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September 28, 2021

B.C. Sustainable Energy Association
c/o William J. Andrews, Barrister & Solicitor
70 Talbot Street
Guelph, ON
N1G 2E9

Attention: Mr. William J. Andrews

Dear Mr. Andrews:

**Re: FortisBC Energy Inc. (FEI)**

**Project No. 1599232**

**Annual Review for 2022 Delivery Rates (Application)**

**Response to the B.C. Sustainable Energy Association (BCSEA) Information Request (IR) No. 1**

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On July 30, 2021, FEI filed the Application referenced above. In accordance with the regulatory timetable established in British Columbia Utilities Commission Order G-277-21 for the review of the Application, FEI respectfully submits the attached response to BCSEA IR No. 1.

If further information is required, please contact the undersigned.

Sincerely,

**FORTISBC ENERGY INC.**

***Original signed:***

Diane Roy

Attachments

cc (email only): Commission Secretary
Registered Parties

**1.0 Topic: Delivery Rate Increase**

**Reference: Exhibit B-1, pp.2-3**

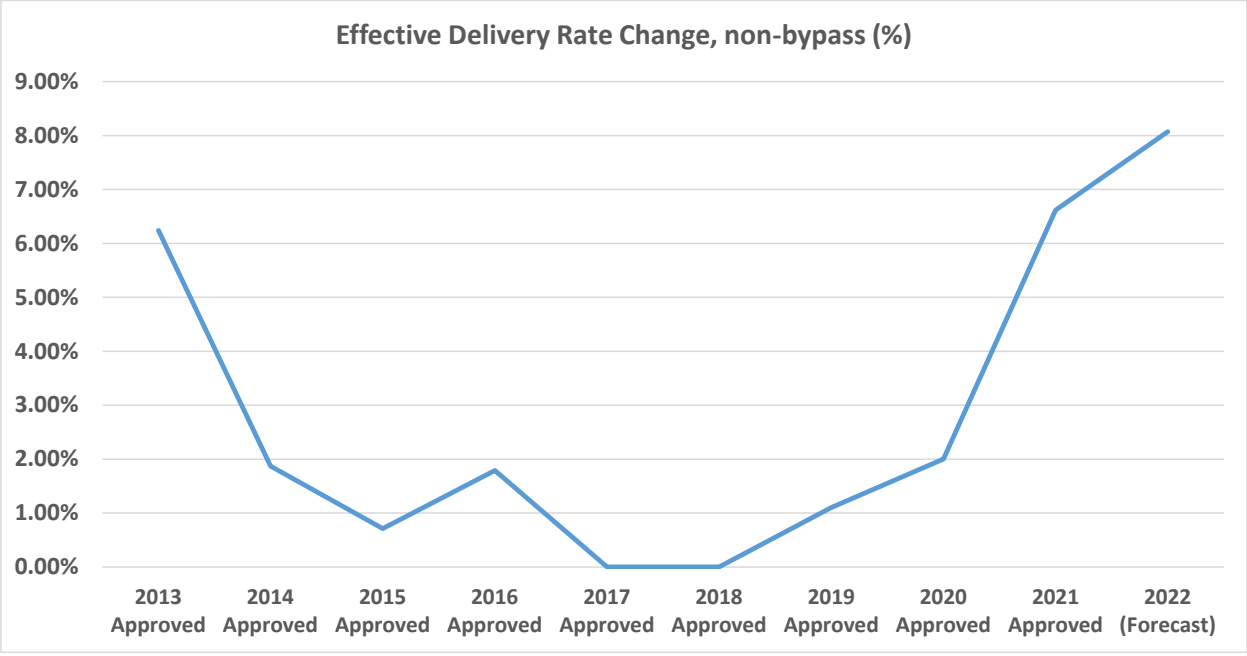
"The proposed delivery rates for 2022 flowing from the approved formulas and forecasts set out in the Application, including returning the actual 2020 earnings sharing to customers, result in an 8.07 percent delivery rate increase from 2021 delivery rates. After consideration of the delivery rate riders, the annual bill impact is an increase of approximately $45.18 or 4.57 percent for a residential customer." [underline added]

1.1 Please provide a graph and table showing annual changes in delivery rates for 2022 (proposed) and nine previous years.

