery Point.

7.2 CSRD warrants that it will have the right to convey and will transfer good and merchantable title to all LFG sold hereunder and delivered by it to TGI, free and clear of all liens, encumbrances, and claims.

7.3 CSRD shall release and indemnify TGI and its directors, officers, employees, agents, successors and permitted assigns, from any and all liabilities, actions, damages, claims, losses, costs, orders, fines, penalties and expenses whatsoever (including all legal fees and expenses on a solicitor-client basis) arising from or in connection with any personal injury or death of any persons or any property damage in any way incidental to the CSRD Facilities.

7.4 TGI shall release and indemnify CSRD and its directors, officers, employees, agents, successors and permitted assigns, from any and all liabilities, actions, damages, claims, losses, costs, orders, fines, penalties and expenses whatsoever (including all legal fees and expenses on a solicitor-client basis) arising from or in connection with any personal injury or death of any persons or any property damage in any way incidental to the TGI Facilities.

7.5 The indemnities contained in Sections 7.3 and 7.4 shall survive the termination of the Agreement.

8. NOTICES

8.1 All invoices, payments and other communications made pursuant to the Agreement ("Notices") shall be in writing and delivered to the party for whom it is intended at the following address or such other address as such party may designate to the other party by notice in writing in accordance with this Section 8:

(a) If to CSRD:

Columbia Shuswap Regional District
781 Marine Park Drive NE
Salmon Arm, B.C.
V1E 2X1

Attention: Gary Holte, Manager,
Environment & Engineering Services

Telephone: (250) 833-5935
Facsimile: (250) 832-8165
E-mail: gholte@csrd.bc.ca

(b) If to TGI:

Terasen Gas Inc.
16705 Fraser Highway
Surrey, B.C.
V4N 0E8

Attention: Douglas Stout, VP Marketing & Business Development
Telephone: (604) 592-7911
Facsimile: (604) 592-7670
E-mail: douglas.stout@terasengas.com

8.2 All Notices required hereunder may be sent by facsimile or mutually agreeable electronic means, a nationally recognized overnight courier service or hand delivered.

8.3 Notice shall be given when received on a Business Day by the addressee. In the absence of proof of the actual receipt date, the following presumptions will apply. Notices sent electronically or by facsimile shall be deemed to have been received upon the sending party's receipt of confirmation of a successful transmission; if the day on which such electronic or facsimile Notice is received is not a Business Day or is after five (5) p.m. on a Business Day, then such Notice shall be deemed to have been received on the next following Business Day. Notice by overnight mail or courier shall be deemed to have been received on the next Business Day after it was sent or such earlier time as is confirmed by the receiving party.

9. FINANCIAL RESPONSIBILITY, DEFAULTS AND REMEDIES

9.1 If an Event of Default occurs with respect to a party (the "Defaulting Party"), then the other party (the "Non-Defaulting Party") shall have the right to, in addition to any other remedies available hereunder:

(a) upon one (1) Business Day's Notice, suspend its performance under the Agreement; and/or

(b) withhold any amounts owed to the Defaulting Party under the Agreement, and setoff against such withheld amounts any amounts owed the Non-Defaulting Party hereunder (whether or not yet due).

9.2 Each party reserves to itself all rights, set-offs, counterclaims, and other defenses which it is or may be entitled to arising from the Agreement. The Non-Defaulting Party's rights under the Agreement are in addition to and not in limitation or exclusion of any other rights the Non-Defaulting Party may have (whether by contract, operation of law, or otherwise).

10. TERMINATION

Upon the Event of Default, the Non-Defaulting Party may terminate the Agreement by providing the other party with Notice.

11. FORCE MAJEURE

11.1 Except with regard to a party's obligation to make payment due under the Agreement, neither party shall be liable to the other for failure to perform an obligation, to the extent such failure was caused by Force Majeure.

11.2 The parties intend that the term "Force Majeure" shall be restricted to mean an event or circumstance which directly prevents or restricts one party from performing its obligations at a Delivery Point, which event or circumstance was not anticipated as of the date the Agreement was agreed to, which is not within the reasonable control of the party providing notification of the Force Majeure to the other party, and which, by the exercise of due diligence, the party providing notification of the Force Majeure to the other party is unable to overcome or avoid or cause to be avoided. For greater certainty, "Force Majeure" includes :

(a) physical events such as acts of God, landslides, lightning, earthquakes, fires, storms or storm warnings that result in evacuation of the affected area, floods, washouts, explosions;

(b) weather related events affecting an entire geographic region, such as low temperatures which cause freezing or failure of wells or lines of pipe;

(c) acts of others such as riots, sabotage, terrorist acts, insurrections or wars;

(d) strike or lock-out of other industrial action provided it is by all workers in the industry affected by the strike or lock-out and against all employers in that industry in British Columbia; and

(e) governmental actions such as necessity for compliance with any court order, law, statute, ordinance, or regulation promulgated by a governmental authority having jurisdiction;

provided; however, that any such event is a major disabling event or circumstance in relation to the normal operations of the party concerned as a whole which is beyond the reasonable control of the party directly affected and results in a material delay, interruption or failure by such party in carrying out is duties, covenants or obligations under the Agreement.

11.3 The party whose performance is prevented by Force Majeure must provide notification to the other party. Initial notification may be given orally; however, Notice with reasonably full particulars of the event or occurrence is required as soon as reasonably possible. Upon providing notification of Force Majeure to the other party, the affected party will be relieved of its obligation to make or accept delivery of Biogas as applicable to the extent and for the duration of Force Majeure, and neither party shall be deemed to have failed in such obligations to the other during such occurrence or event.

12. MEDIATION AND ARBITRATION

12.1 **Mediation** - Any dispute between the parties arising from this 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. Where any dispute arises out of or in connection with this Agreement the parties agree to try to resolve the dispute by participating in a structured mediation conference with a mediator under the National Arbitration Rules of the ADR Institute of Canada Inc. for Dispute Resolution.

12.2 **Demand for Arbitration** - Either party may commence arbitration proceedings by sending to the other party a demand for arbitration setting out the nature of the dispute. If the parties fail to resolve the dispute through mediation, the unresolved dispute shall be referred to, and finally resolved or determined by arbitration under the National Arbitration Rules of the ADR Institute of Canada Inc. for Dispute Resolution. Unless the parties agree otherwise the arbitration will be conducted by a single arbitrator.

12.3 **Written Award by Arbitrator** - The parties will have 10 days from receipt of the demand referred to in Section 12.2 of this Agreement 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. The arbitrator shall issue a written award that sets forth the essential findings and conclusions on which the award is based. The arbitrator will allow discovery as required by law in arbitration proceedings.

12.4 **Failure to Render a 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 forty five (45) days after the appointment, subject to any reasonable delay due to unforeseen circumstances.

12.5 **Award** - The arbitrator shall have the authority to award:

(a) money damages;

(b) interest on unpaid amounts from the date due;

(c) specific performance; and

(d) permanent relief.

12.6 **Costs** - The costs and expenses of the arbitration, but not those incurred by the parties, shall be shared equally, unless the arbitrator determines that a specific party prevailed. In such a case, the non-prevailing party shall pay all costs and expenses of the arbitration, but not those of the prevailing party.

12.7 **Obligations Continue** - The parties will continue to fulfill their respective obligations pursuant to this Agreement during the resolution of any dispute in accordance with this Section 12.

13. RIGHT OF SET OFF

Without limiting any right of set-off or deduction given or implied by law or elsewhere in the Agreement, TGI may set off any amount payable by CSRD to TGI under the Agreement against any amount payable by TGI to CSRD under the Agreement and CSRD may set off any amount payable by TGI to CSRD under the Agreement against any amount payable by CSRD to TGI under the Agreement..

14. ASSIGNMENT

This Agreement shall be binding upon and inure to the benefit of the successors, assigns, personal representatives, and heirs of the respective parties hereto, and the covenants, conditions, rights and obligations of the Agreement shall run for the full term of the Agreement.

No assignment of the Agreement, in whole or in part, will be made without the prior written consent of the non-assigning party; provided, either party may transfer its interest to any parent or affiliate by assignment, merger or otherwise without the prior approval of the other party. Upon any transfer and assumption, the transferor shall not be relieved of nor discharged from any obligations hereunder.

15. AGREEMENT

15.1 The invalidity or unenforceability of any provisions of this Agreement or any covenant in it shall not affect the validity or enforceability of any other provisions or covenant in it and the invalid provision shall be deemed to be severable.

15.2 The documents attached as schedules to this Agreement referred to herein are incorporated into and form part of this Agreement and are given contractual effect.

16. EXTENT OF AGREEMENT

16.1 This Agreement represents the entire agreement between the parties and supersedes all prior negotiations, representations, offers, or agreements either oral or written relating to the CSRD Facilities, TGI Facilities and provision of Biogas by the parties. This Agreement may be amended only in writing and signed by both parties.

16.2 Any failure or delay of either party to enforce or require the strict performance of any of the provisions of this Agreement shall not constitute a waiver of those provisions. To be binding, any waiver of any provision of this Agreement must be clearly expressed in writing and be signed by the waiving party.

17. RELATIONSHIP

Nothing herein shall be deemed or construed to create a joint venture, partnership, employment or agency relationship between the parties for any purpose.

18. HEADINGS

Headings are included solely for convenience and are not intended to be full or accurate descriptions of the content of the paragraphs.

19. INTERPRETATION

Words importing the singular include the plural and vice versa; words importing the masculine gender include the feminine and neuter genders; and words importing persons include individuals, sole proprietors, corporations, partnerships and unincorporated associations.

20. LAW

This Agreement shall be governed by and construed in accordance with the laws of the Province of British Columbia.

21. TIME OF ESSENCE

Time is of the essence in this Agreement.

22. ENUREMENT

This Agreement shall be for the benefit of and be binding upon the parties and their respective successors and permitted assigns.

23. MISCELLANEOUS

23.1 This Agreement and all provisions herein will be subject to all applicable and valid statutes, rules, orders and regulations of any federal, provincial, or local governmental authority having jurisdiction over the parties, their facilities.

23.2 Each party to this Agreement represents and warrants that it has full and complete authority to enter into and perform this Agreement. Each person who executes the Agreement on behalf of either party represents and warrants that it has full and complete authority to do so and that such party will be bound thereby.

23.3 The terms of this Agreement, including but not limited to the purchase price, the cost of transportation, and the quantity of Biogas purchased or sold, shall be kept confidential by the parties, except as required (a) in order to comply with any applicable law, order, or regulatory requirement, or (b) for the purpose of effectuating transportation of LFG or Biogas pursuant to this Agreement, or (iii) to the extent such information is delivered to a third party for the sole purpose of evaluation, compilation, establishment or editorial review of various gas price indices.

Schedule "B"

Raw LFG Specifications

In designing the TGI Facilities, TGI has assumed an LFG composition that is typical of landfills. It is expected that the LFG will meet the specifications contained in this Schedule "B" in order for the TGI Facilities to process the LFG into Biogas.

In order to successfully produce Biogas, the LFG at the Delivery Point shall:

(a) not contain sand, dust, gums, oils and other impurities or other objectionable substances in such quantities as may be injurious to upgrading equipment or may interfere with the transmission or commercial utilization of the gas;

(b) not contain water in the liquid phase;

(c) contain between than 37 and 43 percent by volume of carbon dioxide;

(d) not contain more than 4 percent by volume of nitrogen;

(e) not contain more than 0.2 percent by volume of oxygen;

(f) contain between 55 and 65 percent methane by volume;

(g) have a temperature not exceeding 55°C; and

(h) not contain more than 500 parts per million by volume of hydrogen sulphide (on an annual average basis).

Schedule "C"

Gas Specifications

Any Biogas purchased by TGI from CSRD shall meet the same pipeline quality specifications as those identified in the Westcoast Energy General Terms and Conditions, Article 12, item 12.06, which for clarity are copied below:

"12.06 Residue Gas at Receipt Points. Residue gas delivered to Westcoast by or for the account of a Shipper at a Receipt Point shall:

(a) not contain sand, dust, gums, oils and other impurities or other objectionable substances in such quantities as may be injurious to pipelines or may interfere with the transmission or commercial utilization of the gas;

(b) not contain more than six milligrams per cubic meter of hydrogen sulphide;

(c) not contain water in the liquid phase and not contain more than 65 milligrams per cubic meter of water vapour;

(d) be free of hydrocarbons in liquid form and not have a hydrocarbon dewpoint in excess of minus 9°C at the delivery pressure;

(e) not contain more than 23 milligrams per cubic meter of total sulphur;

(f) not contain more than two percent by volume of carbon dioxide;

(g) be as free of oxygen as Shipper can keep it through the exercise of all reasonable precautions and shall not in any event contain more than 0.4 percent by volume of oxygen;

(h) have a temperature not exceeding 54°C; and

(i) have a total heating value of not less than 36.00 megajoules per cubic meter."

Schedule "D"

Sample Incentive Payment Calculation

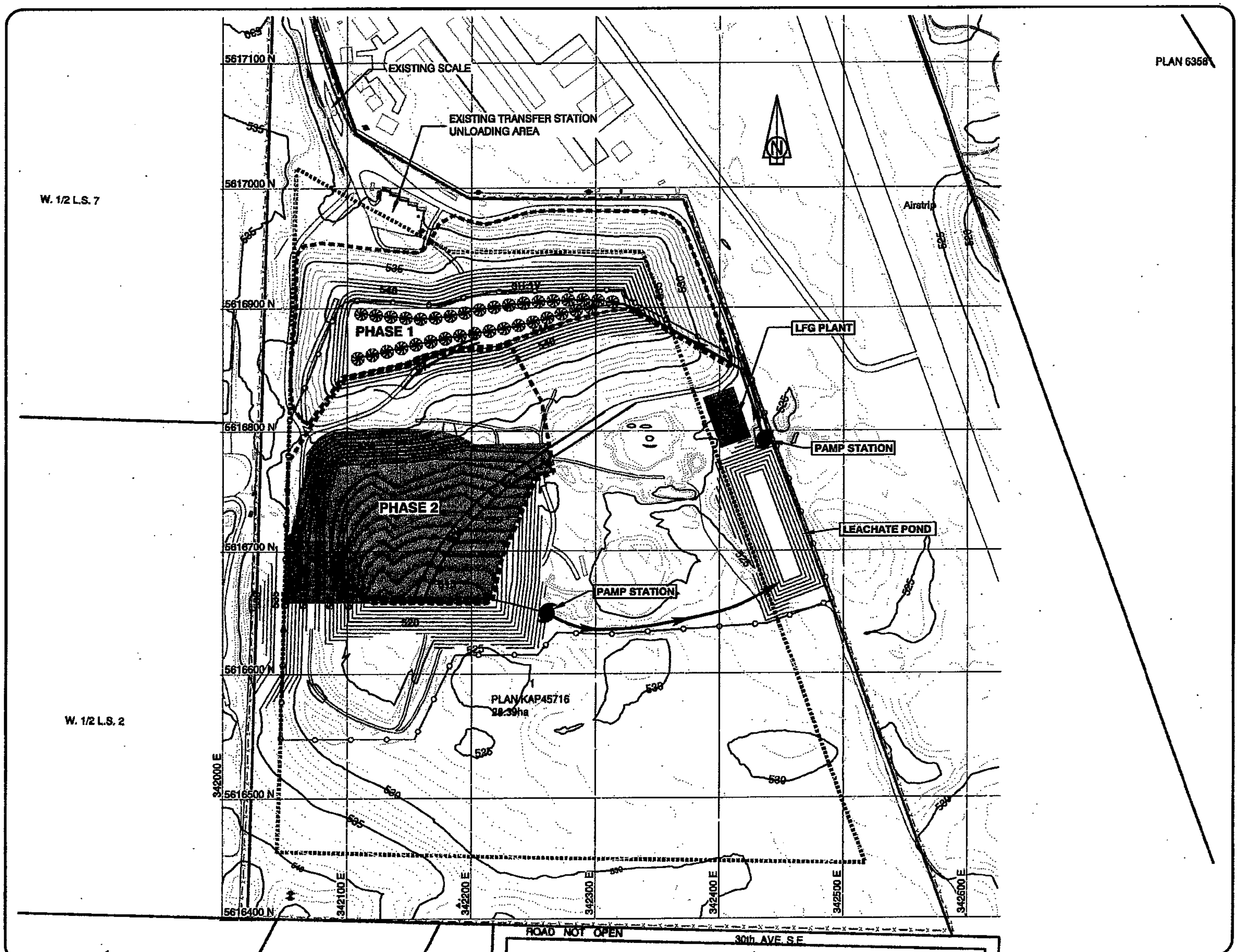
Biogas produced by the LFG processing system in excess of the Baseline Volume will be subject to an Incentive Payment.

A sample calculation is provided below assuming the following inputs:

[redacted]

Schedule "E"

Drawing of the License Area



SPERLING HANSEN ASSOCIATES

#8 - 1225 East Keith Road North Vancouver, B.C. V7J 1J3
Phone: (604) 986-7723 Fax: (604) 986-7734

LEGEND:

- 5m CONTOURS
- 1m CONTOURS
- SPOT ELEVATION
- PROPERTY LINE
- ROAD
- DITCH
- STRUCTURE
- UTILITY POLE
- EXISTING FENCE
- PROPOSED ELECTRIC BEAR FENCE
- PHASE 1 CLOSURE AREA = 3.3 Ha
- PHASE 2 ACTIVE AREA = 3.4 Ha
- GEOMEMBRANE LINER AREA = 2.5 Ha
- ACTIVE PHYTOREMEDIATION AREA - HYBRID POPLARS = 1.8 Ha

CLIENT:

CSRD COLUMBIA SHUSWAP REGIONAL DISTRICT

PROJECT:

SALMON ARM LANDFILL PROPOSAL

TITLE:

PHASE 1 CLOSURE AND PHASE 2 EXCAVATION PLAN

SCALE:	DATE:	PROJECT NO:
1:3000	2010/02/03 yyyy/mm/dd	PRP10102
DESIGNED	TS	DRAWING NO:
DRAWN	BR	FIGURE 3-1
CHECKED	MC	

Attachment 39.1

SCHEDULE "A"

GENERAL TERMS & CONDITIONS
M13 TRANSPORTATION AGREEMENT

I. DEFINITIONS

Except where the context expressly requires or states another meaning, the following terms, when used in these General Terms & Conditions and in any contract into which these General Terms & Conditions are incorporated, shall be construed to have the following meanings:

1. "Banking Day" shall mean a day on which the general offices of the Canadian Imperial Bank of Commerce, 99 King St. W., Chatham, Ontario are open for business;

2. "business day" shall mean a day on which the general offices of Union in Chatham, Ontario are open for business;

3. "Contract" shall refer to the Contract to which these General Terms & Conditions shall apply, and into which they are incorporated;

4. "contract year" shall mean a period of three hundred and sixty-five (365) consecutive days, beginning on the day agreed upon by Union and Shipper as set forth in the Contract, or on any anniversary of such date; provided, however, that any such period which contains a date of February 29 shall consist of three hundred and sixty-six (366) consecutive days;

5. "day" shall mean a period of twenty-four (24) consecutive hours beginning at 9:00 a.m. Central Standard time. The reference date for any day shall be the calendar date upon which the twenty-four (24) hour period shall commence;

6. "month" shall mean the period beginning at 9:00 a.m. Central Standard time on the first day of a calendar month and ending at 9:00 a.m. Central Standard time on the first day of the following calendar month;

7. "firm" shall mean service not subject to curtailment or interruption except under Articles XI and XII of this Schedule "B";

8. "interruptible service" shall mean service subject to curtailment or interruption, after notice, at any time;

9. "gas" shall mean gas as defined in the Ontario Energy Board Act, R.S.O. 1980, c. 332, as amended, supplemented or reenacted from time to time;

10. "cubic metre" shall mean the volume of gas which occupies one cubic metre when such gas is at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

11. "m^3" shall mean cubic metre of gas and "10^3m^3" shall mean 1,000 cubic metres of gas;

12. "pascal" (Pa) shall mean the pressure produced when a force of one (1) newton is applied to an area of one (1) square metre. The term "kilopascal" (kPa) shall mean 1,000 pascals;

13. "joule" (J) shall mean the work done when the point of application of a force of one (1) newton is displaced a distance of one (1) metre in the direction of the force. The term "megajoule" (MJ) shall mean 1,000,000 joules. The term “gigajoule” (GJ) shall mean 1,000,000,000 joules;

14. "gross heating value" shall mean the total heat expressed in megajoules per cubic metre (MJ/m^3) produced by the complete combustion at constant pressure of one (1) cubic metre of gas with air, with the gas free of water vapour and the temperature of the gas, air and products of combustion at standard temperature and all water formed by the combustion reaction condensed to the liquid state;

15. "Shipper" shall have the meaning as defined in the Contract and shall also include Shipper’s agent(s);

16. "subsidiary" shall mean a company in which more than fifty (50) per cent of the issued share capital (having full voting rights under all circumstances) is owned or controlled directly or indirectly by another company, by one or more subsidiaries of such other company, or by such other company and one or more of its subsidiaries;

17. "TCPL" means TransCanada PipeLines Limited;

18. "NOVA" means NOVA Gas Transmission Ltd;

19. "Panhandle" means CMS Panhandle Eastern Pipeline Company;

20. "MichCon" means Michigan Consolidated Gas Company;

21. "SCPL" means St. Clair Pipelines (1996) Ltd.;

22. "OEB" means the Ontario Energy Board;

23. "NEB" means the National Energy Board (Canada);

    i. "GLGT" means Great Lakes Gas Transmission Company;

    ii. "CMS" means CMS Gas Transmission and Storage Company; and,

    iii. "Consumers" means The Consumers' Gas Company, Limited.

