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April 18, 2023

British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, B.C.
V6Z 2N3

Attention: Patrick Wruck, Commission Secretary

Dear Patrick Wruck:

Re: FortisBC Energy Inc. (FEI)

Revised Renewable Gas Program Application – Stage 2 (Application)

Response to the British Columbia Utilities Commission (BCUC) Information Request (IR) No. 1 on FEI's Rebuttal Evidence to the B.C. Sustainable Energy Association (BCSEA)

On December 17, 2021, FEI filed the Application referenced above. In accordance with the amended regulatory timetable established in Exhibit A-47, FEI respectfully submits the attached response to the BCUC IR1 on FEI's Rebuttal Evidence to BCSEA.

FEI is filing the live Excel spreadsheets provided in Attachments 2.1 and 2.6 on a confidential basis as they are based on the confidential Excel spreadsheet filed by BCSEA in Exhibit C-1-1.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Sarah Walsh

Attachments

cc (email only): Registered Parties

1.0 Reference: DATA INPUT

Exhibit B-62, p. 4

Rolled-In Cost of Renewable Natural Gas (RNG) in 2023

On page 4 of Exhibit B-62, FEI provides information on its proposed RNG rate component as Table 1:

Table 1: FEI's Proposed RNG Rate Components

	in nominal 2023 $	
	Fixed	Variable ($/GJ)
Basic Charge (per month)	$ 12.43	
Delivery Charge		$ 5.933
Storage and Transport Charge		$ 1.134
Storage and Transport LC Rider		$ 0.265
Equivalent Cost of Conventional Gas		$ 5.160
Equivalent Cost of Carbon Tax		$ 3.290
Total	**$ 12.43**	**$ 15.782**

Further on the same page, FEI states that "the values presented in the table above are consistent with Energy Futures Group's (EFG) approach except that FEI has used the approved tariff rates as at January 1, 2023, and the legislated carbon tax rate which comes into effect on April 1, 2023."

1.1 Please confirm, or otherwise explain, that the Storage and Transport LC Rider is not an approved tariff as of January 1, 2023.

1.1.1 If confirmed, please clarify for which time period the $0.265/gigajoule (GJ) relates to, considering Table 1 above indicates that the $0.265 is "in nominal 2023 $".

Response:

Confirmed. The S&T LC rider is not a currently approved tariff charge as of January 1, 2023.

For the purposes of the referenced Rebuttal Evidence, the S&T LC Rider of $0.265 per GJ was calculated on the basis that the proposals in this Application are approved and in place effective January 1, 2023. FEI provided the $0.265 per GJ in response to BCSEA IR1 16.4 (Exhibit B-19), reproduced below:

> Please confirm the current levels of each rate component plus BVA rider and carbon tax for RS 1, RS 2 and RS 3. Please provide the same information for RS PLC 1, RS PLC 2 and RS PLC 3 **assuming approval**. Please provide FEI's estimate of the proportion of PLC customers and load in RS PLC 1, PLC 2 and PLC 3. [Emphasis Added]

In its analysis,[1] EFG used the $0.265 per GJ from FEI's response to BCSEA IR1 16.4 for years' 2023 to 2042. For consistency, FEI did the same.

1.2 Please clarify how the cost of carbon tax was utilized in the net present value (NPV) analysis, including any escalation assumptions used.

Response:

In its NPV analysis, FEI used the carbon tax rates as set out in Table 1 below.

Table 1: Carbon Tax Rates per GJ used in NPV Analysis

Year	$/GJ
2023	3.29
2024	4.02
2025	4.75
2026	5.48
2027	6.21
2028	6.94
2029	7.67
2030	8.40
Years > 2030	8.40

The 2023 carbon tax rate of $65 per tonne is the legislated rate as at April 1, 2023, and is equal to $3.29 per GJ for conventional natural gas. For years' 2024 to 2030, FEI increased the carbon tax rate by $15 per tonne to $170 per tonne in 2030, which is equal to $8.40 per GJ for conventional natural gas.

[1] Exhibit C1-11.

2.0 Reference: SCENARIO ANALYSIS

Exhibit B-62, pp. 1 and 5; Exhibit B-17, BCUC IR 13.7

NPV of Lifecycle Costs by End Use

On page 1 of Exhibit B-62, FEI states:

> EFG makes three errors with respect to the inputs to its analysis which materially change the results. Specifically:
>
> 1. EFG has understated the capital costs for gas and electric water heaters.
> 2. EFG has overstated the gas connection cost for customers.
> 3. EFG inappropriately compares the average cost of RNG acquisition (incremental clean energy) to the rolled-in cost of clean electricity; the comparison should be the rolled-in cost of gas, including RNG, to the rolled-in cost of electricity.

On page 5 of Exhibit B-62, FEI states that it "has updated EFG's Excel based spreadsheet analysis filed in Confidential Exhibit C-11-1 to correct the three inputs discussed above. The updated results for the RNG Scenario are provided in Table 3 below."