**Response:**

FEI provides the following table and graph showing the effective delivery rate changes approved from 2013 to 2021, and the proposed 2022 effective delivery rate change.

| Particular | 2013 Approved | 2014 Approved | 2015 Approved | 2016 Approved | 2017 Approved | 2018 Approved | 2019 Approved | 2020 Approved | 2021 Approved | 2022 (Forecast) |
|---|---|---|---|---|---|---|---|---|---|---|
| Effective Delivery Rate Change, non-bypass (%) | 6.24% | 1.87% | 0.71% | 1.79% | 0.00% | 0.00% | 1.10% | 2.00% | 6.62% | 8.07% |
| BCUC Order | G-44-12 | G-138-14 | G-86-13 & G-106-15 | G-193-15 | G-182-16 | G-196-17 | G-237-18 & G-10-19 | G-319-20 | G-319-20 | n/a |



1.2 Please clarify if the estimated 2022 residential annual bill impact (an increase of approximately $45.18) include any change to the non-delivery portions of the bill?

**Response:**

The average residential annual bill impact of approximately $45.18 includes no change to the non-delivery portion of the bill. Please refer to Table 1 below for the calculation of the average residential annual bill impact with annual consumption of 90 GJ. FEI notes the annual bill impact shown in Table 1 below was based on the cost of gas rates on July 2021 when the Application was filed. Pursuant to Order G-266-21, the BCUC approved the cost of gas rates for RS 1 to 7 and RS 46 customers to increase from $2.844 per GJ to $3.844 per GJ, effective October 1, 2021. Please refer to the response to BCUC IR1 1.1 for the annual bill impact in percentage based on the new cost of gas rates effective October 1, 2021. The average bill impacts *in dollars* remain the same since in this Application FEI is only requesting approval of the delivery rate increases.

