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December 21, 2018

Sent via email/eFile

FEI BIOGAS PURCHASE AGREEMENT BETWEEN FEI AND THE COV EXHIBIT A-4

Mr. Doug Slater
Director, Regulatory Affairs
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8
gas.regulatory.affairs@fortisbc.com

Re: FortisBC Energy Inc. – Application for Acceptance of the Biogas Purchase Agreement Between FortisBC Energy Inc. and the City of Vancouver – Project No. 1598977 – Information Request No. 1

Dear Mr. Slater:

Further to your September 21, 2018 filing of the above-noted application, please find enclosed British Columbia Utilities Commission Information Request No. 1. Please file your response by **Thursday January 10, 2019**.

Sincerely,

Original signed by:

Patrick Wruck
Commission Secretary

/dc
Enclosure

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FortisBC Energy Inc.
FortisBC Energy Inc. (FEI) Biogas Purchase Agreement
between FEI and the City of Vancouver (CoV)

INFORMATION REQUEST NO. 1 TO FORTISBC ENERGY INC.

1.0 Reference: Project Overview
Exhibit B-1, Section 3, p. 6; Section 4.5, pp. 12–13
Biomethane upgrading facilities

On page 6 of the FEI Biogas Purchase Agreement between FEI and CoV application (Application), FEI states:

> Using approved depreciation rates, the biomethane Upgrader, Structure and Improvements, Compressor Equipment, Distribution Mains and Meters will all depreciate over a longer period than 20 years… [This] is aligned with the term of the CoV BPA [Biogas Purchase Agreement] of 20 years.

1.1 Please provide the location, technology type and number of years that FEI's existing biomethane upgrader systems have been operational.

1.2 What evaluation did FEI conduct to conclude a 20-year asset life is suitable? Please explain.

On page 12 of the Application, FEI states:

> It was determined that a low limit of 48 percent methane and a high limit of 12 percent nitrogen would maximize the expected future operational time for the upgrading plant. FEI confirmed with LFG [landfill gas] technology suppliers that these limits are reasonable.

On page 13 of the Application, FEI states:

> To establish a short list of the most suitable or appropriate technology, FEI conducted a review of the LFG upgrading technologies currently in commercial operation and injecting RNG [renewable natural gas] into pipelines in North America. Based on this review and FEI's experience, three technologies were identified as the best candidates for upgrading LFG to biomethane. These three technologies are pressure swing adsorption (PSA), water wash and membrane-based processes. FEI has direct experience owning PSA upgrading equipment and indirect experience interfacing with water wash technology owned by other suppliers.
>
> Of the three technologies, a preliminary assessment concluded that a combined membrane separation and PSA technology is recommended based on the LFG composition.

1.3 Please provide a summary of FEI's conducted review and the criteria used to establish suitable technologies.

1.4 Please provide detail of the indirect experience FEI has with water wash technology.

1.5 Please provide an overview of the preliminary assessment that was conducted and the criteria used to determine that a combined membrane separation and PSA technology is recommended.

1.5.1 Would a single type of technology be suitable for the upgrade facility given the gas composition? Please explain.

1.6 Please provide examples of LFG-to-biomethane upgrading facilities that use combined membrane separation and PSA technology.

1.7 Please outline the benefits and risks of using the combined technologies.

1.7.1 Please explain how the identified risks would be mitigated.

1.8 Please discuss the risks FEI has identified with using a membrane separation technology.

1.8.1 Please explain how the identified risks would be mitigated.

1.9 Please explain what effects a change in gas composition from those described in the preamble would have on each technology, including the effect on recovery rates and expected operational life.

1.10 For each technology, please explain, using vendor data and industry experience where possible, how the upgrading efficiency of each technology is forecast to change over the expected life of the asset.

2.0 Reference: Risks and Mitigation
Exhibit B-1, Section 5, p. 17; Section 1, p. 2
Facilities

On page 17 of the Application, FEI states:

> The above ground facilities used may be removed and used for other projects. The biogas upgrading facilities owned by FEI will be designed to maximize the ability of FEI to relocate them.

2.1 Please discuss if FEI currently has other projects that the facilities could be used for.

2.2 Under the scenario that the CoV BPA is terminated prior to the initial term of the BPA and the facilities cannot be used for other projects, would FEI consider the facilities to be "stranded assets". Please explain why or why not.

2.2.1 If yes, please discuss if the facilities would remain in rate base and continue to be recovered in the delivery rates of all non-bypass customers. Would the approach be different if the Project was not a prescribed undertaking under section 18 of the *Clean Energy Act*? Why or why not?

3.0 Reference: Biogas Purchase Agreement
Exhibit B-1, Table 5, p. 16, Appendix A, Sections 5.2 & 6.1
Non-compliant biogas

Further to Section 5.2 of the BPA, FEI has the option to accept "Non-Compliant Biogas" into its facilities. Section 6.1 of the BPA provides the reduced base price that FEI shall pay the CoV for "Non-Compliant Biogas" accepted by FEI into FEI's facilities.

3.1 Please discuss the implications to FEI, financial or otherwise, to upgrade "Non-Compliant Biogas" to RNG in FEI's facilities. Please quantify the implications, where possible.

3.2 Please discuss whether the RNG production efficiency would be reduced (i.e. a lower recovery rate) if FEI's facilities were to upgrade "Non-Compliant Biogas." If so, please quantify where

possible.