Table 3: NPV of Lifecycle Costs by End Use – Updated RNG Scenario

	Renewable Natural Gas Scenario	Electrification Scenario
Heating	$20,439	$24,201
Water Heating	$10,053	$9,399
Cooking	$2,441	$2,642
Drying	$1,773	$2,095
Gas Connection Costs	$12	$0
Gas Fixed Monthly Charges	$2,066	$0
Total	$36,784	$38,337

2.1 Please provide, in confidence, if necessary, the Excel spreadsheets supporting the above calculations.

Response:

FEI is filing the Excel spreadsheet provided in Confidential Attachment 2.6 on a confidential basis as it is based on the confidential spreadsheet filed by BCSEA in Exhibit C-1-1. In order to retain the confidentiality of Exhibit C-1-1, the attached spreadsheet should also be treated as confidential.

2.2 Please confirm, or otherwise explain, that the above totals do not include the differential application of the provincial sales tax (PST), nor do they consider any other rebates and incentives on natural gas versus electric equipment.

Response:

Confirmed.

Further on page 5, FEI states:

> This finding is consistent with the response to BCUC IR1 13.7 which indicates that the NPV of the heating costs for the home with RNG priced equivalent to conventional natural gas is broadly similar to the heating costs of a home using electric heat pumps. In other words, both gas and electric systems can provide clean, low carbon energy to customers for a similar cost. As discussed in the response to BCUC IR1 17.1, however, rebates and subsidies tilt the playing field in favour of electricity, despite the relative cost parity that the analysis shows. [*Emphasis added*]

In response to BCUC IR 13.7 in Exhibit B-17, FEI states:

> […] It is apparent from this analysis that pricing the Renewable Gas Connections service at the same rolled-in cost of gas, inclusive of Renewable Gas from the Renewable Gas Blend service, results in costs higher than an electric heated alternative on an NPV basis in nearly all cases. […] [*Emphasis added*]

2.3 Please reconcile these two different conclusions, both drawn from a comparison of the NPV analysis of heating costs using RNG versus electricity.

Response:

The two conclusions are consistent, as the conclusion in FEI's Rebuttal Evidence was referring specifically to the scenarios in the response to BCUC IR1 13.7 that are similar to the EFG scenario.

In the response to BCUC IR1 13.7, FEI provided results across a broad range of scenarios, examining the impacts of: (1) higher and lower heat pump efficiencies; (2) whether the home is located in the BC Hydro or the FortisBC Inc. service territory; (3) the proportion of electricity consumption at both Tiers 1 and 2; and (4) the cost of Renewable Gas. FEI has reproduced Table 1 of the results from the response to BCUC IR1 13.7 below for ease of reference.

Table 1: Comparison of 10 Year NPV of Heating Costs

A	B	C	D	E	F	G	H	I	J
				10 Year NPV					
				RG Burner Tip Rate Comparison		BC Hydro T1:T2		FortisBC T1:T2	
Scenarios	Description	Heat Pump Efficiency	Water Heater Efficiency	Priced @ equivalent of NG	Priced @ weighted average cost of RG Supply	50:50	25:75	50:50	25:75
1	Low Bookend	200%	100%	$14,274	$25,627	$13,670	$15,036	$15,189	$15,581
2	High Bookend	272%	230%	$14,274	$25,627	$8,381	$9,219	$9,313	$9,553

In contrast, EFG's analysis considered only one scenario.

Table 1 above shows that under most scenarios, with service priced at the rolled-in cost, RNG results in higher heating costs than the electric heated alternative on an NPV basis. However, in the scenarios that most closely align with FEI's update to EFG's analysis (i.e., the Low Bookend scenarios where the cost of Renewable Gas is set at a rolled-in cost instead of the average cost of RNG supply acquisition), the heating cost is broadly similar to that of the electric options. As FEI stated in the response to BCUC IR1 13.7:

> Under the Low Bookend scenario, the NPV of the heating costs for the home with Renewable Gas priced equivalent to conventional natural gas is broadly similar to the heating costs using electricity, with a slight cost advantage to an electrically heated home in BC Hydro territory, remaining within Tier 1 for 50 percent of its consumption, and a small cost advantage to a gas heated home in the remaining cases. [Emphasis added]

2.3.1 Please identify all the different assumptions made by FEI and BCSEA that directly contribute to those different results and conclusions.

Response:

FEI does not believe that, when the response to BCUC IR1 13.7 and FEI's Rebuttal Evidence to BCSEA are considered in their entirety, the two analyses produce entirely different results and/or conclusions.[2] In the response to BCUC IR1 13.7, in the cases where the heating costs of the gas option are shown to be higher than those of the electric heating option, the differences are primarily attributable to:

1. **The Heat Pump Efficiency Applied to the Particular Scenario:** EFG's analysis was based solely on FEI's low bookend heat pump efficiency. FEI's analysis considered both low bookend heat pump efficiency scenarios and high bookend heat pump efficiency

[2] Please also refer to the response to BCUC IR1 2.3 Rebuttal BCSEA.

scenarios. Higher bookend heat pump efficiencies result in a reduced cost for the electric option, which then appear more favourable in contrast to the gas option.