## Table 1: Average Residential Annual Bill Impact with Annual Consumption of 90 GJ (Including Delivery Rate Riders)

| Line No. | Particular | EXISTING RATES JANUARY 1, 2021 Quantity | | Rate | Annual $ | PROPOSED JANUARY 1, 2022 RATES Quantity | | Rate | Annual $ | Annual Increase/Decrease Rate | Annual $ | % of Previous Total Annual Bill |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **RATE SCHEDULE 1 - RESIDENTIAL SERVICE** | | | | | | | | | | | |
| 2 | **Delivery Margin Related Charges** | | | | | | | | | | | |
| 3 | Basic Charge per Day | 365.25 | days x | $ 0.4085 | = $ 149.20 | 365.25 | days x | $0.4085 | = $ 149.20 | $ - | $ - | |
| 4 | Rider 2 Clean Growth Innovation Fund Rate Rider per Day | 365.25 | days x | $ 0.0131 | = 4.78 | 365.25 | days x | $0.0131 | = 4.78 | - | - | |
| 5 | | | | | | | | | | | | |
| 6 | Delivery Charge per GJ | 90.0 | GJ x | $ 4.915 | = 442.35 | 90.0 | GJ x | $5.455 | = 490.95 | $ 0.540 | 48.60 | |
| 7 | Rider 3 BVA Rate Rider per GJ | 90.0 | GJ x | $ 0.022 | = 1.98 | 90.0 | GJ x | $0.059 | = 5.31 | $ 0.037 | 3.33 | |
| 8 | Rider 5 RSAM per GJ | 90.0 | GJ x | $ 0.087 | = 7.83 | 90.0 | GJ x | $0.012 | = 1.08 | $ (0.075) | (6.75) | |
| 9 | **Subtotal of Delivery Margin Related Charges** | | | | **$ 606.14** | | | | **$ 651.32** | | **$ 45.18** | **7.45%** |
| 10 | | | | | | | | | | | | |
| 11 | **Commodity Related Charges** | | | | | | | | | | | |
| 12 | Storage and Transport Charge per GJ | 90.0 | GJ x | $ 1.350 | = $ 121.50 | 90.0 | GJ x | $ 1.350 | = $ 121.50 | $ - | $ - | |
| 13 | Rider 6 MCRA per GJ | 90.0 | GJ x | $ 0.047 | = 4.23 | 90.0 | GJ x | $ 0.047 | = 4.23 | $ - | - | |
| 14 | Subtotal Storage and Transport Related Charges per GJ | | | | $ 125.73 | | | | $ 125.73 | | $ - | |
| 15 | | | | | | | | | | | | |
| 16 | Cost of Gas (Commodity Cost Recovery Charge) per GJ | 90.0 | GJ x | $ 2.844 | = $ 255.96 | 90.0 | GJ x | $ 2.844 | = $ 255.96 | $ - | $ - | |
| 17 | **Subtotal Commodity Related Charges per GJ** | | | | **$ 381.69** | | | | **$ 381.69** | | **$ -** | **0.00%** |
| 18 | | | | | | | | | | | | |
| 19 | Total *(with effective $/GJ rate)* | 90.0 | | *$ 10.976* | **$ 987.83** | 90.0 | | *$ 11.478* | **$ 1,033.01** | *$ 0.502* | **$ 45.18** | **4.57%** |

FEI notes that the percentage increase in the delivery margin related charge (Line 9 in Table 1) does not equal the proposed 2022 delivery rate increase of 8.07 percent. This is because the proposed 8.07 percent delivery rate increase does not include any delivery rate riders. Also, FEI has consistently used 90 GJ as the approximate annual average consumption for residential customers, as it is a rounded number and provides consistency in rate/bill impact analysis across different applications. The "exact" 2022 forecast average annual consumption for residential customers is approximately 84 GJ[1] which is the annual consumption that the 8.07 percent delivery rate increase is based on. Please refer to Table 2 below which demonstrates the calculation of the delivery rate impact at 84 GJ and results in an 8.07 percent increase in delivery margin related charges before consideration of all delivery rate riders.

[1] Section 11 – Schedule 19, Line 3, Column 3 / Schedule 19, Line 3, Column 9, i.e. 81,494.4 TJ / 969,236 RS 1 customers x 1000 = 84 GJ.

## Table 2: Average Residential Annual Bill Impact with Annual Consumption of 84 GJ (Excluding Delivery Rate Riders)

| Line No. | Particular | EXISTING RATES JANUARY 1, 2021 Quantity | | Rate | | Annual $ | PROPOSED JANUARY 1, 2022 RATES Quantity | | Rate | | Annual $ | Annual Increase/Decrease Rate | Annual $ | % of Previous Total Annual Bill |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **RATE SCHEDULE 1 - RESIDENTIAL SERVICE** | | | | | | | | | | | | | |
| 2 | **Delivery Margin Related Charges** | | | | | | | | | | | | | |
| 3 | Basic Charge per Day | 365.25 | days x | $ 0.4085 | = | $ 149.20 | 365.25 | days x | $ 0.4085 | = | $ 149.20 | $ - | $ - | |
| 4 | Rider 2 Clean Growth Innovation Fund Rate Rider per Day | 365.25 | days x | $ - | = | - | 365.25 | days x | $ - | = | - | - | - | |
| 5 | | | | | | | | | | | | | | |
| 6 | Delivery Charge per GJ | 84.0 | GJ x | $ 4.915 | = | 412.86 | 84.0 | GJ x | $ 5.455 | = | 458.22 | $ 0.540 | 45.36 | |
| 7 | Rider 3 BVA Rate Rider per GJ | 84.0 | GJ x | $ - | = | - | 84.0 | GJ x | $ - | = | - | $ - | - | |
| 8 | Rider 5 RSAM per GJ | 84.0 | GJ x | $ - | = | - | 84.0 | GJ x | $ - | = | - | $ - | - | |
| 9 | **Subtotal of Delivery Margin Related Charges (Excl. Riders)** | | | | | **$ 562.06** | | | | | **$ 607.42** | | **$ 45.36** | **8.07%** |