24. "cricondentherm hydrocarbon dewpoint" shall mean the highest hydrocarbon dewpoint temperature on the phase envelope;

25. "hydrocarbon dewpoint" shall mean temperature at a specific pressure where hydrocarbon vapour condensation begins;

26. "specific gravity" shall mean density of the gas divided by density of air, with both at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute; and,

27. "Wobbe Number" shall mean gross heating value of the gas divided by the square root of its specific gravity.

II. GAS QUALITY

1. Natural Gas: The minimum gross heating value of the gas delivered to/by Union hereunder, shall be thirty-six (36) megajoules per cubic metre. The maximum gross heating value of the gas delivered to/by Union hereunder shall be forty point two (40.2) megajoules per cubic metre. The gas to be delivered hereunder to Union may be a commingled supply from Shipper's gas sources of supply. The gas to be delivered by Union may be a commingled supply from Union's sources of gas supply; provided, however, that helium, natural gasoline, butane, propane and other hydrocarbons, except methane, may be removed prior to delivery to Shipper. Further, Union may subject, or permit the subjection of, the gas to compression, dehydration, cooling, cleaning and other processes.

2. Freedom from objectionable matter: The gas to be delivered to Union at the Receipt Point(s) hereunder,

    a. shall be commercially free from bacteria, sand, dust, gums, crude oils, lubricating oils, liquids, chemicals or compounds used in the production, treatment, compression or dehydration of the gas or any other objectionable substance in sufficient quantity so as to render the gas toxic, unmerchantable or cause injury to, or interference with, the proper operation of the lines, regulators, meters or other appliances through which it flows,

    b. shall not contain more than seven (7) milligrams of hydrogen sulphide per cubic metre of gas, nor more than one hundred (100) milligrams of total sulphur per cubic metre of gas,

    c. shall not contain more than five (5) milligrams of mercaptan sulphur per cubic metre of gas,

    d. shall not contain more than two point zero (2.0) molar percent by volume of carbon dioxide in the gas,

    e. shall not contain more than zero point four (0.4) molar percent by volume of oxygen in the gas,

f. shall not contain more than zero point five (0.5) molar percent by volume of carbon monoxide in the gas,

g. shall not contain more than four point zero (4.0) molar percent by volume of hydrogen in the gas,

h. shall not contain more than sixty-five (65) milligrams of water vapour per cubic metre of gas,

i. shall not have a cricondentherm hydrocarbon dewpoint exceeding minus eight (-8) degrees Celsius,

j. shall have Wobbe Number from forty seven point fifty (47.50) megajoules per cubic metre of gas to fifty one point forty six (51.46) megajoules per cubic metre of gas, maximum of one point five (1.5) mole percent by volume of butane plus (C4+) in the gas, and maximum of four point zero (4.0) mole percent by volume of total inerts in the gas in order to be interchangeable with other Interconnecting Pipeline gas,

k. shall not exceed forty-three degrees Celsius (43ºC), and,

l. shall not be odourized by Shipper.

3. Non-conforming Gas:

a. In the event that the quality of the gas does not conform or if Union, acting reasonably, suspects the quality of the gas may not conform to the specifications herein, then Shipper shall, if so directed by Union acting reasonably, forthwith carry out, at Shipper's cost, whatever field testing of the gas quality as may be required to ensure that the quality requirements set out herein are met, and to provide Union with a certified copy of such tests. If Shipper does not carry out such tests forthwith, Union may conduct such test and Shipper shall reimburse Union for all costs incurred by Union for such testing.

b. If Shipper's gas fails at any time to conform to the requirements of this Article II, Union, in addition to its other remedies, may refuse to accept delivery of gas at the Receipt Points hereunder until such deficiency has been remedied by Shipper. Each Party agrees to notify the other verbally, followed by written notification, of any such deficiency of quality.

4. Quality of Gas Received: The quality of the gas to be received by Union at the Receipt Point(s) hereunder is to be of a merchantable quality and in accordance with the quality standards as set out by Union in this Article II, but, Union will use reasonable efforts to accept gas of a quality that may deviate from the quality standards set out therein.

5. Quality of Gas at Dawn: The quality of the gas to be delivered to Union at Dawn (Facilities) or the gas to be delivered by Union to Shipper at Dawn (Facilities) hereunder is to be of a merchantable quality and in accordance with the quality standards and measurement standards as set out by Union in this Article II, except that total sulphur limit shall be not more than four hundred and sixty (460) milligrams per cubic metre of gas. In addition to any other right or remedy of a party, each party shall be entitled to refuse to accept delivery of any gas which does not conform to any of the specifications set out in this Article II.

III. MEASUREMENTS

1. Service Unit: The unit of the gas delivered to Union shall be a quantity of 10^3m^3. The unit of gas delivered by Union shall be a megajoule, a gigajoule, a cubic metre (m^3) or one thousand cubic metres (10^3m^3) at Union's discretion.

2. Determination of Volume and Energy:

a. The volume and energy amounts determined under the Contract shall be determined in accordance with the Electricity and Gas Inspection Act (Canada), RSC 1985, c E-4- (the "**Act**") and the Electricity and Gas Inspection Regulations, SOR 86/131 (the "**Regulations**"), and any documents issued under the authority of the Act and Regulations and any amendments thereto.

b. The supercompressibility factor shall be determined in accordance with either the "Manual for Determination of Supercompressibility Factors for Natural Gas" (PAR Project NX-19) published in 1962 or with American Gas Association Transmission Measurement Committee Report No. 8, Nov. 1992, at Union's discretion, all as amended from time to time.

c. The volume and/or energy of the gas delivered to/by Union hereunder shall be determined by the measurement equipment designated in Article VI herein.

IV. POINT OF RECEIPT AND POINT OF DELIVERY

1. Unless otherwise specified in the Contract, the point or points of receipt for all gas to be covered hereunder shall be on the outlet side of the measuring stations located at or near the point or points of connection specified in the Contract, where Union takes possession of the gas. Whenever the phrase "receipt point" appears herein, it shall mean Point of Receipt as defined in this Article IV.

2. Unless otherwise specified in the Contract, the point or points of delivery for all gas to be covered hereunder shall be on the outlet side of the measuring stations located at or near the point or points of connection as specified in the Contract, where Shipper takes possession of the gas. Whenever the phrase "delivery point" shall appear herein, it shall mean Point of Delivery as defined in this Article IV.

V. FACILITIES ON CUSTOMER'S PROPERTY

N/A.

VI. MEASURING EQUIPMENT

1. Metering by Union: Union will install and operate meters and related equipment as required and in accordance with the Act and Regulations referenced in Article III herein.

2. Metering by Others: In the event that all or any gas received or delivered hereunder is measured by a meter that is owned and operated by an upstream or downstream transporter (the "Transporter") whose facilities may or may not interconnect with Union's, then Union and Shipper agree to accept that metering for the purpose of determining the volume and energy of gas received or delivered on behalf of the Shipper. The standard of measurement and tests for the gas delivered to/by Union pursuant to this Article VII, Section 2 shall be in accordance with the general terms and conditions as incorporated in that Transporter's gas tariff as approved by Transporter's regulatory body.

3. Check Measuring Equipment: Shipper may install, maintain and operate, at the Receipt Point, at its own expense, such check measuring equipment as desired, provided that such equipment shall be so installed as not to interfere with the operation of Union's measuring equipment at or near the Receipt Point, and shall be installed, maintained and operated in conformity with the same standards and specifications applicable to Union's metering facilities.

4. Calibration and Test of Measuring Equipment: The accuracy of Union's measuring equipment shall be verified by Union at reasonable intervals, and if requested, in the presence of representatives of Shipper, but Union shall not be required to verify the accuracy of such equipment more frequently than once in any thirty (30) day period. In the event either party notifies the other that it desires a special test of any measuring equipment, the parties shall co-operate to secure a prompt verification of the accuracy of such equipment. The expense of any such special test, if called for by Shipper, shall be borne by Shipper if the measuring equipment tested is found to be in error by not more than two per cent (2%). If, upon test, any measuring equipment is found to be in error by not more than two per cent (2%), previous recordings of such equipment shall be considered accurate in computing receipts of gas, but such equipment shall be adjusted at once to record as near to absolute accuracy as possible. If the test conducted shows a percentage of inaccuracy greater than two percent (2%), the financial adjustment, if any, shall be calculated in accordance with the Act and Regulations, as may be amended from time to time and in accordance with any successor statutes and regulations.

5. Preservation of Metering Records: Union and Shipper shall each preserve for a period of at least six (6) years all test data, and other relevant records.

VII. BILLING

1. Monthly Billing Date: Union shall render bills on or before the 10th day of each month for all services furnished during the preceding month. Such charges may be based on estimated quantities, if actual quantities are unavailable in time to prepare the billing. Union shall provide, in a succeeding month's billing, an adjustment based on any difference between actual quantities and estimated quantities. If presentation of a bill to Shipper is delayed after the 10th day of the month, then the time of payment shall be extended accordingly, unless Shipper is responsible for such delay.

2. Right of Examination: Both Union and Shipper shall have the right to examine at any reasonable time the books, records and charts of the other to the extent necessary to verify the accuracy of any statement, chart or computation made under or pursuant to the provisions of the Contract.

VIII. PAYMENTS

1. Monthly Payments: Shipper shall pay the invoiced amount directly into Union's bank account as directed on the invoice on or before the twentieth (20th) day of each month. If the payment date is not a business day, then payment must be received in Union's account on the first business day preceding the twentieth (20th) day of the month.

2. Remedies for Non-payment: Should Shipper fail to pay all of the amount of any bill as herein provided when such amount is due, Shipper shall pay to Union interest on the unpaid portion of the bill accruing at a rate per annum equal to the minimum commercial lending rate of Union's principal banker in effect from time to time from the due date until the date of payment. If such failure to pay continues for thirty (30) days after payment is due, Union, in addition to any other remedy it may have under the Contract may suspend service(s) until such amount is paid, provided however, that if Shipper, in good faith shall dispute the amount of any such bill or part thereof and shall pay to Union such amounts as it concedes to be correct and at any time thereafter within twenty (20) days of a demand made by Union shall furnish good and sufficient surety bond satisfactory to Union, guaranteeing payment to Union of the amount ultimately found due upon such bill after a final determination which may be reached either by agreement, arbitration decision or judgement of the courts, as may be the case, then Union shall not be entitled to suspend service(s) because of such non-payment unless and until default be made in the conditions of such bond or in payment for any further service(s) to Shipper hereunder.

3. Billing Adjustments: If it shall be found that at any time or times Shipper has been overcharged or undercharged in any form whatsoever under the provisions of the Contract and Shipper shall have actually paid the bills containing such overcharge or undercharge, Union shall refund the amount of any such overcharge and interest shall accrue from and including the first day of such overcharge as paid to the date of refund and shall be calculated but not compounded at a rate per annum determined each day during the calculation period to be equal to the minimum commercial lending rate of Union's principal banker, and the Shipper shall pay the amount of any such undercharge, but without interest. In the event Union renders a bill to Shipper based upon measurement estimates, the required adjustment to reflect actual measurement shall be made on the bill next following the determination of such actual measurement, without any charge of interest. In the event an error is discovered in the amount billed in any statement rendered by Union, such error shall be adjusted by Union. Such overcharge, undercharge or error shall be adjusted by Union on the bill next following its determination (where the term "bill" next following shall mean a bill rendered at least fourteen (14) days after the day of its determination), provided that claim therefore shall have been made within six (6) years from the date of the incorrect billing. In the event any refund is issued with Shipper's bill, the aforesaid date of refund shall be deemed to be the date of the issue of invoice.

IX. ARBITRATION

If and when any dispute, difference or question shall arise between the parties hereto touching the Contract or anything herein contained, or the construction hereof, or the rights, duties or liabilities of the parties in relation to any matter hereunder, the matter in dispute shall be submitted and referred to arbitration within ten (10) days after written request of either party. Upon such request each party shall appoint an arbitrator, and the two so appointed shall appoint a third. A majority decision of the arbitrators shall be final and binding upon both parties. In all other respects the provisions of the Arbitration Act of the Province of Ontario, or any act passed in amendment thereof or substitution therefore, shall apply to each such submission. Operations under this Contract shall continue, without prejudice, during any such arbitration and the costs attributable to such arbitration shall be shared equally by the parties hereto.

X. FORCE MAJEURE

N/A

XI. DEFAULT AND TERMINATION

N/A

XII. MODIFICATION

N/A

XIII. NONWAIVER AND FUTURE DEFAULT

N/A

XIV. LAWS, REGULATIONS AND ORDERS

The Contract and the respective rights and obligations of the parties hereto are subject to all present and future valid laws, orders, rules and regulations of any competent legislative body, or duly constituted authority now or hereafter having jurisdiction and the Contract shall be varied and amended to comply with or conform to any valid order or direction of any board, tribunal or administrative agency which affects any of the provisions of the Contract.

RATE M13
GENERAL TERMS & CONDITIONS

I. DEFINITIONS

Except where the context expressly requires or states another meaning, the following terms, when used in these General Terms & Conditions and in any contract into which these General Terms & Conditions are incorporated, shall be construed to have the following meanings:

"**Aid to Construction"** shall include any and all costs, expenses, amounts, damages, obligations, or other liabilities (whether of a capital or operating nature, and whether incurred before or after the date of the Contract) actually paid by Union (including amounts paid to affiliates for services rendered in accordance with the Affiliate Relationships Code as established by the OEB) in connection with or in respect of satisfying the conditions precedent set out in Article XXI herein (including without limitation the cost of construction, installation and connection of any required meter station as described in Article IX, Section 6, the obtaining of all governmental, regulatory and other third party approvals, and the obtaining of rights of way) whether resulting from Union's negligence or not, except for any costs that have arisen from the gross negligence, fraud, or wilful misconduct of Union;

"**Average Local Producer Heat**" ("**ALPH**") shall mean the heat content value as set by Union, and shall be determined by volumetrically averaging the gross heat content of all produced gas delivered to the Union system by Ontario Local Producers. The ALPH shall be expressed in $GJ/10^3m^3$ and may be adjusted from time to time by Union;

"**Business Day**" shall mean any day, other than Saturday, Sunday or any days on which national banks in the Province of Ontario are authorized to close;

"**Contract**" shall refer to the Contract to which these General Terms & Conditions shall apply, and into which they are incorporated;

"**Contract Year**" shall mean a period of three hundred and sixty-five (365) consecutive days; provided however, that any such period which contains a date of February 29 shall consist of three hundred and sixty-six (366) consecutive days, commencing on November 1 of each year; except for the first Contract Year which shall commence on the Commencement Date and end on the first October 31 that follows such date;

"**cricondentherm hydrocarbon dewpoint**" shall mean the highest hydrocarbon dewpoint temperature on the phase envelope;

"**cubic metre**" shall mean the volume of gas which occupies one cubic metre when such gas is at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

"**Dawn Quantity**" shall mean the total daily quantity of gas in GJ delivered at Dawn (Facilities), which is equal to the total energy of all gas supplied daily to Union at the Receipt Point(s). The Dawn Quantity shall be calculated utilizing the following factor equation: Dawn Quantity = Produced Volume x ALPH;

"**Day**" shall mean a period of twenty-four (24) consecutive hours beginning at 10:00 a.m. Eastern Clock Time. The reference date for any Day shall be the calendar date upon which the twenty-four (24) hour period shall commence;

"**Delivery Point**" shall mean the point where Union shall deliver the Dawn Quantity and/or Market Quantity to Shipper and as further defined in Schedule 1 of the Contract;

"**Distribution Demand**" shall mean the varying demand for the supply of gas, as determined by Union, on Union's pipeline and distribution system for users of gas who are supplied or delivered gas by Union's pipeline and distribution system;

"Eastern Clock Time" shall mean the local clock time in the Eastern Time Zone on any Day;

"**firm**" shall mean service not subject to curtailment or interruption except under Articles XI, XII and XVIII herein;

"**Firm Daily Variability Demand**" shall mean the established quantity set forth in Schedule 2 of the Contract, which is the permitted difference between the Dawn Quantity and the Market Quantity;

"**gas**" shall mean gas as defined in the Ontario Energy Board Act, 1998, S.O. 1998, c.15, Sch. B, as amended, supplemented or re-enacted from time to time;

"**gross heating value**" shall mean the total heat expressed in megajoules per cubic metre (MJ/m^3) produced by the complete combustion at constant pressure of one (1) cubic metre of gas with air, with the gas free of water vapour and the temperature of the gas, air and products of combustion at standard temperature and all water formed by the combustion reaction condensed to the liquid state;

"**hydrocarbon dewpoint**" shall mean temperature at a specific pressure where hydrocarbon vapour condensation begins;

"**Interruptible HUB Service Contract**" shall mean a contract between Shipper and Union under which Union provides interruptible HUB service;

"**Interconnecting Pipeline**" shall mean a pipeline that directly connects to the Union pipeline and distribution system;

"**joule**" (J) shall mean the work done when the point of application of a force of one (1) newton is displaced a distance of one (1) metre in the direction of the force. The term "**megajoule**" (MJ) shall mean 1,000,000 joules. The term "**gigajoule**" (GJ) shall mean 1,000,000,000 joules;

"**m^3**" shall mean cubic metre of gas and "**10^3m^3**" shall mean 1,000 cubic metres of gas;

"**MAOP**" shall mean the maximum allowable operating pressure of Union's pipeline and distribution system and as further defined in Schedule 1 of the Contract;

"**Market Quantity**" shall mean the daily quantity in GJ nominated for Name Change Service that Day by Shipper at Dawn (Facilities);

"**Maximum Daily Quantity**" shall mean the maximum quantity of gas Shipper may deliver to Union at a Receipt Point on any Day, as further defined in Schedule 1;

"**Month**" shall mean the period beginning at 10:00 a.m. Eastern Clock Time on the first day of a calendar month and ending at 10:00 a.m. Eastern Clock Time on the first day of the following calendar month;

"**Name Change Service**" shall mean an interruptible administrative service whereby Union acknowledges for Shipper a change in title of a gas quantity from Shipper to a third party at the Delivery Point;

"**OEB**" means the Ontario Energy Board;

"**pascal**" "**(Pa)**" shall mean the pressure produced when a force of one (1) newton is applied to an area of one (1) square metre. The term "**kilopascal**" "**(kPa)**" shall mean 1,000 pascals;

"**Produced Volume**" shall mean the aggregate of all actual volumes of gas in 10^3m^3, delivered by Shipper to Union at all Receipt Points on any Day;

"**Producer Balancing Account**" shall mean the gas balance held by Union for Shipper, or owed by Shipper to Union, at the Delivery Point. Where the Producer Balancing Account is zero or a positive number, the account is in a credit position, and where the Producer Balancing Account is less than zero, the account is in a debit position;

"**Producer Balancing Service**" shall mean a Service whereby Union either calculates a credit or debit to the Producer Balancing Account by subtracting the Market Quantity from the Dawn Quantity. Where such amount is greater than zero, Union will credit the Producer Balancing Account, or where such amount is less than zero, Union will debit the Producer Balancing Account. This Service shall be performed on a retroactive basis on the terms and conditions contained in Schedule 2 of the Contract, as may be revised from time to time by Union;

"Receipt Point" shall mean the point(s) where Union shall receive gas from Shipper;

"**Sales Agreement**" shall mean the Ontario Gas Purchase Agreement(s) entered into between Shipper and Union;

"**Shipper**" shall have the meaning as defined in the Contract, and shall also include Shipper's agent(s);

"**specific gravity**" shall mean density of the gas divided by density of air, with both at a temperature of 15 degrees Celsius, and at a pressure of 101.325 kilopascals absolute;

"**System Capacity**" shall mean the volumetric capacity that exists from time to time within Union's pipeline and distribution system which determines Union's ability to accept volumes of gas into Union's pipeline and distribution system hereunder. System Capacity shall be determined by Union and such determination, in addition to the physical characteristics of Union's pipeline and distribution system Distribution Demand, shall also include consideration of Union's local Distribution Demand, Union's total system Distribution Demand, availability of Union's gas storage capacity, and other gas being purchased and/or delivered into Union's pipeline and distribution system;

"**Taxes**" shall mean any tax (other than tax on income or tax on property), duty, royalty, levy, license, fee or charge not included in the charges and rates as per the applicable rate schedule (including but not limited to charges under any form of cap and trade, carbon tax, or similar system) and that is levied, assessed or made by any governmental authority on the gas itself, or the act, right, or privilege of producing, severing, gathering, storing, transporting, handling, selling or delivering gas under the Contract;

"**Wobbe Number**" shall mean gross heating value of the gas divided by the square root of its specific gravity.