2. **The Electric Service Territory:** EFG's analysis was based solely on electricity consumption occurring in BC Hydro's service territory. FEI's analysis examined scenarios occurring in both BC Hydro and FortisBC's service territories. BC Hydro's electricity rates produce more favourable results for the heat pump options.

3. **The Proportion of the Electric Consumption Happening at Tier 1 or Tier 2 Electric Rates:** Tier 1 rates are less expensive than Tier 2 rates. EFG's analysis was based solely on BC Hydro's higher cost Tier 2 rate. FEI's analysis examined scenarios where electricity is consumed in greater or lesser proportions in either Tiers 1 or 2. The more electricity is consumed at lower cost tier 1 rates, the more favourable will be the results for the electric option.

2.4 Please complete the following table comparing the <u>total</u> NPV of lifecycle costs using RNG or electricity (last line in Table 3 above) for the following scenarios:

					BC Hydro Electricity Rates		
Scenario	Description	Heat pump efficiency	Water heater efficiency	RNG priced @ NG price	50% Tier 1 50% Tier 2	25% Tier 1 75% Tier 2	0% Tier 1 100% Tier 2
1	Low bookend	200%	100%				
2	High bookend	272%	230%				

<u>Response:</u>

The results of the requested table are presented below:

					BC Hydro Electricity Rates		
Scenario	Description	Heat pump efficiency	Water heater efficiency	RNG priced @ NG price	50% Tier 1 50% Tier 2	25% Tier 1 75% Tier 2	0% Tier 1 100% Tier 2
1	Low bookend	200%	100%	$36,784	$ 36,029	$ 37,775	$ 39,521
2	High bookend	272%	230%	$36,784	$ 33,103	$ 34,215	$ 35,326

FEI has prepared this analysis by updating the spreadsheet developed by EFG in order to allow for some consistency across the various cost comparisons, and has relied on the following assumptions:

- For the reasons discussed in the response to BCSEA IR1 24.1 Rebuttal, FEI has excluded Gas Connection Costs;

- The fuel cost for RNG is consistent with FEI's Rebuttal Evidence to BCSEA; and
- The capital costs are those provided in the response to BCUC IR1 13.6, without taxes or incentives, matching the approach used in EFG's analysis.

Please refer to Attachment 2.6 provided in the response to BCUC IR1 2.6 Rebuttal BCSEA for the Confidential Live Spreadsheet.

Please also note that the capital costs provided in the response to BCUC IR1 13.6 made no distinction between the capital cost of high performance and low performance heat pumps, as FEI does not have sufficient data on what the differing price points may be for high and low efficiency heat pumps. Thus, only one capital cost is provided for space heating heat pumps, and FEI has used this value in both the low and the high bookend scenarios. However, the capital cost in the high bookend scenario may be somewhat more than has been included in the results above, and similarly, the capital cost of the low bookend scenario may be somewhat less.

FEI does not believe that it is necessary to update the analysis to account for rebates, incentives and taxes. Rebates and incentives do not eliminate cost. Rather, they shift the cost burden away from customers. Similarly, taxes are a cost imposed by government as opposed to a cost inherent to using each energy system.

Ultimately, the results of this analysis align with the findings described in the response to BCUC IR1 13.7 and FEI's Rebuttal Evidence and, importantly, demonstrate that both the electric and gas systems can deliver low carbon energy to customers for an approximately comparable cost.

2.5 Please explain, in FEI's view, whether it would be more appropriate to conduct the above NPV analysis with capital costs that consider rebates, incentives, and taxes. Please discuss why or why not.

2.5.1 If yes, please update the above analysis to include those rebates, incentives and taxes (including the differential application of the PST), and complete the following table:

** *With rebate, incentives, and taxes* **					BC Hydro Electricity Rates		
Scenario	Description	Heat pump efficiency	Water heater efficiency	RNG priced @ NG price	50% Tier 1 50% Tier 2	25% Tier 1 75% Tier 2	0% Tier 1 100% Tier 2
1	Low bookend	200%	100%				
2	High bookend	272%	230%				

Response:

FEI considers it unnecessary to update the NPV analysis with capital costs that consider rebates, incentives and taxes for the reasons set out in the response to BCUC IR1 2.4 Rebuttal BCSEA.

2.6 Please provide the Excel spreadsheets that support the calculations behind the totals shown in the above two tables, with available breakdowns of the NPV of lifecycle costs by end use.

Response:

FEI is filing the Excel spreadsheet provided in Confidential Attachment 2.6 on a confidential basis as it is based on the confidential spreadsheet filed by BCSEA in Exhibit C-1-1. In order to retain the confidentiality of Exhibit C-1-1, the attached spreadsheet should also be treated as confidential.

Attachment 2.1

REFER TO LIVE SPREADSHEET MODEL

Provided in electronic format only

FILED CONFIDENTIALLY

Attachment 2.6

REFER TO LIVE SPREADSHEET MODEL

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