1.3 If the "4.57 percent for a residential customer" is a percentage of the residential customer's total bill, please provide the 2022 increase in delivery rates plus delivery rate riders as a percentage of delivery rates and delivery rate riders for residential customers.

**Response:**

The average delivery rate increase for residential customers, including all delivery rate riders, is 7.45 percent. Please refer to the response to BCSEA IR1 1.2 for the calculation.

**2.0 Topic: COVID-19 and Demand-Side Management**

**Reference: FEI Annual Review for 2020 and 2021 Rates, Exhibit B-5, FEI Response to BCSEA IR 1.1 (https://www.bcuc.com/Documents/Proceedings/2020/DOC_59290_B-5-FEI-Response-to-BCSEA-IR1.pdf)**

In the FEI Annual Review for 2020 and 2021 Rates, BCSEA asked about the impact of the COVID-19 pandemic on FEI's DSM spending and energy savings in 2020 and 2021. FEI provided the following informative response dated September 28, 2020:

> "Overall, FEI's DSM spending and energy savings are largely on track for 2020 and, if current DSM activity levels continue as planned, are expected be on track in 2021 as well.
>
> FEI has made adjustments to all of its DSM programs to adapt to the pandemic and has kept most DSM programs in the market for customers. During the initial stages of the pandemic FEI put some activities requiring an on site presence on hold including, in particular, the Energy Conservation Assistance Program and Rental Apartment Efficiency Program. Where possible, virtual site visits replaced on-site visits. During the first few months of the pandemic, FEI also paused active marketing campaigns for energy-efficient equipment rebates and focused instead on energy saving tips for customers.
>
> To help meet approved DSM expenditure and energy saving levels, FortisBC is supporting the BC Restart Plan, collaborating with program partners BC Hydro and CleanBC, and enhancing incentives to financially support all customers. In the Residential and Income Qualified Program areas, FEI is launching a time-limited, pre-qualification period for enhanced heating system incentives from October 1 to December 31, 2020, with the opportunity for equipment installation by March 31, 2021. To support the construction of high performance homes in an economic downturn, the New Home Program enhanced incentives will remain in the market through 2021. In the Commercial and Industrial program areas, FEI is supporting customers by offering increased incentives through 2021, and modifying the payment structure in to support capital project studies and project completion."

2.1 Please provide an update on the impact of the COVID-19 Pandemic on FEI's DSM spending and energy savings for 2021 and 2021.

**Response:**

FEI assumes that the question is referring to the years 2021 and 2022.

The COVID-19 pandemic has impacted the actual and forecast 2021 and 2022 DSM expenditures and energy savings as outlined in FEI's Application for Additional DSM Expenditures for 2021-2022 - Residential and Low Income, filed in July of this year. As noted in that application, the

impacts of the COVID-19 pandemic and FEI's COVID-19 customer support initiatives have caused increased customer demand within FEI's Residential and Low Income Program Areas that was not foreseen at the time FEI developed the 2019-2022 DSM Plan. As a result, FEI is forecasting more DSM spending in these program areas and requires additional DSM funding to respond to customer demand.

FEI's current forecast remains generally on track with that provided in FEI's Application for Additional DSM Expenditures for 2021-2022 - Residential and Low Income, and any variations will be reported in the FEI 2021 Annual DSM Report.