II. <u>GAS QUALITY</u>

1. <u>Natural Gas:</u> The minimum gross heating value of the gas delivered to/by Union hereunder, shall be thirty-six (36) megajoules per cubic metre. The maximum gross heating value of the gas delivered to/by Union hereunder shall be forty point two (40.2) megajoules per cubic metre. The gas to be delivered hereunder to Union may be a commingled supply from Shipper's gas sources of supply. The gas to be delivered by Union may be a commingled supply from Union's sources of gas supply; provided, however, that helium, natural gasoline, butane, propane and other hydrocarbons, except methane, may be removed prior to delivery to Shipper. Further, Union may subject, or permit the subjection of, the gas to compression, dehydration, cooling, cleaning and other processes.

2. <u>Freedom from objectionable matter</u>: The gas to be delivered to Union at the Receipt Point(s) hereunder,

   a. shall be commercially free from bacteria, sand, dust, gums, crude oils, lubricating oils, liquids, chemicals or compounds used in the production, treatment, compression or dehydration of the gas or any other objectionable substance in sufficient quantity so as to render the gas toxic, unmerchantable or cause injury to, or interference with, the proper operation of the lines, regulators, meters or other appliances through which it flows,

   b. shall not contain more than seven (7) milligrams of hydrogen sulphide per cubic metre of gas, nor more than one hundred (100) milligrams of total sulphur per cubic metre of gas,

   c. shall not contain more than five (5) milligrams of mercaptan sulphur per cubic metre of gas,

   d. shall not contain more than two point zero (2.0) molar percent by volume of carbon dioxide in the gas,

   e. shall not contain more than zero point four (0.4) molar percent by volume of oxygen in the gas,

   f. shall not contain more than zero point five (0.5) molar percent by volume of carbon monoxide in the gas,

   g. shall not contain more than four point zero (4.0) molar percent by volume of hydrogen in the gas,

   h. shall not contain more than sixty-five (65) milligrams of water vapour per cubic metre of gas,

   i. shall not have a cricondentherm hydrocarbon dewpoint exceeding minus eight (-8) degrees Celsius,

   j. shall have Wobbe Number from forty seven point fifty (47.50) megajoules per cubic metre of gas to fifty one point forty six (51.46) megajoules per cubic metre of gas, maximum of one point five (1.5) mole percent by volume of butane plus (C4+) in the gas, and maximum of four point zero (4.0) mole percent by volume of total inerts in the gas in order to be interchangeable with other Interconnecting Pipeline gas,

k. shall not exceed forty-three degrees Celsius (43ºC), and,

l. shall not be odourized by Shipper.

3. Non-conforming Gas:

a. In the event that the quality of the gas does not conform or if Union, acting reasonably, suspects the quality of the gas may not conform to the specifications herein, then Shipper shall, if so directed by Union acting reasonably, forthwith carry out, at Shipper's cost, whatever field testing of the gas quality as may be required to ensure that the quality requirements set out herein are met, and to provide Union with a certified copy of such tests. If Shipper does not carry out such tests forthwith, Union may conduct such test and Shipper shall reimburse Union for all costs incurred by Union for such testing.

b. If Shipper's gas fails at any time to conform to the requirements of this Article II, Union, in addition to its other remedies, may refuse to accept delivery of gas at the Receipt Points hereunder until such deficiency has been remedied by Shipper. Each Party agrees to notify the other verbally, followed by written notification, of any such deficiency of quality.

4. Quality of Gas Received: The quality of the gas to be received by Union at the Receipt Point(s) hereunder is to be of a merchantable quality and in accordance with the quality standards as set out by Union in this Article II, but, Union will use reasonable efforts to accept gas of a quality that may deviate from the quality standards set out therein.

5. Quality of Gas at Dawn: The quality of the gas to be delivered to Union at Dawn (Facilities) or the gas to be delivered by Union to Shipper at Dawn (Facilities) hereunder is to be of a merchantable quality and in accordance with the quality standards and measurement standards as set out by Union in this Article II, except that total sulphur limit shall be not more than four hundred and sixty (460) milligrams per cubic metre of gas. In addition to any other right or remedy of a party, each party shall be entitled to refuse to accept delivery of any gas which does not conform to any of the specifications set out in this Article II.

III. MEASUREMENTS

1. Service Unit: The unit of the gas delivered to Union shall be a quantity of 10^3m^3. The unit of gas delivered by Union shall be a megajoule, a gigajoule, a cubic metre (m^3) or one thousand cubic metres (10^3m^3) at Union's discretion.

2. Determination of Volume and Energy:

a. The volume and energy amounts determined under the Contract shall be determined in accordance with the Electricity and Gas Inspection Act (Canada), RSC 1985, c E-4- (the "**Act**") and the Electricity and Gas Inspection Regulations, SOR 86/131 (the "**Regulations**"), and any documents issued under the authority of the Act and Regulations and any amendments thereto.

b. The supercompressibility factor shall be determined in accordance with either the "**Manual for Determination of Supercompressibility Factors for Natural Gas**" (PAR Project NX-19) published in 1962 or with American Gas Association Transmission Measurement Committee Report No. 8, Nov. 1992, at Union's discretion, all as amended from time to time.

c. The volume and/or energy of the gas delivered to/by Union hereunder shall be determined by the measurement equipment designated in Article VII herein.

IV. RECEIPT POINT AND DELIVERY POINT

The point(s) of receipt and point of delivery for all gas to be covered hereunder shall be on the outlet side of the measuring stations located at or near the point or points of connection specified in Schedule 1 of the Contract, where possession of the gas changes from one party to the other.

V. POSSESSION OF AND RESPONSIBILITY FOR GAS

1. Union accepts no responsibility for any gas prior to such gas being delivered to Union at the Receipt Point or after its delivery by Union at the Delivery Point. As between the parties hereto, Union shall be deemed to be in control and possession of and responsible for all such gas from the time that such gas enters Union's system until such gas is delivered to Shipper.

2. Shipper agrees that Union is not a common carrier and is not an insurer of Shipper's gas, and that Union shall not be liable to Shipper or any third party for loss of gas in Union's possession, except to the extent such loss is caused entirely by Union's negligence or wilful misconduct.

VI. FACILITIES ON SHIPPER'S PROPERTY

1. Union shall provide, at the Receipt Point(s), according to the terms hereunder, the meter station required to receive and measure the Produced Volume of gas received by Union from Shipper. Shipper agrees, if requested by Union, to provide Union with sufficient detailed information regarding Shipper's current and expected operations in order to aid Union in Union's design of the meter station.

2. Pursuant to Article VI. Section 1 herein, Union shall purchase, install and maintain, at the Receipt Point(s):

   a. a meter and any associated recording gauges as are necessary; and,

   b. a suitable gas odourizing injection facility where Union deems such facility to be necessary.

3. All equipment installed by Union at the Receipt Point(s) shall remain the property of Union at all times, notwithstanding the fact that it may be affixed to Shipper's property. Union shall be entitled to remove said equipment at any time within a period of sixty (60) days from any termination or expiry of the Contract. Shipper shall take all necessary steps to ensure Union may enter onto the Receipt Point(s) to remove such equipment for a period of sixty (60) days after termination or expiry of the Contract or the Sales Agreement.

4. Upon Union's request Shipper shall, at Shipper's own cost and expense:

   a. obtain a registered lease or freehold ownership at the Receipt Point(s) sufficient to provide Union with free uninterrupted access to, from, under and above the Receipt Point(s), for a term (and extended terms) identical to the Contract, plus sixty (60) days, and shall provide Union with a bona fide copy of such lease agreement prior to Union commencing the construction of the meter station;

   b. furnish, install, set, and maintain suitable pressure and volume control equipment and such additional equipment as required on Shipper's delivery system, to protect against the overpressuring of Union's facilities, and to limit the daily flow of gas to the corresponding Maximum Daily Quantity applicable to the Receipt Point(s);

   c. supply, install and maintain a gravel or cut stone covering on each Receipt Point and shall maintain such Receipt Point(s) in a safe and workmanlike manner; and,

   d. install and maintain a fence satisfactory to Union around the perimeter of each Receipt Point which will adequately secure and protect Union's equipment therein.

5. Shipper shall within thirty (30) days of the delivery of an invoice by Union, reimburse Union for any actual costs reasonably incurred by Union for any repair, replacement, relocation, or upgrading of any meter station requested by Shipper, or as required by law, or by duly constituted regulatory body, or through good engineering practice. Union shall be responsible for any costs incurred by Union to correct an error made by Union.

VII. MEASURING EQUIPMENT

1. Metering by Union: Union will install and operate meters and related equipment as required and in accordance with the Act and Regulations referenced in Article III herein.

2. Metering by Others: In the event that all or any gas received or delivered hereunder is measured by a meter that is owned and operated by an upstream or downstream transporter (the "**Transporter**") whose facilities may or may not interconnect with Union's, then Union and Shipper agree to accept that metering for the purpose of determining the volume and energy of gas received or delivered on behalf of the Shipper. The standard of measurement and tests for the gas delivered to/by Union pursuant to this Article VII, Section 2 shall be in accordance with the general terms and conditions as incorporated in that Transporter's gas tariff as approved by Transporter's regulatory body.

3. Check Measuring Equipment: Shipper may install, maintain and operate, at the Receipt Point, at its own expense, such check measuring equipment as desired, provided that such equipment shall be so installed as not to interfere with the operation of Union's measuring equipment at or near the Receipt Point, and shall be installed, maintained and operated in conformity with the same standards and specifications applicable to Union's metering facilities.

4. Calibration and Test of Measuring Equipment: The accuracy of Union's measuring equipment shall be verified by Union at reasonable intervals, and if requested, in the presence of representatives of Shipper, but Union shall not be required to verify the accuracy of such equipment more frequently than once in any thirty (30) day period. In the event either party notifies the other that it desires a special test of any measuring equipment, the parties shall co-operate to secure a prompt verification of the accuracy of such equipment. The expense of any such special test, if called for by Shipper, shall be borne by Shipper if the measuring equipment tested is found to be in error by not more than two per cent (2%). If, upon test, any measuring equipment is found to be in error by not more than two per cent (2%), previous recordings of such equipment shall be considered accurate in computing receipts of gas, but such equipment shall be adjusted at once to record as near to absolute accuracy as possible. If the test conducted shows a percentage of inaccuracy greater than two percent (2%), the financial adjustment, if any, shall be calculated in accordance with the Act and Regulations, as may be amended from time to time and in accordance with any successor statutes and regulations.

5. Preservation of Metering Records: Union and Shipper shall each preserve for a period of at least six (6) years all test data, and other relevant records.

VIII. BILLING

1. Monthly Billing Date: Union shall render bills on or before the tenth (10th) day of each month for all Services furnished during the preceding Month. Such charges may be based on estimated quantities, if actual quantities are unavailable in time to prepare the billing. Union shall provide, in a succeeding Month's billing, an adjustment based on any difference between actual quantities and estimated quantities, without any interest charge. If presentation of a bill to Shipper is delayed after the tenth (10th) day of the month, then the time of payment shall be extended accordingly, unless Shipper is responsible for such delay.

2. Right of Examination: Both Union and Shipper shall have the right to examine at any reasonable time the books, records and charts of the other to the extent necessary to verify the accuracy of any statement, chart or computation made under or pursuant to the provisions of the Contract.

3. Amendment of Statements: For the purpose of completing a final determination of the actual quantities of gas handled in any of the Services to Shipper, the parties shall have the right to amend their statement for a period equal to the time during which the companies, that transport the gas contemplated herein for Union and Shipper, retain the right to amend their statements, which period shall not exceed three (3) years from the date of termination of the Contract.

IX. PAYMENTS

1. Monthly Payments: Shipper shall pay the invoiced amount directly into Union's bank account as directed on the invoice on or before the twentieth (20th) day of each month. If the payment date is not a Business Day, then payment must be received in Union's account on the first Business Day preceding the twentieth (20th) day of the month.

2. Remedies for Non-payment: Should Shipper fail to pay all of the amount of any bill as herein provided when such amount is due,

    a. Shipper shall pay to Union interest on the unpaid portion of the bill accruing at a rate per annum equal to the minimum commercial lending rate of Union's principal banker in effect from time to time from the due date until the date of payment; and,

b. If such failure to pay continues for thirty (30) days after payment is due, Union, in addition to any other remedy it may have under the Contract, may suspend Services until such amount is paid. Notwithstanding such suspension, all demand charges shall continue to accrue hereunder as if such suspension were not in place.

If Shipper in good faith disputes the amount of any such bill or part thereof Shipper shall pay to Union such amounts as it concedes to be correct. At any time thereafter, within twenty (20) days of a demand made by Union, Shipper shall furnish financial assurances satisfactory to Union, guaranteeing payment to Union of the amount ultimately found due upon such bill after a final determination. Such a final determination may be reached either by agreement, arbitration decision or judgement of the courts, as may be the case. Union shall not be entitled to suspend Services because of such non-payment unless and until default occurs in the conditions of such financial assurances or default occurs in payment of any other amount due to Union hereunder.

Notwithstanding the foregoing, Shipper is not relieved from the obligation to continue its deliveries of gas to Union under the terms of any agreement, where Shipper has contracted to deliver specified quantities of gas to Union.

3. Billing Adjustments: If it shall be found that at any time or times Shipper has been overcharged or undercharged in any form whatsoever under the provisions of the Contract and Shipper shall have actually paid the bills containing such overcharge or undercharge, Union shall refund the amount of any such overcharge and interest shall accrue from and including the first day of such overcharge as paid to the date of refund and shall be calculated but not compounded at a rate per annum determined each day during the calculation period to be equal to the minimum commercial lending rate of Union's principal banker, and the Shipper shall pay the amount of any such undercharge, but without interest. In the event Union renders a bill to Shipper based upon measurement estimates, the required adjustment to reflect actual measurement shall be made on the bill next following the determination of such actual measurement, without any charge of interest. In the event an error is discovered in the amount billed in any statement rendered by Union, such error shall be adjusted by Union. Such overcharge, undercharge or error shall be adjusted by Union on the bill next following its determination (where the term "**bill next following**" shall mean a bill rendered at least fourteen (14) days after the day of its determination), provided that claim therefore shall have been made within three (3) years from the date of the incorrect billing. In the event any refund is issued with Shipper's bill, the aforesaid date of refund shall be deemed to be the date of the issue of bill.

4. Taxes: In addition to the charges and rates as per the applicable rate schedules and price schedules, Shipper shall pay all Taxes which are imposed currently or subsequent to the execution of the Contract by any legal authority having jurisdiction and any amount in lieu of such Taxes paid or payable by Union.

5. Set Off: If either party shall, at any time, be in arrears under any of its payment obligations to the other party under the Contract, then the party not in arrears shall be entitled to reduce the amount payable by it to the other party in arrears under the Contract, or any other contract, by an amount equal to the amount of such arrears or other indebtedness to the other party. In addition to the foregoing remedy, Union may, upon forty-eight (48) hours verbal notice, to be followed by written notice, take possession of any or all of Shipper's gas under the Contract, which shall be deemed to have been assigned to Union, to reduce such arrears or other indebtedness to Union.

6. Station and Connection Costs: In the event that a meter station must be constructed and/or installed in order to give effect to this Contract, Shipper agrees to pay Union for a portion, as determined by Union, of Union's actual cost, as hereinafter defined, for constructing and installing such station. Shipper also agrees to pay the actual costs to connect such station to Union's pipeline and distribution system. Union shall advise Shipper as to the need for a meter station and shall provide Shipper with an estimate of the Aid to Construction. Such Aid to Construction shall include the costs of all pipe, fittings and materials, third party labour costs and Union's direct labour, labour saving devices, vehicles and mobile equipment, but shall exclude the purchase costs of gas pressure control equipment and gas meters installed by Union.

X. ARBITRATION

If and when any dispute, difference or question shall arise between the parties hereto touching the Contract or anything herein contained, or the construction hereof, or the rights, duties or liabilities of the parties in relation to any matter hereunder, the matter in dispute shall be submitted and referred to arbitration within ten (10) days after written request of either party. Upon such request each party shall appoint an arbitrator, and the two so appointed shall appoint a third. A majority decision of the arbitrators shall be final and binding upon both parties. In all other respects the provisions of the

Arbitration Act, 1991, or any act passed in amendment thereof or substitution therefore, shall apply to each such submission. Operations under the Contract shall continue, without prejudice, during any such arbitration and the costs attributable to such arbitration shall be shared equally by the parties hereto.

XI. FORCE MAJEURE

1. The term "**force majeure**" as used herein shall mean acts of God, strikes, lockouts or any other industrial disturbance, acts of the public enemy, sabotage, wars, blockades, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, storms, floods, washouts, arrests and restraints of governments and people, civil disturbances, explosions, breakage or accident to machinery or lines of pipe, freezing of wells or lines of pipe, inability to obtain materials, supplies, permits or labour, any laws, orders, rules, regulations, acts or restraints of any governmental body or authority (civil or military), any act or omission that is excused by any event or occurrence of the character herein defined as constituting force majeure, any act or omission by parties not controlled by the party having the difficulty and any other similar cases not within the control of the party claiming suspension and which by the exercise of due diligence such party is unable to prevent or overcome.

2. In the event that either the Shipper or Union is rendered unable, in whole or in part, by force majeure, to perform or comply with any obligation or condition of the Contract, such party shall give notice and full particulars of such force majeure in writing delivered by hand, fax or other direct written electronic means to the other party as soon as possible after the occurrence of the cause relied on and subject to the provision of this Article.

3. Neither party shall be entitled to the benefit of the provisions of force majeure hereunder if any or all of the following circumstances prevail: the failure resulting in a condition of force majeure was caused by the negligence of the party claiming suspension; the failure was caused by the party claiming suspension where such party failed to remedy the condition by making all reasonable efforts (short of litigation, if such remedy would require litigation); the party claiming suspension failed to resume the performance of such condition obligations with reasonable dispatch; the failure was caused by lack of funds; the party claiming suspension did not, as soon as possible after determining, or within a period within which it should acting reasonably have determined, that the occurrence was in the nature of force majeure and would affect its ability to observe or perform any of its conditions or obligations under the Contract, give to the other party the notice required hereunder.

4. The party claiming suspension shall likewise give notice as soon as possible after the force majeure condition is remedied, to the extent that the same has been remedied, and that such party has resumed or is then in a position to resume the performance of the obligations and conditions of the Contract.

5. An event of force majeure on Union's system will excuse the failure to deliver gas by Union or the failure to accept gas by Union hereunder, and both parties shall be excused from performance of their obligations hereunder, except for payment obligations, to the extent of and for the duration of the force majeure.

6. Upstream or Downstream Force Majeure: An event of force majeure upstream or downstream of Union's system shall not relieve Shipper of any payment obligations.

7. Delay of Services: Despite Article XI herein, if Union is prevented, by reason of an event of force majeure on Union's system from delivering gas on the Day or Days upon which Union has accepted gas from Shipper, Union shall thereafter make all reasonable efforts to deliver such quantities as soon as practicable and on such Day or Days as are agreed to by Shipper and Union. If Union accepts such gas on this basis, Shipper shall not receive any demand charge relief as contemplated under Article XI herein.

8. Firm Daily Variability Demand Charge Relief: Despite Article XI herein, if on any Day Union fails to accept gas from Shipper by reason of an event of force majeure on Union's system and fails to deliver the quantity of gas nominated hereunder by Shipper up to the Firm Daily Variability Demand for that Contract, then for that Day the Monthly charge shall be reduced by an amount equal to the applicable Firm Daily Variability Demand Rate, as defined in this paragraph, multiplied by the difference between the quantity of gas actually delivered by Union during such Day and the quantity of gas which Shipper in good faith nominated on such Day. The term "**Firm Daily Variability Demand Rate**" shall mean the monthly Firm Daily Variability Demand charge as provided in Schedule 2 of the Contract, divided by the number of days in the month for which such rate is being calculated.