4.0 Reference: Biogas Purchase Agreement
Exhibit B-1, Table 2, p. 10; Appendix A, Section 5.3(a), Section 5.8(a), pp. 9–11
Supply based and anniversary reviews

The following information is extracted from Table 2 of the Application:

Item	Amount	Contract Clause	Comment
Anniversary Reviews	10 Years and 18 years		10 Year review will re-base expectations with respect to volume and LFG composition. 18 Year review will evaluate Project with
Minimum Volume	[redacted] GJ/6 month period	Clause 5.3 (ii)	The City must meet this amount or a supply-based review is triggered which may result in termination.

Section 5.3(a) of the BPA states:

> 5.3 **Supply Based Reviews.**
>
> (a) Subject to subsection 5.3(d), the parties will undertake a joint review of the Project, to be completed within ninety (90) days of the triggering event, to enable the parties to determine ongoing Project viability, if:
>
> (i) at the 4th anniversary of the Acceptance Date, the First Delivery Date has not occurred despite the Owner having the Supply Minimum available and meeting the Specifications in Schedule A; or
>
> (ii) after the First Delivery Date, the Owner does not deliver at least the aggregate of [redacted] GJ of Biogas meeting the Specifications over any period of six (6) consecutive months (collectively the "**Supply Minimum**") and FEI requests a review be conducted.

Section 5.8 (a) of the BPA states:

> **5.8 Anniversary Reviews.**
>
> (a) In addition to any reviews conducted pursuant to section 5.3 (*Supply Based Reviews*), at the tenth(10th) and eighteen (18th) anniversaries of the First Delivery Date, the parties will undertake a review of the Project, which review will not exceed 90 days, including quantity, flow and quality of the Biogas made available to FEI throughout the Term, and the future projections of quantity, flow and quality (the **"10th Anniversary Review"** and the **"18th Anniversary Review"** respectively). The purpose of the 10th Anniversary Review is to determine Project financial viability for the balance of the Term based on historic and projected supply of Biogas at the then current pricing. The purpose of the 18th Anniversary Review is to determine Project financial viability for the balance of the Term and whether to extend this Agreement beyond the Term.

4.1 Under the scenario that an anniversary review or a supply-based review results in an acquisition cost greater than $30/GJ for the CoV RNG, would FEI still consider the Project to be a prescribed undertaking under section 18 of the *Clean Energy Act* (CEA). Please explain why or why not.

4.1.1 If yes, please discuss if the entire acquisition cost or only the acquisition cost up to $30/GJ should be recovered.

4.1.2 If no, please discuss how the Project costs should be treated for the remainder of the agreement term.

5.0 Reference: Legislative and Regulatory Context
Greenhouse Gas Reduction (Clean Energy) Regulation (GGRR), section 2(3.8)(a);
Exhibit B-1, Section 2, pp. 2–6; Section 4, p. 8
Acquisition price

On page 3 of the Application, FEI states:

> Section 18 of the CEA establishes the concept of a 'prescribed undertaking' for the purposes of the CEA as follows:
>
> > 18 (1) In this section, 'prescribed undertaking' means a project, program, contract or expenditure that is in a class of projects, programs, contracts or expenditures prescribed for the purpose of reducing greenhouse gas emissions in British Columbia.

On pages 4–5 of the Application, FEI states:

> OIC 161/2017 approved an amendment to the GGRR which, among other things, classified renewable natural gas as a prescribed undertaking. Sections 2(3.7) and 2(3.8) of the GGRR, as amended by OIC 161/2017, state that:
>
> (3.7) A public utility's undertaking that is in the class defined in subsection (3.8) is a prescribed undertaking for the purposes of section 18 of the Act.
>
> (3.8) The public utility acquires renewable natural gas
>
> (a) for which the public utility pays no more than $30 per GJ, and
>
> (b) that, subject to subsection in a calendar year, does not exceed 5% of the total volume of natural gas provided by the public utility to its non-bypass customers in 2015.

FEI states on page 6:

> The CoV BPA meets the two criteria for RNG projects as prescribed undertakings as set out in section 2(3.8)(a) and 2(3.8)(b) of the GGRR in terms of total cost to acquire RNG and total volume threshold.

5.1 Please provide FEI's interpretation of "pays no more than $30 per GJ", clearly explaining what costs FEI believes can be included in the $30 per GJ calculation and why.

5.2 Please confirm, or explain otherwise, that if the Project is deemed a prescribed undertaking, all raw LFG, capital and O&M costs related to the Project would be included in FEI's calculation of rate base.

5.2.1 If not confirmed, please explain.

5.3 If the Project is deemed a prescribed undertaking, does the Project remain a prescribed undertaking indefinitely? If not, please discuss scenarios where the Project would no longer be a prescribed undertaking and what should happen with cost recovery in such an event.

5.4 If the Project is deemed a prescribed undertaking, please explain how FEI would recover costs in the event that:

(a) increases in actual construction costs resulted in the cost to acquire RNG exceeding $30/GJ;

(b) initial operating costs resulted in the cost to acquire RNG exceeding $30/GJ after completion of the Project ; and

(c) the cost to acquire RNG exceeded $30/GJ as a result of increased annual operating costs due to upgrade system efficiency and/or LFG quality deviating from assumptions used by FEI.

5.5 Please confirm, or explain otherwise, whether in FEI's view, section 2(3.8)(a) of the GGRR is satisfied if the levelized cost of the Project is below $30 per GJ. Please explain why or why not.

5.6 In FEI's view, would section 2(3.8)(a) of the GGRR be satisfied if the non-levelized cost per GJ is greater than $30/GJ at any time during the term of the CoV BPA? Please explain why or why not.

5.7 In the event that the Project is not deemed to be a prescribed undertaking, please discuss how FEI would proceed with the Project and the Application.