XII. DEFAULT AND TERMINATION

In case of the breach or non-observance or non-performance on the part of either party hereto of any covenant, proviso, condition, restriction or stipulation contained in the Contract (but not including herein failure to take or make delivery in whole or in part of the gas delivered to/by Union hereunder occasioned by any of the reasons provided for in Article XI herein) which has not been waived by the other party, then and in every such case and as often as the same may happen, the non-defaulting party may give written notice to the defaulting party requiring it to remedy such default and in the event of the defaulting party failing to remedy the same within a period of thirty (30) days from receipt of such notice, the non-defaulting party may at its sole option declare the Contract to be terminated and thereupon the Contract shall be terminated and be null and void for all purposes other than and except as to any liability of the parties under the same incurred before and subsisting as of termination. The right hereby conferred upon each party shall be in addition to, and not in derogation of or in substitution for, any other right or remedy which the parties respectively at law or in equity shall or may possess.

In the event that this Contract is terminated pursuant to this Article XII, the parties hereto agree that they shall continue to be bound only by the terms and conditions set forth in the Contract but only for the purpose of determining the actual quantities in Shipper's Producer Balancing Account with such determination being subject to Article X. Such extended period of time shall not exceed one (1) year from the date of termination of this Contract.

XIII. AMENDMENT

Subject to Article XV herein and the ability of Union to amend the applicable rate schedules and price schedules, with the approval of the OEB (if required), no amendment or modification of the Contract shall be effective unless the same shall be in writing and signed by each of the Shipper and Union.

XIV. NON-WAIVER AND FUTURE DEFAULT

No waiver of any provision of the Contract shall be effective unless the same shall be in writing and signed by the party entitled to the benefit of such provision and then such waiver shall be effective only in the specific instance and for the specified purpose for which it was given. No failure on the part of Shipper or Union to exercise, and no course of dealing with respect to, and no delay in exercising, any right, power or remedy under the Contract shall operate as a waiver thereof.

XV. LAWS, REGULATIONS AND ORDERS

The Contract and the respective rights and obligations of the parties hereto are subject to all present and future valid laws, orders, rules and regulations of any competent legislative body, or duly constituted authority now or hereafter having jurisdiction and the Contract shall be varied and amended to comply with or conform to any valid order or direction of any board, tribunal or administrative agency which affects any of the provisions of the Contract.

XVI. RESERVED FOR FUTURE USE

N/A

XVII. RENEWALS

The Contract will continue in full force and effect beyond the Initial Term, automatically renewing for a period of one (1) year, and every one (1) year thereafter, subject to notice in writing by either party of termination at least three (3) months prior to the expiration thereof.

XVIII. SERVICE CURTAILMENT

1. Excepting instances of emergency, Shipper and Union agree to give at least twenty-four (24) hours verbal notice before a

planned curtailment of receipt or delivery, shut-down or start-up.

2. Shipper shall complete and maintain a plan which depicts all of the Shipper's gas production facilities including all emergency shut off valves and emergency equipment and provide a copy to Union upon Union's request. Shipper shall provide to Union the names and telephone numbers of those persons whom Union may contact in the event of an emergency situation arising within the Shipper's facilities.

3. In the event that Union is notified by a third party or if Union becomes aware of an emergency situation in which Shipper's gas production site, pipeline or associated equipment is involved, Union shall immediately notify Shipper or Shipper's representative of such emergency condition.

4. Union shall have the right, at all times, to reconstruct or modify Union's pipeline and distribution system and the pressure carried therein, notwithstanding that such reconstruction or modification may reduce the System Capacity available to receive Shipper's gas, or Shipper's ability to deliver gas to Union. Should Union expect any such reconstruction or modification to reduce the delivery or receipt of gas by either party, Union will, where able, provide Shipper with six (6) months' notice or as much notice as is reasonably practical in the circumstances. Union shall use reasonable efforts to assist the Shipper in meeting its Market Quantity in these circumstances.

XIX. SHIPPER'S REPRESENTATIONS AND WARRANTIES

1. Shipper's Warranty: Shipper warrants that it will, if required, maintain, or have maintained on its behalf, all external approvals including the governmental, regulatory, import/export permits and other approvals or authorizations that are required from any federal, state or provincial authorities for the gas quantities to be handled under the Contract. Shipper further warrants that it shall maintain in effect the Facilitating Agreements.

2. Financial Representations: Shipper represents and warrants that the financial assurances (including the Initial Financial Assurances and Security), if any, shall remain in place throughout the term hereof unless Shipper and Union agree otherwise. Shipper shall notify Union in the event of any change to the financial assurances (including the Initial Financial Assurances and Security), if any, throughout the term hereof. Should Union have reasonable grounds to believe that Shipper will not be able to perform or continue to perform any of its obligations under the Contract for any reason (a "**Material Event**"), then Shipper shall within fourteen (14) days of receipt of written notice by Union, obtain and provide to Union a letter of credit or other security in the form and amount reasonably required by Union (the "**Security**"). In the event that Shipper does not provide to Union such Security, Union may deem a default in accordance with the provisions of Article XII herein.

   In the event that Shipper in good faith, reasonably believes that it should be entitled to reduce the amount of or value of the Security previously provided, it may request such a reduction from Union and to the extent that the Material Event has been mitigated or eliminated, Union shall return all or a portion of the Security to Shipper within fourteen (14) Business Days after receipt of the request.

3. Licence: Shipper represents and warrants to Union that Shipper possesses a licence to produce gas in the Province of Ontario.

XX. MISCELLANEOUS PROVISIONS

1. Assignment: Shipper may assign the Contract to a third party ("**Assignee**"), up to the Maximum Daily Quantity, (the "**Capacity Assigned**"). Such assignment shall require the prior written consent of Union and release of obligations by Union for the Capacity Assigned from the date of assignment. Such consent and release shall not be unreasonably withheld and shall be conditional upon the Assignee providing, amongst other things, financial assurances as per Article XXI herein. Any such assignment will be for the full rights, obligations and remaining term of the Contract as relates to the Capacity Assigned.

2. Title to Gas: Shipper represents and warrants to Union that Shipper shall have good and marketable title to, or legal authority to deliver to Union, all gas delivered to Union hereunder. Furthermore, Shipper hereby agrees to indemnify and save Union harmless from all suits, actions, debts, accounts, damages, costs, losses and expenses arising from or out of claims of any or all third parties to such gas or on account of Taxes, or other charges thereon.

XXI. PRECONDITIONS TO SERVICES

1. The obligations of Union to provide Services hereunder are subject to the following conditions precedent, which are for the sole benefit of Union and which may be waived or extended in whole or in part in the manner provided in the Contract:

   a. Union shall have obtained, in form and substance satisfactory to Union, and all conditions shall have been satisfied under, all governmental, regulatory and other third party approvals, consents, orders and authorizations, that are required to provide the Services; and,

   b. Union shall have obtained all internal approvals that are necessary or appropriate to provide the Services; and,

   c. Union shall have received from Shipper the requisite financial assurances reasonably necessary to ensure Shipper's ability to honour the provisions of the Contract (the "**Initial Financial Assurances**"). The Initial Financial Assurances, if required, will be as determined solely by Union; and,

   d. Shipper and Union shall have entered into the Interruptible HUB Service Contract or equivalent (the "**Facilitating Agreement**") with Union; and,

   e. Union shall, where applicable, have obtained all internal and external approvals including the governmental, regulatory and other approvals or authorizations required to construct any facilities necessary to provide the Services hereunder, which approvals and authorizations, if granted upon conditions, shall be conditions satisfactory to Union; and,

   f. Union shall, where applicable, have completed and placed into service those facilities necessary to provide the Services hereunder; and,

   g. Further to Article IX Section 6 herein, Shipper shall pay to Union a payment ("**First Prepayment**") towards the Aid to Construction at the time of the execution of this Agreement. Shipper shall pay a payment prior to installation of the meter station ("**Second Prepayment**"). The foregoing payments are specified in the attached Schedule 1 for the first meter station ("**Receipt Point #1**") to be installed under this contract. Payments for additional meter stations will be handled by written mutual agreement between the parties. Shipper shall pay Union the difference if the actual Aid to Construction is more than the Prepayments, within thirty (30) days of the delivery of an invoice from Union on which the actual costs for construction and installation of facilities are stated. Union shall pay Shipper the difference if the actual Aid to Construction is less than the Prepayments. In the event Shipper terminates this Agreement prior to Union incurring any costs related to the construction, installation or connection of the meter station, Shipper's Prepayments shall be returned to Seller, without interest, within fifteen (15) days notice to Union of such termination by Shipper. In the event Union has incurred costs, as set out herein, relative to the construction, installation or connection of the meter station prior to being notified by Shipper of Shipper's intention to terminate the Agreement, Union shall deduct such actual costs from Union's return of Shipper's Prepayments. "**Prepayments**" shall mean the sum of the First Prepayment and the Second Prepayment.

2. The obligations of Shipper hereunder are subject to the following conditions precedent, which are for the sole benefit of Shipper and which may be waived or extended in whole or in part in the manner provided in the Contract:

   a. Shipper shall, as required, have entered into the necessary contracts with Union and/or others to facilitate the Services contemplated herein, including contracts for upstream and downstream transportation, and shall specifically have an executed and valid Facilitating Agreement; and,

   b. Shipper shall have obtained, in form and substance satisfactory to Shipper, and all conditions shall have been satisfied under, all governmental, regulatory and other third party approvals, consents, orders and authorizations, that are required from federal, state, or provincial authorities for the gas quantities handled under the Contract; and,

   c. Shipper shall have obtained all internal approvals that are necessary or appropriate for the Shipper to execute the Contract; and,

d. Shipper shall have cancelled or renegotiated its Sales Agreement, on terms satisfactory to Union, as applicable.

3. Union and Shipper shall each use due diligence and reasonable efforts to satisfy and fulfil the conditions precedent specified in this Article XXI Section 1 a, c, d, e, f, g, and Section 2 a, b, and d. Each party shall notify the other forthwith in writing of the satisfaction or waiver of each condition precedent for such party's benefit. If a party concludes that it will not be able to satisfy a condition precedent that is for its benefit, such party may, upon written notice to the other party, terminate the Contract and upon the giving of such notice, the Contract shall be of no further force and effect and each of the parties shall be released from all further obligations thereunder.

4. If any of the conditions precedent in this Article XXI Section 1 c or Section 2 are not satisfied or waived by the party entitled to the benefit of that condition by the Conditions Date as such term is defined in the Contract, or if any of the Shipper payments required under the condition precedent in this Article XXI Section 1 g have not been paid as required in such section, then either party may, upon written notice to the other party, terminate the Contract and upon the giving of such notice, the Contract shall be of no further force and effect and each of the parties shall be released from all further obligations hereunder, provided that any rights or remedies that a party may have for breaches of the Contract prior to such termination and any liability a party may have incurred before such termination shall not thereby be released.

Attachment 39.2

Contract No. M13___

THIS M13 TRANSPORTATION AND PRODUCER BALANCING SERVICE AND NAME CHANGE SERVICE CONTRACT dated as of the ____ day of [Month, year],

UNION GAS LIMITED, a company existing under the laws of the Province of Ontario,
(hereinafter referred to as "**Union**")

-and-

[SHIPPER NAME], a [type of entity] existing under the laws of the Province of Ontario,
(hereinafter referred to as "**Shipper**")

WHEREAS, Union owns and operates a natural gas transmission and storage system in southwestern Ontario, through which Union offers "**Services**" (as defined in Article II herein) for natural gas as M13 transportation service with associated producer balancing service and name change service;

AND WHEREAS, Shipper wishes to retain Union to provide the Services, as set out herein, and Union has agreed, subject to the terms and conditions of this Contract, to provide the Services requested;

NOW THEREFORE, this Contract witnesses that, in consideration of the mutual covenants and agreements herein contained and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereby agree as follows:

ARTICLE I - INTERPRETATION AND DEFINITIONS

1.01 Divisions, Headings and Index: The division of this Contract into Articles, Sections and Subsections, and the insertion of headings and any table of contents or index provided are for convenience of reference only, and shall not affect the construction or interpretation hereof.

1.02 Industry Usage: Words, phrases or expressions which are not defined herein and which, in the usage or custom of the business of the transportation, storage, and distribution or sale of natural gas have an accepted meaning shall have that meaning.

1.03 Extended Meaning: Unless the context otherwise requires, words importing the singular include the plural and vice versa, and words importing gender include all genders. The words "herein" and "hereunder" and words of similar import refer to the entirety of this Contract, including the Schedules incorporated into this Contract, and not only to the Section in which such use occurs.

1.04 Conflict: In the event of any conflict between the provisions of the main body of this Contract, Schedules 1 and 2, and Union's C1, M13 and T1 Rate Schedules, as defined below, the provisions of Schedules 1 and 2 shall prevail over the provisions of the main body of the Contract and the provisions of Union's C1, M13 and T1 Rate Schedules shall prevail over Schedules 1 and 2 and the main body of this Contract.

1.05 Currency: All reference to dollars in this Contract shall mean Canadian dollars.

1.06 Schedules: Refers to the schedules attached hereto which are specifically included as part of this Contract, and include:

Schedule 1 - Contract Parameters
Schedule 2 - Service Terms and Rates

1.07 Rate Schedules:

(a) "**Union's C1 Rate Schedule**" or the "**C1 Rate Schedule**" or "**C1**" shall mean Union's C1 Rate Schedule (including the Storage and Transportation Rates, Schedule "A 2010" ("**General Terms and Conditions**"), Schedule "B 2010" ("**Nominations**"), and Schedule "C 2010" ("**Receipt and Delivery Points and Pressures**")), or such other replacement rate schedule which may be applicable to the Services provided hereunder as approved by the Ontario Energy Board.

(b) "**Union's M13 Rate Schedule**" or the "**M13 Rate Schedule**" or "**M13**" shall mean Union's M13 Rate Schedule (including Schedule "A 2013" ("**General Terms and Conditions**")), or such other replacement rate schedule which may be applicable to the Services provided hereunder as approved by the Ontario Energy Board, and shall apply hereto, as amended from time to time, and which is incorporated into this Contract pursuant to Section 5.03 hereof.

(c) "**Union's T1 Rate Schedule**" or the "**T1 Rate Schedule**" or "**T1**" shall mean Union's T1 Rate Schedule, or such other replacement rate schedule which may be applicable to the Services provided hereunder as approved by the Ontario Energy Board.

1.08 Measurements: Units set out in SI (metric) are the governing units for the purposes of this Contract. Units set out in Imperial measurement in parentheses beside their SI (metric) equivalent are for reference only and in the event of a conflict between SI (metric) and Imperial measurement herein, SI (metric) shall prevail.

ARTICLE II - SERVICES

2.01 Union agrees, subject to the terms and conditions herein, to provide the following services set out in this Section 2.01 and in Section 2.02 (c) and (e) (the "**Services**").

Union agrees to accept delivery of the Produced Volume, on a reasonable efforts basis, at the Receipt Point(s) provided that:

(a) Union has sufficient System Capacity to receive the gas offered for delivery by Shipper; and,

(b) the quality of such gas meets the Terms and Conditions as set forth in Schedule "A 2013", General Terms & Conditions, Article II of Union's M13 Rate Schedule.

Union further agrees to deliver each Day at the Delivery Point the Dawn Quantity on the same Day as Shipper delivers the Produced Volume.

Union shall deliver at the Delivery Point a Market Quantity provided Shipper has tendered its daily quantity nomination to Union so that it is received in accordance with Schedule "B 2010" of Union's C1 Rate Schedule and Union has scheduled such nomination.

2.02 Union and Shipper acknowledge that this Contract shall be governed by the following principles:

(a) on an ongoing basis during each Contract Year the total Dawn Quantity shall equal the total Market Quantity, and Union and Shipper shall each use their reasonable efforts to achieve this;

(b) Shipper agrees that on each Day no more than the Maximum Daily Quantity will be delivered to Union as Produced Volume;

(c) Union and Shipper acknowledge that it is impractical for Shipper to nominate the Produced Volume to Union. Union shall retroactively calculate the Produced Volume. Union has agreed to provide a Producer Balancing Service. Union agrees to either receive a quantity of gas from Shipper at Dawn (Facilities) which shall equal the Dawn Quantity less the Market Quantity, where such amount is greater than zero, and credit the Producer Balancing Account; or, to deliver a quantity of gas to Shipper which shall equal the Market Quantity less the Dawn Quantity, where such amount is greater than zero, and debit the Producer Balancing Account, such quantity of gas on a retroactive basis, on the terms and conditions contained in Schedule 2 attached hereto, as may be revised from time to time by Union;

(d) Except under that circumstance where Shipper purchases third party gas to correct a debit position in the Producer Balancing Account, the only quantities that shall be debited or credited under the Producer Balancing Account are the Dawn Quantity. Any gas that may be purchased to correct a debit position as herein provided, shall be delivered to Union at the Delivery Point; and,

(e) Union agrees, on any Day, to provide a Name Change Service immediately downstream of Union's facilities at Dawn (Facilities) for any quantity of gas which Shipper may deliver and which Union has authorized. Shipper and/or its designate shall ensure that Union is notified of the names of the parties underlying this transaction, which name change(s) Union shall confirm to all relevant transporters (including Union). Union will not provide the Name Change Service unless the party to which the gas is being transferred has executed a valid Union approved Interruptible Service Hub Contract and has made a Service Hub nomination with Union, or has properly nominated under other contracts in place with Union.

2.03 Accounting for Services: All quantities of gas handled by Union shall be accounted for on a daily basis. Services provided hereunder shall be in accordance with the prescribed nominations procedures herein, and shall be interruptible in nature and subordinate to any and all firm services supplied by Union.

2.04 Commingling: Union shall have the right to commingle the quantity of gas referenced herein with gas owned by Union or gas being stored and/or transported by Union for third parties.

ARTICLE III - CHARGES AND RATES

3.01 Except as otherwise stated herein, the charges and rates to be billed by Union and paid by Shipper for the Services provided under this Contract will be those specified in Schedule 2 attached hereto, as may be revised from time to time by Union, upon notice to Shipper.

ARTICLE IV – NOMINATIONS

4.01 Services provided hereunder shall be in accordance with the prescribed nominations procedure as set out in Schedule "B 2010" of Union's C1 Rate Schedule.

ARTICLE V - MISCELLANEOUS PROVISIONS

5.01 Notices: All communications provided for or permitted hereunder shall be in writing, personally delivered to an officer or other responsible employee of the addressee or sent by registered mail, charges prepaid, or by facsimile or other means of recorded telecommunication, charges prepaid, to the applicable address set forth below or to such other address as either party hereto may from time to time designate to the other in such manner, provided that no communication shall be sent by mail pending any threatened, or during any actual, postal strike or other disruption of the postal service. Any communication personally delivered shall be deemed to have been validly and effectively received on the date of such delivery. Any communication so sent by facsimile or other means of telecommunication shall be deemed to have been validly and effectively received on the Business Day following the day on which it is sent. Any communication so sent by mail shall be deemed to have been validly and effectively received on the seventh Business Day following the day on which it is postmarked.

Notwithstanding the above, nominations shall be made by facsimile or other recorded electronic means, subject to execution of an agreement for use of the secured portion of Union's website (the secured portion of Union's website is known as "***Unionline***") or such other agreement, satisfactory to Union, and will be deemed to be received on the same Day and same time as sent. Each party may from time to time change its address for the purpose of this Section by giving notice of such change to the other party in accordance with this Section.

5.02 Law of Contract: Union and Shipper agree that this Contract is made in the Province of Ontario and that, subject to Article X of the General Terms and Conditions, the courts of the Province of Ontario shall have exclusive jurisdiction in all matters contained herein. The parties further agree that this Contract shall be construed exclusively in accordance with the laws of the Province of Ontario.

5.03 Entire Contract: This Contract (including Schedule 1 and Schedule 2), all applicable rate schedules and price schedules, and any applicable Precedent Agreement constitutes the entire agreement between the parties hereto pertaining to the subject matter hereof. This Contract supersedes any prior or contemporaneous agreements, understandings, negotiations or discussions, whether oral or written, of the parties in respect of the subject matter hereof.

5.04 Time of Essence: Time shall be of the essence hereof.

5.05 Counterparts: This Contract may be executed in any number of counterparts, each of which when so executed shall be deemed to be an original but all of which together shall constitute one and the same agreement. This Contract may be executed by facsimile or other electronic communication and this procedure shall be as effective as signing and delivering an original copy.

5.06 Severability: If any provision hereof is invalid or unenforceable in any jurisdiction, to the fullest extent permitted by law, (a) the other provisions hereof shall remain in full force and effect in such jurisdiction and shall be construed in order to carry out the intention of the parties as nearly as possible and (b) the invalidity or unenforceability of any provision hereof in any jurisdiction shall not affect the validity or enforceability of any provision in any other jurisdiction.

5.07 General Liability: The liability of the parties hereunder is limited to direct damages only and all other remedies or damages are waived. In no event shall either party be liable for consequential, incidental, punitive, or indirect damages, in tort, contract or otherwise.

THIS CONTRACT SHALL BE BINDING UPON and shall enure to the benefit of the parties hereto and their respective successors and permitted and lawful assigns.

IN WITNESS WHEREOF this Contract has been properly executed by the parties hereto by their duly authorized officers as of the date first above written.

UNION GAS LIMITED

Per:____________________________
Authorized Signatory

[SHIPPER NAME]

Per:____________________________
Authorized Signatory

CONTRACT PARAMETERS

Term

This Contract shall be effective as of the date of execution hereof; however, the obligations, terms and conditions for the Services herein shall commence on the later of:

- [Month day, year]; and
- the day following the date that all of the conditions precedent set out in Article XXI of Schedule "A 2013" of Union's M13 Rate Schedule have been satisfied or waived by the party entitled to the benefit thereof;

where applicable for Precedent Agreement:

- and the day following the date that all of the conditions precedent set out in the agreement setting out certain construction and related conditions ("**Precedent Agreement**") dated [Month day, year] have been satisfied or waived by the party entitled to the benefit thereof;

(such later date being referred to as the "**Commencement Date**"), and shall continue in full force and effect until [Month day, year] (the "**Initial Term**").

Conditions Date

As referred to in Article XXI of M13 Schedule "A 2013": [Month day, year]

Receipt Points and Delivery Point, Quantities, and Pressures

The following defines each of the Receipt Points:

Receipt Point #1:[Name] The gas production site measured by Union's meter located at [Lot___, Concession___, ______Township, _________ County, Province of Ontario, Station #________]

Field Contact/Emergency Contact: ____________________
Telephone ___-___-____
Mobile ___-___-____
Facsimile ___-___-____

Maximum Daily Quantity:

Receipt Point #1 _____ 10^3m^3 of gas.

Pressures: Shipper's MAOP at each Receipt Point shall be as follows:

Receipt Point #1 MAOP is _________ kPa.

The pressure of the gas delivered by Shipper to Union at the Receipt Point(s) shall be sufficient to move gas into Union's pipeline but may not exceed the MAOP at the Receipt Point(s) as specified above. Union may change the MAOP from time to time and Union shall provide to Shipper six (6) months' notice of such change in accordance with the provisions of Article XVIII 2(c) of the M13 General Terms & Conditions.

The following defines the Delivery Point:

DAWN (Facilities):

Union's compressor station site, situated in the northwest corner of Lot Twenty-Five (25), Concession II, in the Township of Dawn-Euphemia, in the County of Lambton. This point is applicable for quantities of gas that have been previously transported or stored under other contracts that Shipper may have in place with Union.

Pressures:

DAWN (Facilities): Deliveries by Union shall be made at a pressure of not greater than 4,825 kPa.

Modified Water Vapour Requirement:

At Receipt Point #1 Maximum Water Vapour Content is 230 mg per m^3 (14 lbs/mmcf) OR 65 mg per m^3 (4 lbs/mmcf).

Both Parties agree that should Union at any time experience malfunctioning of or deterioration of the measurement equipment, gas control equipment, or other appurtenance, in Union's pipeline system or should Union's customers experience problems with the combustion or usage of gas in their gas burning equipment due to excessive moisture content, Union at its sole discretion may reduce the maximum water vapour content requirement for gas delivered under the Contract to that which is specified in Article II, Section 2. h. of the M13 Schedule "A 2013". In the event Union reduces the maximum water vapour content requirement to that which is specified in Article II, Section 2. h. of the M13 Schedule "A 2013", Union shall continue to purchase Shipper's gas at 230 mg per m^3 (14 lbs/mmcf) for ninety (90) Days after such notice. Upon the termination of such ninety (90) Day period, Shipper's gas must meet Article II, Section 2. h. of the M13 Schedule "A 2013" requirements.

Fuel Requirements

Please check one: Shipper provides fuel [_] OR Union provides fuel [_]

Prepayment

The Prepayments for Receipt Point #1 as specified in Article XXI, Section 1. g. of the M13 Schedule “A 2013”are as follows:

The First Prepayment upon execution of this Contract is $ _______ [currency].
The Second Prepayment prior to installation of Receipt Point #1 is $_______ [currency].

Contact Information

Communications to the parties hereto shall be directed as follows:

IF TO SHIPPER:	_____________________ _____________________ _____________________ _____________________
Nominations: Attention:	_____________________ Telephone: ___-___-____ Facsimile: ___-___-____
Secondary Contact: Attention:	_____________________ Telephone: ___-___-____ Facsimile: ___-___-____
IF TO UNION:	Union Gas Limited, 50 Keil Drive North, CHATHAM, ON N7M 5M1
Nominations: Attention:	Manager, Gas Control Telephone: 519-436-5217 Facsimile: 519-436-4635
Secondary Contact: Attention:	Senior Buyer, Gas Supply Telephone: 519-436-____ Facsimile: 519-436-4643

Special Provisions

Here insert any special provisions applicable to this Contract

[Shipper Name]

SERVICE TERMS AND RATES

1. **Service Terms and Conditions**:

(a) Shipper shall have a Firm Daily Variability Demand of ____ GJ;

(b) During the period of September 15 to November 15 in the event that on any Day the Dawn Quantity exceeds the Market Quantity by an amount greater than the Firm Daily Variability Demand (this amount shall be referred to as the "**Excess**"), Union may, at its sole discretion, accept the Excess. In the event that the Excess is greater than zero, and Union has not accepted such Excess in writing, Shipper shall pay Union a charge equal to $3.00/GJ ($3.17/MMBtu) multiplied by the Excess. In addition, Union may at its option, upon forty-eight (48) hours verbal notice to the Shipper (to be followed in writing), take title of such Excess which shall be immediately forfeited to Union without further recourse;

(c) During the period of February 15 to April 15 in the event that on any Day the Market Quantity exceeds the Dawn Quantity by an amount greater than the Firm Daily Variability Demand (this amount shall be referred to as the "**Shortfall**"), Union may, at its sole discretion, accept the Shortfall. In the event that the Shortfall is greater than zero, and Union has not accepted such Shortfall in writing, Shipper shall pay Union a charge equal to $3.00/GJ ($3.17/MMBtu) multiplied by the Shortfall. In addition, Union may upon forty-eight (48) hours verbal notice to the Shipper (to be followed in writing), replace all or part of the Shortfall at Shipper's expense;

(d) The Producer Balancing Account shall be limited to the following:

(i) From November 1 to November 30 a cumulative credit position of up to _____ GJ or a cumulative debit position of up to _____ GJ;

(ii) From December 1 to April 30, a cumulative credit position of up to _____ GJ or a cumulative debit position of up to _____ GJ;

(iii) From May 1 to September 14, a cumulative credit position of up to _____ GJ or a cumulative debit position of up to _____ GJ;

(iv) From September 15 to October 31, a cumulative credit position of up to _____ GJ or a cumulative debit position of up to _____ GJ; and,

(v) In the event that this Contract is terminated, the balance in the Producer Balancing Account shall be zero (0) on the effective date of termination.

2. **Rates for Service**:

(a) A Monthly fixed charge applicable to "other contracts" as specified in Union's M13 Rate Schedule or such other replacement rate schedule which may be applicable and as may be amended from time to time by Union; plus,

(b) The charge payable for the transportation of the Dawn Quantity shall be the Delivery Commodity Charge as specified in Union's M13 Rate Schedule or such other replacement rate schedule which may be applicable and as may be amended from time to time by Union; plus,

(c) The charge payable for the Firm Daily Variability Demand shall be equal to the rate specified in Union's T1 Rate Schedule for Annual Firm Injection/Withdrawal Right, Union provides deliverability Inventory, under Storage Services; plus,

(d) The charge payable for each of the quantities debited or credited to the Producer Balancing Account shall be $0.05/GJ ($0.053/MMBtu); plus,

(e) The charge payable for Name Change Service shall be that of the HUB Pricing Provisions Schedule, Section D – Name Change, posted on Union's website, www.uniongas.com, which schedule is revised from time to time by Union. In the event that in any Month Shipper's charges pursuant to this Contract, (excluding Name Changes or Redirects) or any other storage and transportation agreements with Union, exceed $5,000 the maximum fee for the Name Change Service provided for that Month shall be that of the HUB Pricing Provisions Schedule; plus,

(f) The charge payable for exceeding the limitations on the Producer Balancing Account as specified in Subsection 2.02 (c) of the Contract shall be the rate for Overrun of Maximum Storage Balance or Drafted Storage Balance under Unauthorized Overrun specified in Union's Market Price Service Schedule ("**MPSS**") or such other replacement rate schedule which may be applicable and as may be amended from time to time by Union; and

(g) The rates for Services hereunder shall be subject to any orders, rules and regulations of any body having jurisdiction over such rates now or hereafter in effect during the term of this Contract.

Dated: [Month day, year]

Attachment 40.3

Biogas USA West Conference

SoCalGas: Working to Meet the Current and Future Needs of the Biogas Industry

Jim Lucas
Market Development Manager - Biofuels

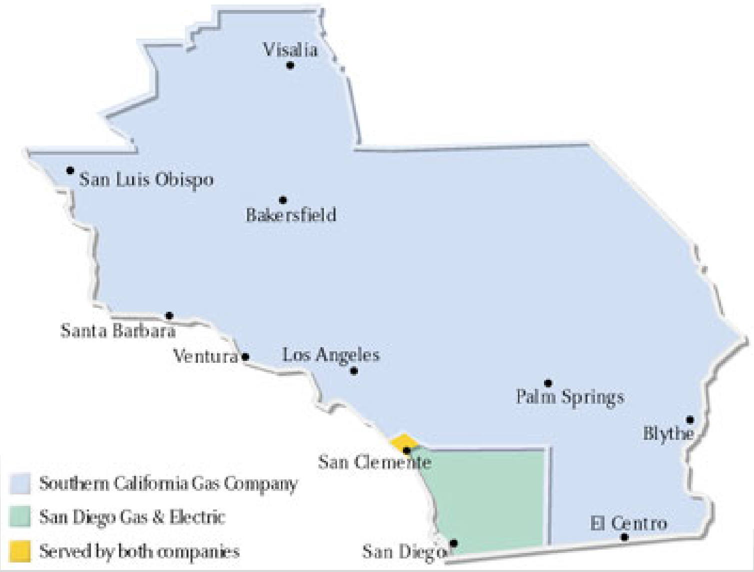
October 11, 2012

Overview

- Overview of SoCalGas
- SoCalGas is Supportive of the Biogas Industry
- SoCalGas Proposed Biogas Programs/Services
- Access to the SoCalGas Pipeline System (Rule 39)
- Rule 30 Biomethane Gas Delivery Specifications
- Renewable Technology "Cost to Generate" Comparison

SoCalGas Overview

- Southern California Gas Company (SoCalGas) has been delivering clean, safe and reliable natural gas to its customers for more than 140 years
- A regulated public utility that provides gas service to 20.9 million consumers
- Nation's largest natural gas distribution utility with 5.8 million meters



SoCalGas is Supportive of the Biogas Industry

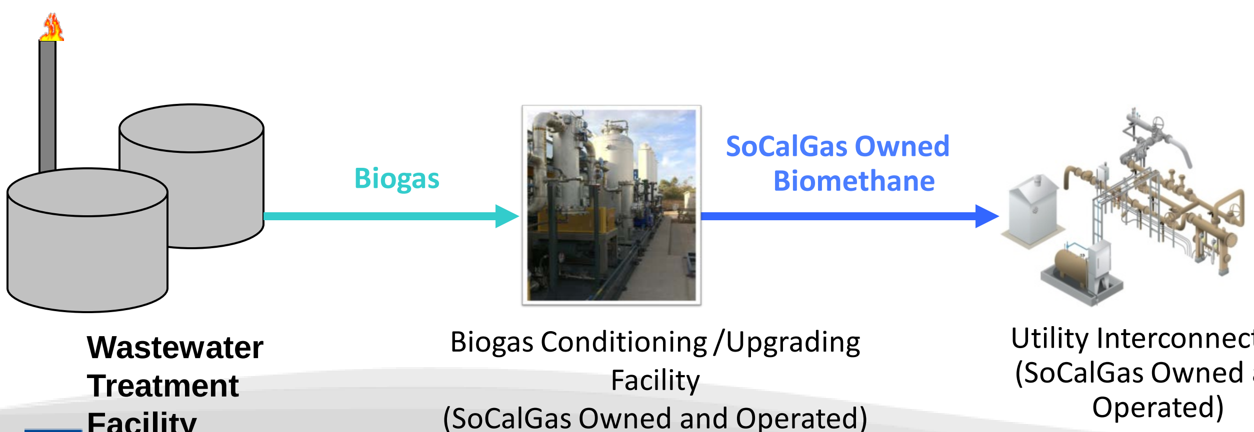
- SoCalGas is supportive of facilitating and growing the biogas industry in Southern California
  - **Advice Letter 3847 (March, 2008)** - proposed additions to Rule No. 39 to provide an interconnect allowance for a producer and/or supplier of biogas seeking an interconnection point with SoCalGas
    - Advice Letter was not approved by the CPUC- stated the advice letter is not the proper vehicle and utility may file their request via an Application
  - **Rule 30 Biomethane Guidance Document** – released in September, 2009
  - **Advice Letter 4172 (November, 2010)** - proposed Biogas Upgrading/Conditioning and Production Services as a Non-Tariff Product and Service
    - Advice Letter was not approved in August of 2011 by the CPUC and recommended that SoCalGas use the Application filing process to support the details of the service offering

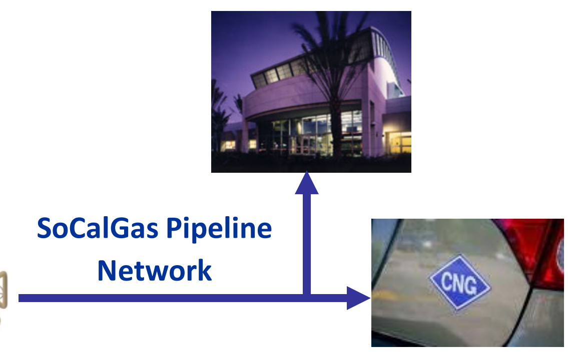
SoCalGas is Supportive of the Biogas Industry

- SoCalGas is supportive of facilitating and growing the biogas industry in Southern California.
  - **SoCalGas 2012 General Rate Case (filed in December of 2010)**
    - Proposed Sustainable SoCal Program
  - **RD&D Biogas Upgrading Demonstration Project (Q2 of 2011)**
    - Located at the Hale Avenue Resource Recovery Facility in Escondido, CA
  - **Proposed Biogas Upgrading/Conditioning Tariff Application (filed April, 2012)**
  - **Participants in Gas Technology Institute (GTI) studies**
    - Dairy Biogas Study (2007-2009)
    - Landfill Gas Study (2010-2012)
    - Siloxane Study with Appliances (On-going)
    - Trace Constituent Study (On-going)

SoCalGas Proposed "Sustainable SoCal Program"

- 2012 SoCalGas General Rate Case Proposal*
  - Target customer for "Sustainable SoCal Program"
    - Small to mid size wastewater treatment plants (200 to 600 scfm)
    - Have a digester onsite and seeking a better solution for their biogas
  - Biomethane to be used for SoCalGas facility and fleet vehicle use
  - Biomethane used in place of natural gas will result in avoided costs for carbon offset needs
  - Cost recovery in rate base





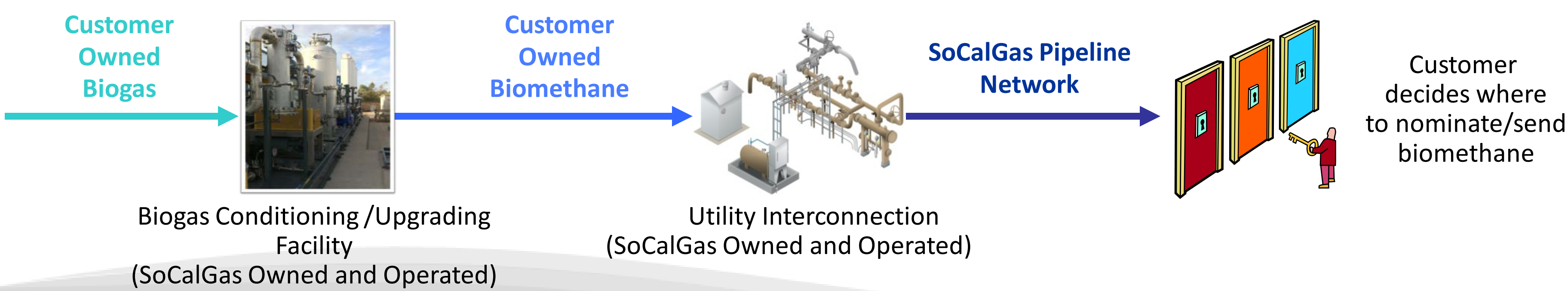
*** Requires CPUC Approval**

SoCalGas Proposed Biogas Conditioning/Upgrading Tariff Service

- Application filed on 04/25/12 with the CPUC seeking authority to offer a new tariff service*

Proposed Biogas Conditioning/Upgrading Tariff Service

- SoCalGas to design, install, own, operate & maintain biogas conditioning/upgrading equipment
- Provides owners of biogas additional options to upgrade their biogas while limiting upfront capital and risk
- SoCalGas will charge the tariff service customer a fully allocated cost under a long-term service agreement
- SoCalGas will not own the biogas entering or the upgraded biogas leaving the biogas conditioning/upgrading facility



* Requires CPUC Approval

Access to the SoCalGas Pipeline System (Rule 39)

1) Stage-gate process designed to provide information while minimizing costs for the Interconnector
   - **Interconnection Capacity Study** - determines SoCalGas' takeaway capability to accept interconnector gas (and estimated cost to expand if necessary). Keep in mind:
     - Adjacent line to project doesn't guarantee gas can be accepted
     - It is **very costly** to install pipelines in the public right of way
     - Detail is important (e.g. – precise project location, volumes are critical, understand utility nomenclature)
   - **Preliminary Engineering Study -** more detailed study which includes cost estimate for Gas Quality Monitoring and Measurement Facilities (Interconnection Facility)
   - **Detailed Engineering Study -** describes all costs of construction, develop complete engineering construction drawings, and prepare all permit applications
2) Authorization and Funding
3) Construction

A Few Keys to Ensure a Smooth Process

- Involve SoCalGas as early as possible, generally at least 18-24 months in advance of desired in service date
- Option to design/build generally works smoother if SoCalGas is elected to provide the design and Interconnector builds

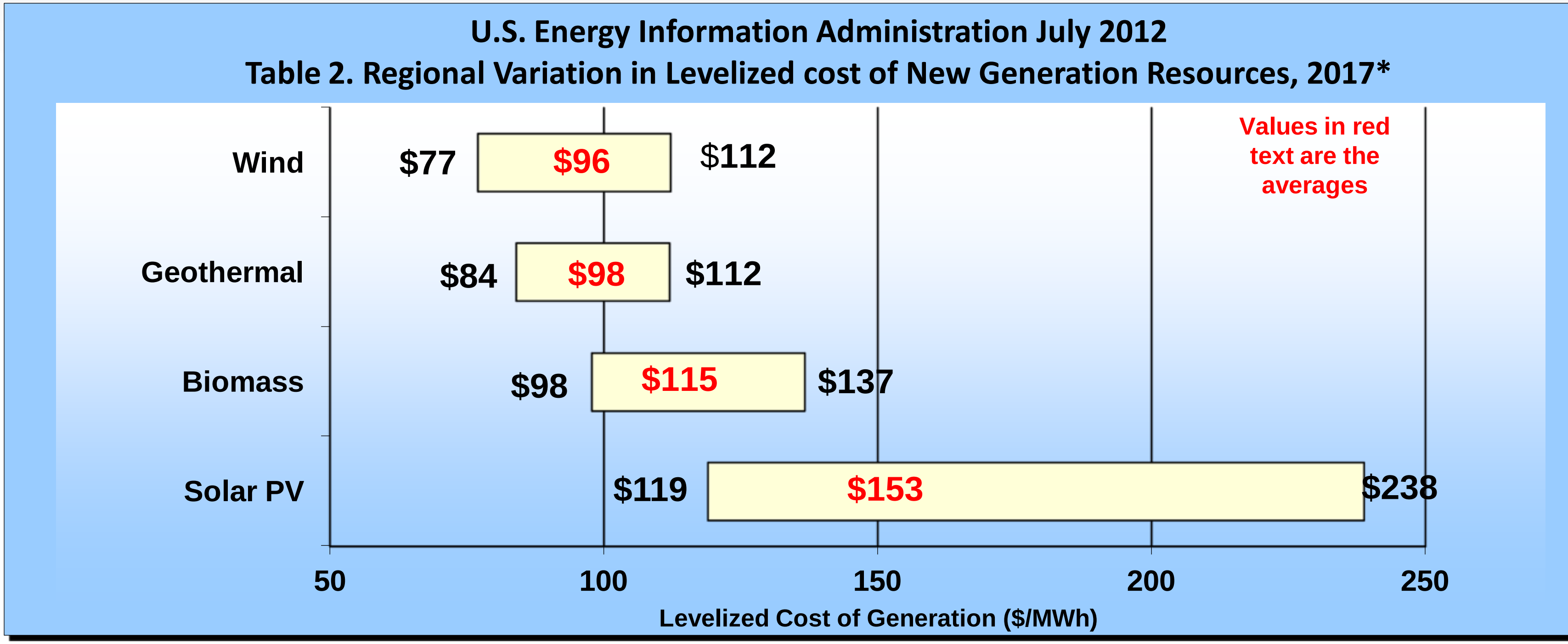
SoCalGas Rule 30 Biomethane Guidance Document

http://www.socalgas.com/documents/business/Rule30_BiomethaneGuidance.pdf

Rule 30 Biomethane Gas Delivery Specifications LIMITS and ACTION LEVELS

Parameters	Limits[1] and/or Action Levels[2]	Monitor and/or Sampling Method References	Test Method(s)
Water vapor content	**7 lb/MMscf (or 20°F if P>800 psi)**	Moisture Analyzer	GPA 2261, ASTM D1142/D5454/D3588, *Laser*
Hydrocarbon Dew point	**45°F at 400 psi or P, if P<400 psi (or 20°F at 400 psi if P>800 psi)**		ASTM D1142, GPA2286
Heating Value Wobbe Number, Major Components: C_1 to C_6+ CO_2, N_2, O_2, CO, H_2	**990 ≤HHV≤1150 Btu/cf** **1279 ≤WN≤1385** **4% Inerts**	Gas Chromatograph	ASTM D1945/D7164, GPA 2261
Oxygen	**0.20%**	O_2 analyzer	*Electrochemical*
Carbon Dioxide	**3%**	CO_2 analyzer (new)	*Laser, FTIR*
Hydrogen Sulfide, Mercaptan and Total Sulfur	**0.25 gr. H_2S/100 scf** **0.30 gr. S/100 scf** **0.75 gr. S/100 scf**	H_2S and Sulfur speciated analyzer	ASTM D4084/D6228/D4468 D5504/D7166
Dust and Gum	**Free of**	In-line filter	EPA Method 5, 0.1µm filters
Temperature	**50°F ≤T≤ 105°F**	Thermocouple	
Vinyl Chloride[3]	**1170 ppbv**	Summa Canister, Tedlar Bag, XAD-2	GC/MS, EPA8270C,B, EPA T0-15
Aldehydes and Ketones	Spot <0.1 ppm,	Sorbent Tube	EPA TO-11, HPLC
Ammonia	Spot <0.001%	OSHA ID-188 or cylinder sample	GC, NCD, OSHA ID 164 Modified
Biologicals	100 per scf	Filter, SKC Biosampler	MPN, qPCR, Microbe test kit (APB, SRB, IRB)
Hydrogen	Spot < 1%	Cylinder	ASTM D1945/D7164
Mercury	Spot < 0.01 mg/m^3	Gold plated silica beads	AA, AFS ASTM D5954/D6350
Volatile Metals	Spot < 0.01 mg/m^3	Nitric acid and peroxide aqueous	ICP, AAS
Siloxanes	Commercially free of (or ND<0.1 mg Si/m^3 continuously[4])	Impinger, tedlar bag, Summa Canister	EPA TO-14, 15 GC/ELCD, GC/AED, GC/MS
VOCs	Spot <1 ppm,	Summa Canister, XAD-2	GC/MS, EPA8270C,B, EPA T0-14, 15
Halocarbons			
SVOCs		XAD-2	EPA 8270
PAHs		PUF/XAD	EPA TO-13A

Renewable Technology "Cost of Generation" Comparison



	Conditioned/ Upgraded Biogas* ($/MMBtu)	Transportation ($/MMBtu)	Total Fuel Cost ($/MMBtu)	Total Fuel Cost ($/MWh)	Combine Cycle Power Production Variable O&M ($/MWh)***	Combined Cycle Power Production Fixed Costs ($/MWh)***	Cost to Generate RPS Energy ($/MWh)
Biomethane - High	$ 12.0	$ 0.27	$ 12.27	$ 85.0	$ 6.82	$ 20.49	$ 112
Biomethane - Low	$ 9.0	$ 0.27	$ 9.27	$ 64.2	$ 6.82	$ 20.49	$ 91

* Conditioned/upgraded Biogas ($/MMBtu): Estimated market price of biomethane at the point of injection

** Heat Rate **(g)** of 6,924 Btu/kWh - From 2011 MPR Model: Average CCPP Heat Rate over life of plant

*** From 2011 MPR Model: 2012 average of variable cost componenet, average of fixed cost component

* Source Report: http://www.eia.gov/forecasts/aeo/electricity_generation.cfm

Thank You!

Jim Lucas
Market Development Manager - Biofuels
jlucas@semprautilities.com

Attachment 40.4

Project Document

Groupe EBI, Dépôt Rive-Nord

Green Natural Gas Project

Lanaudière region of Québec

February 2011

Prepared for:
Bullfrog Power Inc.

Produced by:
ICF International
808 – 277 Wellington Street West
Toronto, Ontario
M5V 3E4

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Table of Contents

Executive Summary

ICF International ("ICF") has been retained by Bullfrog Power to identify the standards that a high-performing Green Natural Gas (biomethane) project should meet, and to provide a methodology for quantifying the emissions reduction associated with Green Natural Gas. The general standards and methodology applicable to any Green Natural Gas facility are set out in the document entitled *Operating Criteria and Quantification Methodology for Green Natural Gas*, February 2011 (the "Protocol").

The purpose of this Project Document is to apply the general standards and methodology set out in the Protocol to a specific Green Natural Gas facility operated by Groupe EBI ("EBI").

This Project Document:

- Provides background information on the EBI Project;
- Confirms that the Green Natural Gas produced by the EBI facility should be treated as having zero carbon dioxide emissions;
- Calculates the CO_2 emissions reduction associated with replacing conventional natural gas with Green Natural Gas from the EBI facility; and
- Translates the general operating standards that Green Natural Gas facilities should meet that are set out in the Protocol into operating standards that are specific to the EBI facility. The contents of an *Annual Emissions Report* are described.

An independent third-party verifier should annually confirm that the facility meets the standards described in this document and that the Project has achieved the emissions reductions described in the *Annual Emissions Report*.

Introduction

EBI owns and operates a Green Natural Gas facility near Montreal, Quebec (the "Project"). ICF has been engaged to review the operations of the facility and indentify the key criteria that the facility must achieve in order to ensure it meets the operating and quality standards set out in the Protocol and to maximize the environmental benefits delivered from the Project. In addition, ICF has been engaged to identify the sources of data and formula that will be necessary to annually quantify the emissions reductions associated with the production and injection into the natural gas pipeline system of Green Natural Gas.

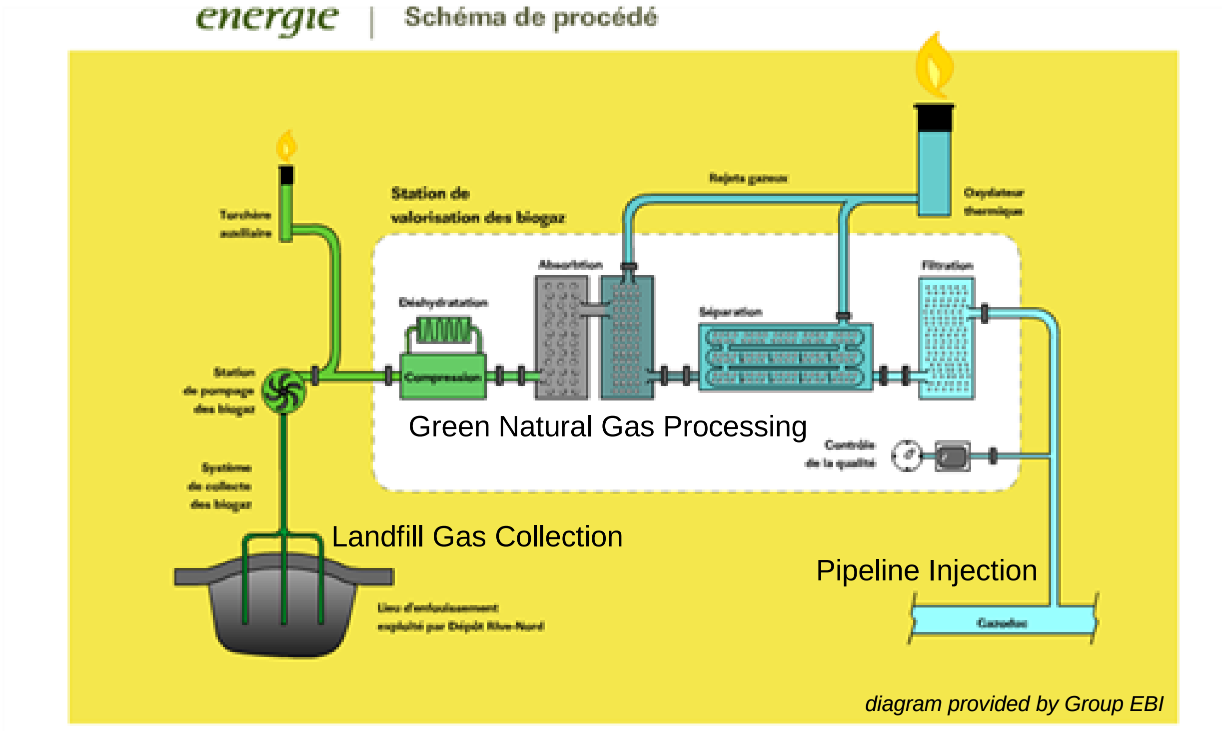
ICF has prepared the Protocol document which defines the operating standards and formula relevant to any Green Natural Gas facility using a landfill and the decomposition of organic matter which produces biogas as its feedstock. The purpose of this project document is to apply the Protocol to the specific EBI Green Natural Gas facility.

EBI owns and operates the Dépôt Rive-Nord, a sanitary landfill near Montreal, Quebec. EBI currently accepts waste from approximately 500,000 Québec residents in more than 75 municipalities, including approximately a third of the waste produced in the city of Montreal. EBI also operates a composting facility at the landfill site, which reuses any source-separated organic materials collected, producing a high quality compost material that is used locally or sold for use in residential or commercial landscaping.

Landfill gas is produced by any landfill as a result of the decomposition of organic matter. Even in areas where individuals are encouraged to recycle and to compost or separate their organic waste at home some organic waste is still delivered to landfills across the country. Therefore, a typical landfill, such as Dépôt Rive-Nord, contains significant volumes of organic, bio-degradable waste. As the waste decomposes, methane and carbon dioxide gases, as well as some other trace gases are formed.

EBI Energie, a subsidiary of EBI, operates a landfill gas collection system at Dépôt Rive-Nord comprised of nearly 400 landfill gas wells and 7 kilometers of underground collection pipe connected to a central pumping system. Historically, the landfill gas collection system was connected to a flare stack, which was used to convert the methane component to carbon dioxide and destroy other undesirable gases contained in the gas. EBI Energie now operates the Green Natural Gas facility, which separates the methane from the landfill gas and processes the residual contaminants. The resulting Green Natural Gas is of sufficient quality to be safely injected into the TransCanada Pipelines Inc. natural gas pipeline system, at TQM Sainte-Geneviere-de-Berthier ("TransCanada").

Figure 1: EBI Energie Dépôt Rive-Nord Green Natural Gas Facility



Zero Carbon Dioxide Emissions

As plant and animal matter decomposes in nature, some carbon is emitted to the atmosphere as CO_2, while the remaining carbon is stored in the soil. CO_2 that occurs naturally within the carbon cycle as a result of biological processes is known as *biogenic* CO_2. As a result of this natural process, carbon dioxide from the decay of organic matter is recycled in the carbon cycle, and does not increase the amount of carbon in the atmosphere.

As organic waste decomposes in a landfill, landfill gas forms below the surface. Landfill gas naturally migrates towards the surface of the landfill and is emitted into the atmosphere. The carbon dioxide component of landfill gas is biogenic because it is formed through the natural decomposition of organic material as part of the carbon cycle. In an oxygen depleted environment, which exists within a landfill, methane is produced as organic material decomposes.

If landfill gas is collected and the methane is converted through combustion to carbon dioxide, the resulting quantity of carbon dioxide is considered biogenic. The volume of carbon dioxide converted from methane is approximately equivalent to the quantity of carbon dioxide that would have been formed through the natural decomposition of the organic material.

Companies and individuals who are purchasing Green Natural Gas, whether as a bundled product (the environmental attributes bundled with the gas commodity) or as an unbundled product (the environmental attributes unbundled from the commodity) may treat Green Natural Gas as having net zero direct carbon dioxide emissions.

Quantification of Emissions Reductions

Consumers can achieve a significant greenhouse gas emissions reduction by replacing conventional natural gas with Green Natural Gas. The Protocol document provides the methodology utilized for evaluating the emissions reductions associated Green Natural Gas projects. This section provides further details related to quantifying direct greenhouse gas emissions associated with using Green Natural gas from the EBI Project. Further information related to evaluating indirect emissions reductions associated with the EBI Project can be found in the Appendix.

The quantification of emissions reductions can be achieved by comparing emissions in the Baseline (pre-project) scenario and the Project scenario.

Baseline Scenario

During the Baseline scenario, prior to the implementation of the Green Natural Gas Project, natural gas end-users utilized conventional natural gas provided through their local natural gas distribution pipelines. The landfill at Dépôt Rive-Nord was operating a landfill gas collection system comprised of nearly 400 landfill gas wells and 7 kilometers of underground collection pipe connected to a central pumping system. The landfill gas collection system was connected to a flare stack, which was used to convert the methane generated from the anaerobic decomposition of organic matter to carbon dioxide. The flare produced a number of emissions including carbon dioxide, nitrous oxides and sulphur dioxide.

Project Scenario

During the Project scenario, the landfill gas is no longer being sent to the flare stack, but instead sent to the EBI Energie Green Natural Gas facility where it is processed to meet the standards of conventional pipeline gas. This Green Natural Gas is be injected into the TransCanada natural gas pipeline system displacing conventional natural gas and subsequently reducing the quantity of natural gas combusted from the Baseline scenario.

The following emissions reductions are achieved as a result of the Project:

- Elimination of direct carbon dioxide emissions footprint at end-user locations who are purchasing the biogenic Green Natural Gas;
- Avoided indirect greenhouse gas emissions reductions at upstream conventional fossil natural gas extraction, processing and transportation facilities;
- Avoided indirect emissions of nitrous oxides resulting from avoided use of the flare at EBI;
- Avoided indirect emissions of sulphur dioxide, particulate matter and volatile organic compounds from avoided use of the flare at EBI and as a result of operating the Green Natural Gas facility where contaminants are removed from landfill gas and properly handled.

Direct Greenhouse Gas Emissions Reduction

The magnitude of the direct greenhouse gas emissions reduction achieved by using Green Natural Gas produced at EBI may be calculated by multiplying the volume of conventional natural gas that is displaced by Green Natural Gas and the current natural gas emission factor published by Environment Canada.

Carbon dioxide constitutes greater than 99% of the direct greenhouse gas emissions associated with natural gas combustion. A small amount of methane and nitrous oxide are emitted when natural gas is combusted. When Green Natural Gas is substituted for conventional natural gas, carbon dioxide emissions are considered biogenic, and therefore as described earlier do not increase the concentration of carbon dioxide in the atmosphere.

In 2008, Environment Canada identified that burning 1 cubic meter of natural gas produces approximately 1.9 kg of carbon dioxide.[1] Therefore, displacing 1 cubic meter of conventional natural gas with 1 cubic meter of Green Natural Gas results in a direct emissions reduction of approximately 1.9 kg of carbon dioxide. For those consumers who purchase in gigajoules (GJ), 1 GJ of natural gas results in a direct emission reduction of approximately 0.050 kg of carbon dioxide[2].

ICF has developed a Green Natural Gas emission calculator to help end purchasers of Green Natural Gas estimate their direct and indirect emission reductions resulting from their purchase of Green Natural Gas (www.bullfrogpower.com/business/calculators.cfm).

[1] Environment Canada, *Emission Factors from Canada's GHG Inventory*. http://www.ec.gc.ca/ges-ghg/default.asp?lang=En&n=AC2B7641-1. 2010. Accessed on Oct, 12, 2010

[2] Environment Canada also provides energy conversion factors as part of their national emission inventory submission to the UNFCCC in accordance with the Kyoto Protocol, Canada's National Inventory Report. The factor to convert between cubic meters and gigajoules is .03826 GJ per m3

Operating and Quality Standards

In order to ensure that the EBI Green Natural Gas facility is properly operated to maximize the environmental benefits of Green Natural Gas, and in order to quantify emission reductions associated with the Project, it is necessary to ensure that the EBI facility meets the operational standards set out in the Protocol.

The following data should be verified by an independent third-party annually to confirm that the landfill and gas collection operations must meet all government environmental and operating requirements and to substantiate the quality of the Green Natural Gas being produced.

Documentation	Description
Installation Report	The report issued by an independent expert to the Minister of Sustainable Development, Environment and Parks confirming compliance of installation with the applicable standards as per the Regulation[3].
Certificate of Authorization	This Certificate demonstrates that the operator has submitted all the required documentation and Certificates needed under section 22 of the Environmental Quality Act relating to the establishment or a disposal facility[4].
Operations Report	All documentation required for the annual submission of a Report by the operator of an engineered landfill, as subject to the requirements of Regulation[5]. This Report must be sent to the Minster within 90 days following the end of each year of the operation and include any other information the Minster may require under the Environmental Quality Act. If there is a Ministerial reply, which indicated the acceptance by, or the requirement for further submissions to the Minister, this documentation should be made public in conjunction with any supplementary information put forward to fulfill the request.
Green Natural Gas Quantity and Quality Reporting	TransCanada has collaborated with EBI to establish real-time monitoring and measurement of the Green Natural Gas at the natural gas pipeline connection in order to ensure that the quality standards for the Green Natural Gas are met. The custody transfer meter which conducts the monitoring and measuring is certified by Measurement Canada. Data logs from monitoring equipment and records of receipts provide evidence of the volume and quality of Green Natural Gas injected into the TransCanada pipeline system.

[3] Ministère du Développement durable, de l'Environnement et des Parcs, Regulation respecting the landfilling and incineration of residual materials, Section 36, pg. 10, October 1st 2010.
[4] Ministère du Développement durable, de l'Environnement et des Parcs, Regulation respecting the landfilling and incineration of residual materials, Section 147, pg. 38, October 1st 2010
[5] Ministère du Développement durable, de l'Environnement et des Parcs, Regulation respecting the landfilling and incineration of residual materials, Section 52, pg. 13, October 1st 2010

Waste operations standards: The Installation Report and the current Certificate of Authorization provide evidence that the landfill operation is approved for operation.

Green Gas operations standards: The landfill and Green Natural Gas facility must be adhering to the operating requirements outlined by the regional authority and the province of Québec. The current Certificate of Authorization and the most recent Operations Report provide evidence that operational requirements are being met.

Quality of Green Gas: The Green Natural Gas being injected into the pipeline system must meet pipeline quality standards. Demonstrating compliance requires monitoring and measurement of the quality of the gas to ensure they meet the standards of the pipeline operator

The following Green Natural Gas parameters must be met:

- The gross heating value of the Green Natural Gas injected into the pipeline shall target 33 MJ/m^3 but shall not be less than 30 MJ/m^3 or a level defined by the local natural gas distribution or transmission operator, whichever is greater;
- The oxygen content of the Green Natural Gas shall not exceed 1.5% or a level defined by the local natural gas distribution or transmission operator, whichever is lesser;
- The concentration of hydrogen sulphide in the Green Natural Gas shall not exceed 3 parts per million or a level defined by the local natural gas distribution or transmission operator, whichever is lesser;
- The concentration of volatile organic compounds in the Green Natural Gas shall not exceed 3,700 parts per billion or a level defined by the local natural gas distribution or transmission operator, whichever is lesser.

Appendix

Evaluation of Indirect Emissions

In addition to the elimination of direct carbon dioxide emissions for the end consumer of Green Natural Gas, the EBI Project also results in an overall reduction of indirect greenhouse gas emissions and a notable decrease in other emissions (such as SO_2, NO_x, PM & VOC). The emission sources that require analysis to evaluate indirect emissions reductions are documented in the Protocol and further defined below. ICF has also developed an emission reduction calculator which includes an assessment and quantification of the indirect emission reductions created as a result of the EBI project (www.bullfrogpower.com/business/calculators.cfm).

Greenhouse Gases

In order to quantify indirect greenhouse gas emissions, it is important to identify each area of the baseline and the project, where there is a material volume of greenhouse gases emitted. By comparing and contrasting the most important and material emissions sources in each scenario we can determine if the operations of the Green Natural Gas facility (an indirect emission) results in emission reductions when compared to the emissions that would otherwise have occurred (the Baseline scenario).

As explained in the Protocol, there are four emissions sources that need to be compared to demonstrate emissions reductions associated with the Project including: flaring; fossil natural gas extraction and processing; landfill gas dehydration, processing and compression; and Green Natural Gas end usage. The first three, which are further described below, are sources of indirect greenhouse gas emissions reductions; the forth is a source of direct emissions reduction which was described earlier in this document.

Flaring/Incinerating:

i) Baseline: In the Baseline scenario, landfill gas was collected and combusted in a flare stack. While some landfill flare systems require supplemental fuel to ensure more complete combustion, the flare system utilized by EBI did not. In addition, the flare would have produced methane emissions as a result of incomplete combustion as well as nitrous oxide emissions.

ii) Project: In the Project scenario, the Green Natural Gas facility processes landfill gas and injects it into the TransCanada pipeline. Some residual gases are incinerated; however, overall the volume of gas flared or incinerated, and as a result emissions, is significantly reduced.

Fossil Natural Gas Extraction & Processing:

i) Baseline: The extraction and processing of conventional fossil natural gas results in non-biogenic greenhouse gas emissions.

ii) Project: in the Project scenario, no conventional fossil natural gas extraction and processing occurs related to the volume of Green Natural Gas consumed, which results in emissions reductions.

Landfill Gas Dehydration, Processing & Compression:

i) Baseline: In the Baseline scenario, the Green Natural Gas facility is not built, so there are no emissions associated with landfill gas dehydration, processing and compression.

ii) Project: In the Project scenario, each stage of landfill gas processing at the EBI Energie facility uses electricity. The greenhouse gas emissions related to electricity generation in

Québec are low, but must be included for a complete inventory of indirect emissions. However, these emissions are significantly less than those emissions created by the extraction and processing of fossil natural gas described above.

Nitrogen Oxide Emissions

Significant reductions in nitrogen oxides (NO_x) can be achieved from the displacement conventional natural gas with Green Natural Gas. The development of NO_x emissions primarily result from the reaction of nitrogen and oxygen in combustion air.

i) Baseline: In the Baseline scenario, landfill gas was collected and combusted in a flare stack, which resulted in the emission of nitrogen oxides.

ii) Project: In the Project scenario, the Green Natural Gas facility processes landfill gas and injects it into the TransCanada pipeline. Some residual gases are incinerated; however, overall the volume of gas flared or incinerated is significantly reduced and therefore, the overall quantity of nitrogen oxides produced during the Project scenario are also significantly reduced.

Sulphur Dioxide Emissions

The EBI Green Natural Gas Project also achieves a significant reduction in sulphur dioxide emissions. Sulphur dioxide is formed during the combustion of hydrogen sulphide (H_2S) in the presence of oxygen.

i) Baseline: In the Baseline scenario, landfill gas was collected and combusted in a flare stack. The raw landfill gas contains hydrogen sulphide, which produces sulphur dioxide when combusted.

ii) Project: In the Project scenario, the Green Natural Gas facility removes hydrogen sulphide from the landfill gas and disposes of it according to regulatory requirements. Very little hydrogen sulphide is incinerated in the residual gas and therefore the Project results in almost a complete reduction of sulphur dioxide emissions.

Volatile Organic Compounds and Particulate Matter Emissions

Volatile Organic Compound (VOC) emissions refer to a wide range of naturally occurring and human produced organic chemical compounds, which can affect the environment and human health. Emissions are heavily dependent on high temperature combustion with long residence timing[6]. Particulate matter (PM) is comprised of solid matter suspended in gas.

i) Baseline: In the Baseline scenario, landfill gas was collected and combusted in a flare stack. The raw landfill gas contains volatile organic compounds and particulate matter, which were not destroyed by the flare and were therefore emitted into the local atmosphere.

ii) Project: In the Project scenario, the Green Natural Gas facility removes volatile organic compounds and particulate matter from the landfill gas and disposes of it according to regulatory requirements. Only a very small fraction of these contaminants remain in the Green Natural Gas (if any) and the residual gas, which is directed to the incinerator. Therefore, the Project results in almost complete reduction of volatile organic compounds and particulate matter.

[6] USEPA, AP 42, Fifth Edition, Volume I Chapter 1: External Combustion Sources, Section 1.4: Natural Gas Combustion. 1995

Glossary of Terms and Acronyms

Additional	Extent to which the project produces greater environmental benefit than would have been achieved in the absence of the project. Regulatory additionality specifically addresses the extent to which the project provides greater environmental benefit than is required by law.
Baseline Scenario	The pre-project state, before the construction and operation of the project.
Biogenic CO_2 Emissions	CO_2 emissions resulting from the natural decomposition of organic matter.
CH_4	Methane
CO_2	Carbon Dioxide
Functional Equivalence	A comparison proving that the Project and the Baseline scenarios provide the same function across inputs and outputs (i.e. metered volume of landfill gas). This type of comparison requires a common metric or unit of measurement for comparison between the Project and Baseline activity and emissions profile.
GHG	Greenhouse Gas
H_2S	Hydrogen Sulphide
Landfill	A defined area of land or excavation that receives or has previously received waste.
Landfill gas (LFG)	Gas resulting from the decomposition of organic waste in a landfill, typically comprised primarily of methane, carbon dioxide and other trace gases. Landfill gas is the byproduct from the natural decomposing organic matter created in an anaerobic condition.
Landfill Gas Project	Installation and operation of infrastructure that collects landfill gas and either combusts the gas locally, or processes the gas to be utilized for local electricity generation or injected into a pipeline as an alternative fuel to natural gas fuel.
NH_3	Ammonia
N_2O	Nitrous Oxide
NO_x	Nitrogen Oxides
PM	Particulate Matter
Project Scenario	The state of the project commencing with construction and continuing with the operation of the project.
SO_2	Sulphur Dioxide
VOC	Volatile Organic Compounds

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Attachment 8.1.1

Renewable Natural Gas

FORTIS BC

Green Leader

Renewable natural gas customer

Reduce your carbon footprint by 10%

Designate 10% of your energy use as **renewable natural gas**

- Take advantage of a new way to reduce your environmental impact
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- Contribute to developing renewable and sustainable energy in B.C.
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"What's really beautiful about what FortisBC is doing is they're turning waste into a resource."

Ezra Cipes, CEO, Summerhill Pyramid Winery

From: Light House [mailto:gil@sustainablebuildingcentre.ccsend.com] **On Behalf Of** Light House
Sent: Wednesday, May 2, 2012 8:33 AM
To: Turner, John
Subject: Light House May Newsletter: Market Insights, Green Education, and Exciting Sustainability Programs

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light house newsletter

May 2012

In This Issue

Don't Miss It!

market insights

Market Insights is a series of networking events and reports providing market intelligence about Canada's green building sector. Financing, innovation, trade and investment, policy, and current trends - you can't afford to miss it!

Next Session:
Tues, June 5th, 2012
Extreme Makeover: Whole Building Retrofits.

LAST DAY! REGISTER NOW

Did you Miss Dematerialization?

Light House was part of at Metro Vancouver's Sustainability Dialogues in April. If you missed Tracy Casavant's presentation on dematerialization and buildings, you can now view it online! Click here to view presentations from *Dematerialization: Transitioning to an Economy without Waste - Success Stories in Metro Vancouver*

Market Insights Panelists Announced

Extreme Makeover: Whole Building Retrofits
8am-10am, Tues, June 5th.

There are over 5,000 high rise buildings in major Canadian cities, and tens of thousands worldwide. A staggering number of these buildings are now 30 years or older and in need of complete retrofits if they are to continue to perform efficiently and remain attractive to tenants. What is industry doing to meet this challenge? What is the opportunity for incorporating energy efficiency practices and achieving operational efficiencies and cost savings? And what are the challenges we are going to face in the future retrofitting the new buildings of today?

This breakfast session will bring together building owners and experts from building sciences, architectural design, engineering, operations, and management to discuss one of the great challenges facing the building sector in the 21st century. Don't miss it!

Lorina Keery from BOMA BC will moderate a panel that includes:

- Derek Page, Oxford Properties
- Bryce Conacher, LEDCOR Renew
- Jim MacKenzie, Colliers International
- Douglas Birkenshaw, B+H Bunting Coady

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* Sustainable infrastructure strategies
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· Integrated Design Process
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· Stakeholder Engagement

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· LEED Documentation & Administration
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· LEED Services for Contractors
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· Custom Training & Education Programs

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Join FCM and CanBio in Scandinavia

FCM is looking for sustainably minded municipal representatives to join them on the Canadian Bioenergy Association's technology mission to Denmark and Sweden. Different registration packages and travel grants are available. For more information about the mission, see www.canbio.ca. They can also bring the mission experience to you; contact Stephanie Bohdanow sbohdanow@fcm.ca.

Denmark, May 23-25: Half-day information session with Danish District Heating Board; 2.5 day tour of bioenergy sites; two nights in Copenhagen and one night in Jutland; possible Malmo (Sweden) add-on.

Sweden, May 28-June 1: Choice of five pre-conference tours to Jönköping; three days at World Bioenergy 2012 with streams for energy systems, biorefineries, pellets, markets, etc; daily bioenergy study visits and B2B events; and a choice of three post-conference tours to Stockholm.

Get Some HELP for Your Home

Have you looked into Vancouver's Home Energy Loan Program (HELP) yet? If you own a single family home or duplex in Vancouver and want to save money on your energy bills, this free program will assist you make energy efficiency upgrades to your home and secure affordable financing to do it. Enjoy improved home comfort, lower energy bills, and get an additional $150 rebate from Fortis! For information call 311 or go to http://vancouver.ca/greenestcity/energyloan/.

Call For Presentations

International Symposium on Sustainability takes place in October in Vancouver, BC and will showcase chemical engineering contributions to sustainability and create bridges between chemical engineers and other professions. This is a call for presentations that appeal to a multi-disciplinary audience. Relevant topics might include, but are certainly not limited to:
1. Sustainability in professional practice
2. System approaches to sustainability
3. Infrastructure and the built environment

Innovative and interactive formats will be considered an asset. Click here for details.

Want to Build Sustainable Communities?

SFU hosting a is free information session to learn more about two certificate programs that start September 2012: Urban Design and Sustainable Community Development. Details here.

Date: Thurs, May 17, 6-7:30pm
Location: Simon Fraser University Vancouver, 515 W. Hastings Street, Vancouver
Admission: Free but reservations required. To reserve a seat, visit

Join Our List

Join Our Mailing List!

www.sfu.ca/reserve.

1 Hour and 15 Minutes of Fame

We at Light House are a multi-talented crew. One of our staff works for us by day and is a filmmaker by night. Jenny Rustemeyer's eco-minded documentary, The Clean Bin Project, follows a year long experiment to live without waste. It has won 8 awards and will be having its television premiere on Superchannel this month! You can watch the trailer at www.cleanbinmovie.com and check showtimes on the Superchannel website.

Grand Opening of Green Bottle Depot

We've been working with the developer of the TaigaNova Eco-Industrial Park in Fort McMurray for the past few years. it's the first conventionally financed and built out eco-industrial park in North America, and it's great to see the buildings being finished and new businesses moving in. The Green Bottle Depot is now in operation and is having a Grand Opening at 170 Boreal Ave, Fort McMurray, AB on Thurs, May 10th. Mayor Melissa Blake will be in attendance. RSVP to Renee Frechette rfrechette@liquortown.ca or 1 780 489-9866 x201.

Renewable Natural Gas Available to Businesses

Did you know you can designate 10 per cent of the natural gas you use for your business as renewable natural gas? Fortis then injects the equivalent amount of renewable natural gas into their system. It helps reduce your carbon footprint and supports sustainable energy made in BC. And because it is carbon neutral, subscribers benefit from a 10 per cent credit on the BC carbon tax. Click here for more information.

From: Climate Smart <info@climatesmartbusiness.com>
Sent: March 22, 2012 2:41 PM
To: Devaney, Janet
Subject: Climate Smart Newsletter - March 2012

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UPCOMING WORKGROUPS

For more info, call us at 1-888-688-6283 or visit our Dates page.

Mar 28: Vancouver
Apr 12: Vancouver
Apr 18: Victoria
Apr 24: Prince George

Climate Smart businesses cut emissions with renewable natural gas

Two Climate Smart businesses are on the cutting edge of reducing GHG emissions. **Van Houtte Coffee Services**' BC branches and Kelowna's **Summerhill Pyramid Winery** are reducing their carbon footprint by signing up for renewable natural gas from FortisBC.

Both Van Houtte and Summerhill have already implemented extensive reduction strategies through their participation in Climate Smart, and view renewable natural gas (RNG) as the logical next step in reducing their GHG emissions. By using RNG, 10% of Van Houtte and Summerhill's natural gas is now delivered to the network from renewable, carbon neutral sources.

RNG supports local renewable energy projects and nets customers a 10% credit for the carbon tax everyone in BC pays on natural gas. Businesses opting in now will receive additional marketing benefits

May 17: Victoria
Jun 14: Victoria

NEW MEMBERS

These organizations have recently completed the Climate Smart program! Congratulations!

Want to get listed? Email us and we'll help you complete your GHG inventory and/or reduction strategies.

49th Parallel Grocery Limited
BC Plant Health Care
BNAC Environmental Solutions
Canadian Fishing Company
CBR Products
Clear Technologies
Earthwise Society / Tilbury Eco Industrial Partnership
Eclipse Awards International
Ecojustice Canada
Environmental Biotech Canada
EP Canada Film Services Inc.
Frog Hollow Neighbourhood House
Nature's Fare Markets
Nexbuild Construction Corporation
NOW Communications
Olson Electric Ltd.
ox + monkey design & fabrication
Purdy's Chocolate
Summerhill Pyramid Winery
THA Architecture
The Redwoods Golf Course
Westcan Construction
Westwood Fine Cabinetry

FUN FACT

Reusing 10,000 computers eliminates the equivalent of:

73,700 barrels of oil

3,420,600 gallons of gas

6,100 cars from the road

courtesy of FortisBC.

Click **here** for more information on FortisBC's website.
Click **here** for the full story on our blog.

Climate Smart will also be holding one of our **quarterly member learning and networking events in April, sponsored by FortisBC**. The focus will be on strategies and initiatives for reducing your natural gas use and impact. Stay tuned for time and date!

Only a few seats left for Metro Vancouver businesses!

Climate Smart is wrapping up its year-long partnership with Metro Vancouver and select Lower Mainland municipalities, which means that we have a limited number of seats still available for upcoming sessions. Businesses in Vancouver, Delta, Surrey, Langley (Township), West Vancouver and New Westminster are eligible for a **$1,000 subsidy** towards Climate Smart training.

If you had a great experience with Climate Smart, and you know of another business or organization who could **benefit from Climate Smart training**, now's the time! Please forward this on to them and tell them to **contact us**!

Zipcar offer for Climate Smart members

Zipcar Vancouver has just gone through the Climate Smart program and is now happy to extend an offer for all their fellow Climate Smart members.

Any Climate Smart member looking to reduce fleet-related emissions and costs by moving to a car-share solution can get **65% off Zipcar's regular annual fees** (now only $30) and gain access to their best hourly rates Monday through Friday (their Z4B program for businesses).

By Zipcar's reckoning, just one Zipcar can replace 15-20 fleet vehicles. Go to **zipcar.com/business** for more details, and access this special Climate Smart member discount at **zipcar.com/climatesmart**.

BC communities: new funding available to host Climate Smart groups

per year

30,760 tons in CO2 emissions

Computers For Schools recently enrolled in the Climate Smart program. Do you have old computers you'd like to donate? Through Computers For Schools, your old computers will have their useful life doubled in a classroom or not-for-profit environment.

Contact CFS directly here to learn more.

RENEWAL OFFER

Your initial participation in the Climate Smart program laid the groundwork for carbon management at your organization. Build on the work you've done by renewing your membership!

You'll get another year's access to our top-rated online software, and more one-on-one support in tracking your ongoing greenhouse gas (GHG) emissions. You'll measure the success of your carbon and cost-reduction campaigns, and receive an updated Climate Smart seal for your next-year's GHG inventory.

We even offer a refresher tutorial if you need it, and you'll continue to enjoy access to free member learning and networking events.

Contact 1-888-688-6283 x1 or email us for more

A new Small Business Engagement Fund is available to help BC communities engage their local businesses and reduce their community-side greenhouse gas emissions. Climate Smart, in partnership with Pacific Carbon Trust and with the support of FortisBC, has launched the fund to kickstart carbon training programs for local businesses in communities across BC.

Climate Smart programs link community economic development and business-sector carbon reduction efforts, helping to create green jobs and strengthen local economies. Local governments can use Climate Smart to catalyze community climate action and gather meaningful data to inform municipal/regional GHG reduction targets. In 2010, a pilot round of funding seeded programs in Saanich, Vancouver, the Cowichan Valley, and Kelowna. With the support of 17 BC municipalities and regional districts, to date over 550 BC businesses have learned how to lower energy costs and manage their GHG emissions.

Click **here** for a press release (PDF) or email **lloyd@climatesmartbusiness.com** for more information.

CASE STUDY: North Shore Credit Union

Every business and organization knows that keeping employees engaged and inspired leads to more productive employees and lower turnover. Forward-thinking companies are now realizing that the encouragement of such initiatives as 'green teams' and sustainability programs such as Climate Smart are great ways to engage employees and reduce environmental impact (and costs!).

North Shore Credit Union (NSCU) is an example of an organization with highly engaged employees. They have been treating sustainability and corporate social responsibility programs as a form of *professional development* - with stellar results.

Click **here** for the full story.

Upcoming events

SVI VANCOUVER Women's Entrepreneur Track
May 9-11, Library Square Conference Centre, Vancouver

Building upon the successful annual SVI HOLLYHOCK and the Women Entrepreneurs for Social Change conference, SVI VANCOUVER provides an intensive, interactive inquiry into how to face the day-to-day challenges of running a socially conscious enterprise. The gathering will feature a Women's Entrepreneur track for the first days of the conference (evening of May 9th & all day the 10th). Presented by Hollyhock.

information.

More info: **renewalpartners.com/svi-vancouver**

Thompson Okanagan Climate Action Exchange
March 29, UNC Ballroom, UBC Okanagan, Kelowna

The Fresh Outlook Foundation, BC's Climate Action Secretariat, UBC's Okanagan Sustainability Office, and FortisBC are partnering to host the third annual Thompson-Okanagan Climate Action Exchange.

Join community leaders from government, business, and the nonprofit and academic sectors who are working hard to reduce carbon pollution, save money, and transition into a green regional economy.

More info: Joanne de Vries at 250-766-1777 or **jo@freshoutlookfoundation.org**. To register, visit their **online registration site**.

380-163 W. Hastings St
Vancouver, BC
V6B 1H5

From: Offsetters <Offsetters@mail.vresp.com>
Sent: September 20, 2012 12:22 PM
To: Devaney, Janet
Subject: September 2012 Newsletter

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Click to view this email in a browser

Offsetters Newsletter - September 2012

In this issue:

Kudos to Oughtred

We are thrilled to report that our friends at Oughtred Coffee & Tea won the CRD's Ecostar Award for Climate Action.

Oughtred has done a lot of work to reduce its impact and to encourage others to do the same. Learn more about their initiatives, and watch a video about the award.

Keep It Clean

The Great Canadian Shoreline Cleanup is underway for oceans, lakes, rivers, and creeks across Canada until September 23rd.

September 20, 2012

There's Nothing Flat About Sustainability At Rocky Mountain

Beyond baking our favourite pizza in town, Rocky Mountain Flatbread Co. long ago embarked on a journey toward sustainability. As founding members of The Vancouver Aquarium Ocean Wise Program and the Green Table Network, Rocky Mountain has continued to raise the bar and represents an innovative model in the food and beverage industry.

As part of Rocky Mountain's commitment to environmental sustainability, they actively make intelligent choices regarding low impact restaurant design and promote environmental education in their restaurants and community. In addition, they proudly source delicious local food, have a zero-waste integrated menu, onsite composting, and biodegradable take home containers. For the greenhouse gas emissions that they can't reduce, they work with us to offset the balance, making them a carbon neutral company.

We hope all our friends will support this wonderful, award-winning business as they continue to enrich our community. Our recommended meal: Fig and Goat's Cheese Salad and the Basil Bocconcini Pizza, accompanied by an irreverent BC Shiraz – magnifico!

www.rockymountainflatbread.ca

Clean ups are a fun way to get outside and give something back to the community while meeting like-minded neighbours. You can join an existing cleanup or sign-up to lead your own here.

Did You Know...

We've told you before, but it's kind of a big deal so we're reminding you: Your plugged-in electronics drain power from the grid even when you have them turned off. This phantom power can add up to 5% of your home's power and has been attributed to 1% of global carbon emissions. By using a power bar that you can switch off, or unplugging electronics (and chargers!) when they're not in use, you can save money AND reduce emissions - a true win-win!

Giving Thanks

Thanksgiving is quickly approaching and as we're preparing for our seasonal dinners, we'll be thinking of what we're giving thanks for. We're thankful that our friends and partners are passionate about sustainability and that you work with us to take action on climate change. It's people and organisations like you that make a difference… so thanks!

Join us online

Climate In The News

There's lots afoot in the world of climate news – it can be difficult to keep up - but here are some of this month's highlights:

BC's economy benefitting from province's carbon investments
BC has already begun profiting from the province's investment in establishing a low-carbon economy, and there is a wealth of future economic opportunities in global carbon markets, according to two new reports released last week by the Pacific Carbon Trust (PCT).

President of Royal Dutch Shell Canadian division urges carbon price
A senior oil executive is urging federal and provincial governments to put a significant price on carbon dioxide to encourage the industry to reduce emissions even as it increases production and accesses new and growing markets.

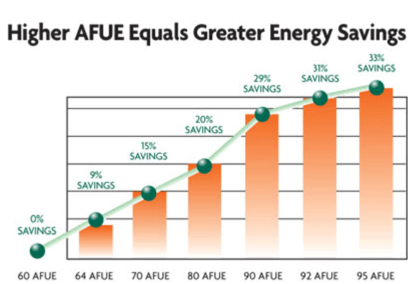
Largest companies in the world improve carbon disclosure despite lack of political will
A growing number of top-tier executives and company boards of the 500 top publicly traded companies are directly overseeing their firms' climate change strategies, even as lawmakers hesitate to regulate greenhouse gas emissions, according to the Carbon Disclosure Project (CDP) 2012 survey. In this year's survey, leading companies say that 'tangible and present' climate change is already creating business risk.

Ecosystems Cope With Stress More Effectively the Greater the Biodiversity
Ecosystems with a high degree of biodiversity can cope with more stress, such as higher temperatures or increasing salt concentrations, than those with less biodiversity. They can also maintain their services for longer.

If you want a weekly download of climate news, sign up for the PICS Climate News Scan written by our friends at UBC's ISIS Research Centre.

Some Like It Hot

As the summer draws to an end, it's time to start thinking of things you can do to get your house ready for winter. How old is that furnace of yours? How efficient is it? According to FortisBC, most homes have mid-efficiency furnaces (78-82% efficency) installed between 1990 and and 2010; however, if your furnace is from before 1990, it may be as little as 68% efficient.



Since 2010, high efficiency furnaces (90-98% efficency) are mandated for new construction and furnace replacements - giving people up to 98 cents worth of heat for every dollar they spend. FortisBC is offering a $800 rebate for the first 2000 furnaces that are replaced with high-efficiency models. On top of

LiveSmart BC's rebate – that's a savings of $1400 for a furnace. You could reduce your emissions while saving cash. Check it out.

For an even more environmentally friendly option, opt in to FortisBC's carbon neutral renewable natural gas offering for your home and earn up to 120 AIR MILES® reward miles per year. Renewable natural gas is also available for your business. A carbon neutral source of energy, renewable natural gas displaces conventional natural gas and is a renewable fuel source with environmental benefits.

www.fortisbc.com

Takin' Care of Take-Out

Love going out to eat, but tired of the waste? You can waste not *and* want not by bringing your own container with you when you go out for food - whether it be take-out or left overs.

There is an exciting initiative in Vancouver that's using the money it raises from selling containers to help restaurants afford to buy local produce and offer discounts to patrons that bring in their containers. It's called The Tiffin Project. Check it out!

Word On The Street

You may have heard in the news that we've been in talks with ERA Carbon Offsets Ltd. about a merger. Our teams are still working out the details of the integration and the process is still in the early stages, but we'll keep you posted as details unfold over the next few weeks.

What does this mean for Offsetters? We know that James Tansey, our current CEO, would be CEO of the company, and you'd be working with the same Offsetters team you know and love. We're looking forward to working with ERA to continue offering Canada's leading carbon management solutions.

OFFSETTERS

Tel: 604.699.2650
Fax: 604.699.2730
Email: info@offsetters.ca

Like Tweet Share

From: Devaney, Janet
Sent: July 5, 2013 9:03 AM
To: Devaney, Janet
Subject: FW: One Day Enews - June 2011

From: One Day Info
Sent: Tuesday, June 07, 2011 4:45 PM
To: Richards, Jennifer
Subject: One Day Enews - June 2011

oneday...

June 2011

Hello Jennifer!

welcome

This month we're spreading the news about Fortis BC's new renewable natural gas product, BC Hydro's rebate for high-efficiency toilets, and the City's new home energy loan program. Also in this issue, find out how Sunset Nursery has been able to cut their GHG emissions by over a half, and how some preschool planters became are new One Day Wonders.

One Day is a City of Vancouver initiative that encourages residents to take small actions in their daily lives to use less energy at home and on the move, to help protect the climate, and to make Vancouver the cleanest, greenest, healthiest city in the world.

actions of the month

Reduce your carbon footprint even more

know someone...

...who is only just now emerging from their winter hibernation in front of a gas fireplace? Forward this e-mail. They'll love One Day.

New readers, sign-up here.

in the media

Canada has 'more to lose than it realizes': global warming report on Arctic

Global warming may affect carbon storing capacity of trees

Vancouver eyes ways to get more cars off Vancouver's streets

Vancouver council approves home retrofit loan program, considers expansion

This month FortisBC launches renewable natural gas. It's made when bacteria break down organic waste, producing biogas that can be captured and upgraded to pipeline-quality renewable natural gas. Renewable natural gas not only makes yuck useful but also helps reduce methane emissions in the atmosphere. For about $4 per month for an average Vancouver household, FortisBC will designate 10% of the natural gas you use as renewable and inject an equal amount of renewable natural gas into its pipelines. Since it's carbon neutral, subscribers get a 10% credit on the carbon tax, too. Learn how you can sign up today.

Bullfrog Power also offers green natural gas to Vancouver homes and businesses! Check out their informative video explaining how their product works.

Turn off your pilot

It's that time of year to shut off your gas fireplace pilot light . This simple action can save you approximately $10 per month all summer long and reduce your carbon footprint.

Note: If shopping for a new gas fireplace, be sure to look for an efficiency rating of over 60 per cent. To help cover the cost, Fortis BC is offering a $300 rebate on select EnerChoice fireplaces.

in your city

Check out the One Day media section for more climate change related news.

did you know...

...that on May 31 City Council approved a new pilot program for single-family home owners. Through a partnership with Vancity, the home energy loan program will provide financing to cover the upfront costs of select energy efficiency improvements. Stay tuned, One Day will provide more details in an upcoming issue.

what's happening

Car Free Day

Jun 19

Car Free Vancouver Day is happening again on Commercial Drive, Main Street, the West End and Kitsilano.

Swap-o-rama-rama

Jun 18

Explore reuse and creativity through the recycling of used clothing in your community at this gigantic clothing swap. All remainders will go to local charities.

Recent upgrades to East Vancouver's Sunset Nursery are saving energy by capturing waste heat from the adjacent Sunset Rink. New heat pumps transfer this heat from the rink to warm 12 greenhouses. Previously, the refrigeration plant released this heat into the atmosphere.

Along with the new heat pumps, the replacement of two boilers with high-efficiency condensing units will reduce nursery emissions by 52 per cent, the equivalent of removing 51 cars from the streets. What's more, 35 green jobs were created during the course of this project!

Sunset Nursery is one of 36 City facilities receiving $16.2 million in creative and effective energy conservation upgrades.

flush savings

You've already installed your indoor and outdoor water saver kits. You follow the lawn sprinkling regulations. You've planted drought-resistant native plants and collected rainwater in a rain barrel in your backyard.

So what more could you do to save both water and the energy used to treat and transport it from the mountain to your house? We suggest a high-efficiency toilet.

Sustainability Congress

Jun 25

Future of the Region: Building a shared roadmap. Against a backdrop of two divergent future visions of our region, the Congress will engage citizens in a candid conversation on this topic. Register online.

Watershed Tours

Summer

Three pristine mountain watersheds provide 2.3 million Metro Vancouver residents with a clean and reliable supply of drinking water. Take a guided tour to see what makes your water world-class.

Farmers Markets

Summer markets are now open in Kitsilano (Sundays), Trout Lake (Saturdays), West End (Saturdays) and Main St (Wednesdays). Fill your fridges and stomachs with delicious local fare. Visit their website for vendor information and market details.

Check out the One Day events calendar for more sustainability related events happening in and around Vancouver.

Toilets use more water than any other household device, accounting for 30 per cent of overall consumption. This device can save $100 worth of water per year and keeps water affordable by deferring costly source water expansions. Get one for less with Power Smart's 40 per cent off instant online rebate.

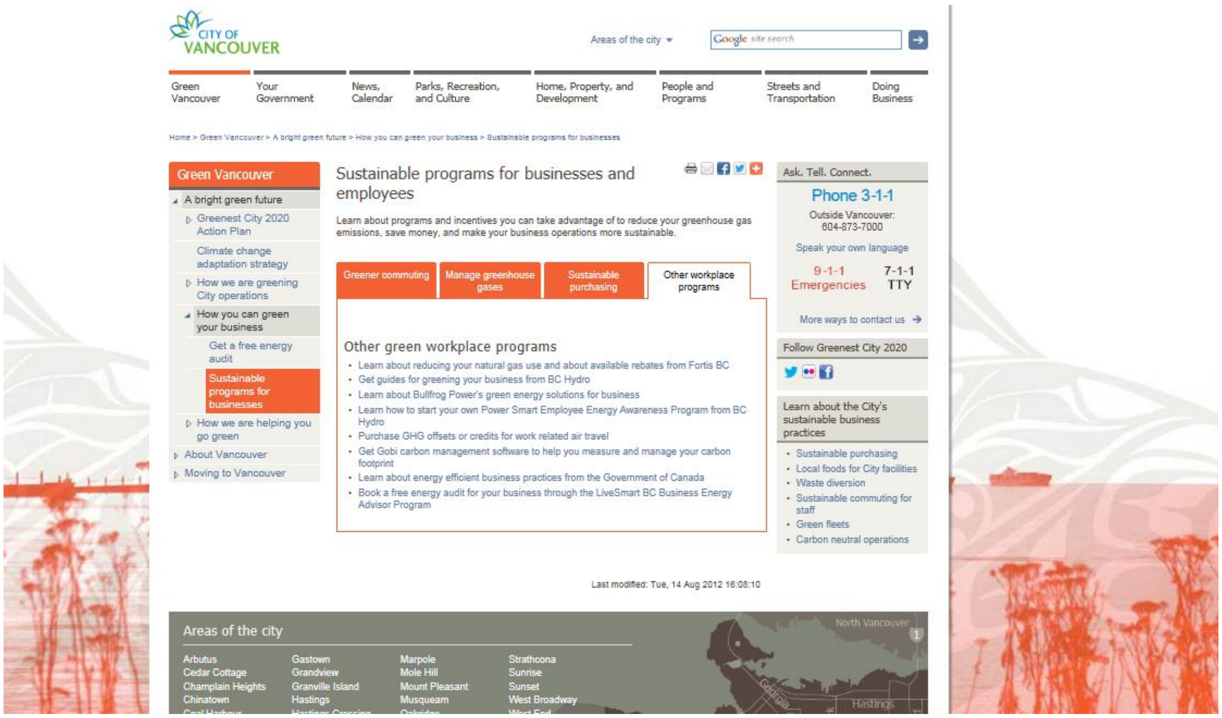
One Day Wonders

This month's wonders are the Dunbar Memorial Parent Participation Preschool children who helped plant 15 apple, pear and cherry trees on May 29 at Memorial West Park. This is the third fruit orchard planted in Vancouver Parks over the past six months.

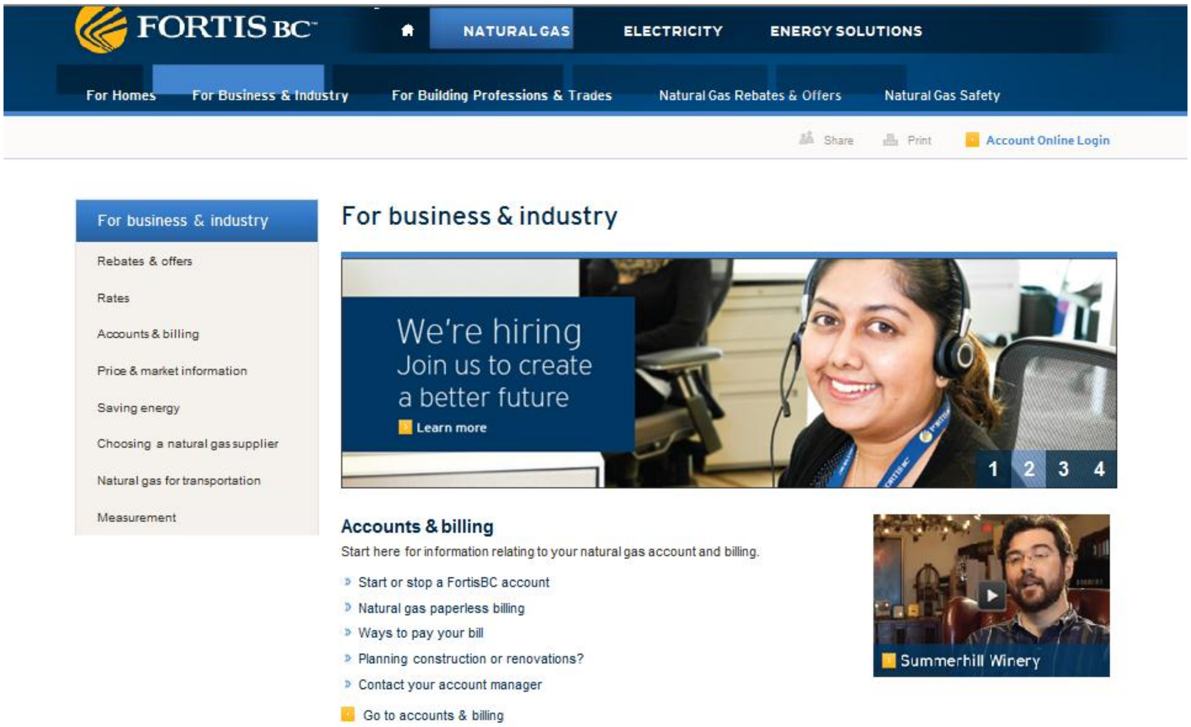
Fruit trees can provide a bounty of fruit, but also create a healthy environment by cleaning the air, improving the soil, preventing erosion and creating a home for birds and other animals.

Way to go kids! Thank you for bringing more trees into the city and urban agriculture closer to home.

Vancouver Link:
https://vancouver.ca/green-vancouver/sustainable-programs-for-businesses.aspx



Link to FortisBC page from City of Vancouver



Port Coquitlam Link:
http://www.portcoquitlam.ca/Citizen_Services/Environment___Living_Green/Renewable_Natural_Gas.htm?PageMode=Print

CITY OF PORT COQUITLAM
OFFICIAL WEBSITE

Renewable Natural Gas

When bacteria break down organic waste from sources such as landfill sites, agricultural waste and wastewater treatment facilities, they create biogas. Fortis BC is capturing and purifying it to provide you with renewable natural gas, a locally produced, carbon-neutral energy source.

Cost-effective

For about $4 more per month for an average home you can designate 10 per cent of the natural gas you use as renewable natural gas. Fortis BC will then inject the equivalent amount of renewable natural gas into our system. It helps reduce your carbon footprint and supports sustainable energy made here in BC.

How to sign up

Looking to sign up for renewable natural gas? The quick sign up will get you started!

Certified carbon neutral

A carbon-neutral source of energy, renewable natural gas displaces conventional natural gas and is a renewable fuel source. Read the about the environmental benefits.

Questions?

Email renewablenaturalgas@fortisbc.com or call 1-888-224-2710.

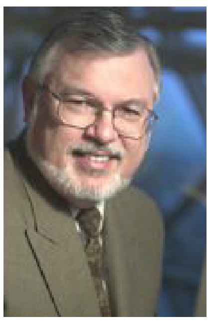
Belcarra Mayor’s report:
http://www.belcarra.ca/reports/vob-report-oct2011.htm

Village of Belcarra

Between Forest and Sea

Mayor's Report - October 2011

FortisBC's Renewable Natural Gas Initiative



On October 24th Council received a presentation from FortisBC regarding its program promoting the use of renewable natural gas to residential communities such as Belcarra. During the coming year, Belcarra will be implementing an organic waste diversion program, and in addition to regional composting programs, it only makes sense to generate renewable energy from organic waste in the form of biogas.

What is renewable natural gas?

When bacteria break-down organic waste from sources such as landfill sites, agricultural waste and wastewater treatment facilities, they create biogas. *FortisBC* is capturing and purifying biogas to provide renewable natural gas — a locally produced, carbon-neutral energy source. A carbon-neutral source of energy, renewable natural gas displaces conventional natural gas and is a renewable fuel source. And because it is carbon neutral, *Fortis-BC* subscribers get a 10% credit on the BC Carbon Tax.

What are the environmental benefits of renewable natural gas?

Made from an abundant renewable resource — organic waste — renewable natural gas has a number of environmental benefits that can help reduce our carbon footprint:

- displaces the use of conventional natural gas with a renewable source of energy;
- considered carbon-neutral because it is produced from organic waste;
- captures methane that would otherwise escape into atmosphere, reducing equivalent carbon dioxide emissions by up to 21 times[1];
- reduces the greenhouse gas emissions of a typical British Columbia home by about half a tonne per year[2], the equivalent of diverting 180 kg (400 lbs.) of waste from our landfills through recycling[3];
- contributes to developing renewable and sustainable energy in BC; and
- helps BC meet its greenhouse gas emission targets.

Greenstep:
http://www.greenstep.ca/projects/

GreenStep CASE STUDY

Renewable Natural Gas Workshops

FORTISBC

GreenStep coordinated three FortisBC Green Business Breakfasts to let the commercial sector in the Thompson Okanagan know about new offers & rebates for businesses.

- Kelowna (June 5, 2012) at the Best Western Plus Hotel
- Penticton (June 6, 2012) at the Penticton Lakeside Resort
- Kamloops (June 7, 2012) at the Kamloops Convention Centre

A private invite was sent to businesses within these areas who were already environmentally minded and potentially want to be known as Green Leaders.

GreenStep worked through their established business networks in these target areas with an aim to have 10 to 20 businesses participate (and register through Eventbrite).

The workshops focused on how to save money and conserve energy with LiveSmartBC Small Business Program (presented by Lindsay Eason, GreenStep), PowerSense rebates and programs (presented by Carol Suhan, PowerSense Manager), Fortis Gas rebates and programs (presented by Shelley Thomson, Energy Solutions Manager) and Renewable Natural Gas and the Green Leader Rewards Program (presented by Arvind Ramakrishnan, Product Manager). Local businesses were given a chance to tell their story and identify what information will help them meet their goals.

"The workshops were well organized and generated interest in our programs, particularly renewable natural gas."

If I was talking to the owner of the Best Western on the phone, we would never have had the connection that we did and he will likely sign up for RNG"

– Arvind Ramakrishnan, FortisBC Products Manager

NEXT STEPS

- All registered businesses were emailed contact details and important links and information from the workshop.
- FortisBC will follow up with any leads generated from the workshops.
- GreenStep and FortisBC will explore future opportunities to work together to promote programs like FLIP, and to refer programs like renewable natural gas.

greenstep.ca

HIGHLIGHTS

TARGETS

- To educate 10-20 businesses each in Kelowna, Penticton and Kamloops about FortisBC's offers and rebates
- To obtain new renewable natural gas customers
- To connect businesses with their local FortisBC rep.

ACHIEVEMENTS

- Businesses engaged: 17-Kelowna, 17-Penticton, 8-Kamloops
- Potential RNG customers: Nature's Fare, Cold Stone Creamery, Best Western

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