**3.0 Topic: Renewable Natural Gas**

**Reference: FEI Annual Review for 2020 and 2021 Rates, Exhibit B-5, FEI Response to BCSEA IR 5.1, 6.2**
**(https://www.bcuc.com/Documents/Proceedings/2020/DOC_59290_B-5-FEI-Response-to-BCSEA-IR1.pdf)**

In the FEI Annual Review for 2020 and 2021 Rates, BCSEA asked for an update on the Renewable Natural Gas program. FEI provided the following informative response:

> "For 2020, FEI is forecasting that the total RNG delivered from the five biomethane facilities currently operating, and two facilities starting operation this fall, will be approximately 0.250 PJ. This volume is higher than the 0.225 PJ of RNG delivered in 2019 and a 40 percent increase over the 0.176 PJ delivered in 2018.
>
> As of September 2020, FEI has received BCUC approval for 11 new biomethane projects. The total portfolio of 18 operational and new projects are expected to provide greater than 5.8 PJs annually to the biomethane program. The timing of RNG delivery from the new projects to the program will vary, with the first project expected to deliver RNG in 2020 and other projects starting delivery as late as 2023.
>
> Based on the biomethane facilities currently operating, BCUC-approved projects, and filed applications awaiting BCUC approval, the total maximum volume of RNG that could be delivered to the program is nearing the Greenhouse Gas Reduction (Clean Energy) Regulation volume cap of about 9 PJs per annum.
>
> The demand for RNG currently exceeds the available supply delivered from FEI's RNG suppliers. In 2019, as demand was exceeding the available supply, FEI ceased accepting new enrolments in the RNG Program and curtailed the volume of RNG available for sale to large volume, interruptible RNG customers under Long Term BERC Rate contracts served through Rate Schedule (RS) 11B. The temporary closure of the RNG Program to new participants and the curtailment of volumes under RS 11B is likely to be maintained until late 2021.
>
> FEI forecasts that in the later part of 2021 the available supply of RNG will increase significantly and will exceed the demand of all customers currently enrolled in the RNG Program. In 2022, FEI expects the demand from currently enrolled customers to be approximately 0.58 PJs for the year, while the volume of supply is expected to exceed 3.8 PJs. Although FEI has not allowed new participants to enroll in the RNG Program since 2019, a number of large volume customers have made their interest in RNG known to FEI. FEI will resume full service to existing customers, as well as enrolling new participants, as sufficient new RNG supply becomes available.

3.1 Please provide a similar update on the Renewable Natural Gas program for 2021 and 2022.

**Response:**

For 2021, FEI is forecasting that the total RNG delivered from the on-system and off-system biomethane facilities currently in operation will be approximately 0.60 PJ. This represents a 140 percent increase over the 0.25 PJ of RNG delivered in 2019. An additional approved supply project, currently under construction, may add a further 0.100 PJ in the last 2 months of 2021, which would increase the total forecast RNG delivered from operational biomethane facilities to 0.70 PJ.

In the period from September 2020 to September 2021, FEI received BCUC approval for five new biomethane supply agreements. This brings FEI's current portfolio of operational biomethane facilities and approved biomethane projects to 23. The total maximum annual contractual volume of the current portfolio of projects is approximately 10.8 PJs.

FEI intends to file new applications with the BCUC for several additional biomethane supply agreements by the end of 2021, which may add an incremental 1.5 PJ to the expected annual volume. Based on currently operational projects and those expected to start delivering biomethane in 2022, FEI forecasts that the total RNG delivered volume in 2022 will be approximately 2.2 PJs compared to 0.70 PJ in 2021.

For the past two years, the RNG Program has been closed to new participants because the demand for RNG exceeded the available supply. However, given the volume of new supply, the RNG Program will re-open to all customers on October 15, 2021.

In response to BCSEA IR 6.2 in the FEI Annual Review for 2020 and 2021 Rates, FEI said that in addition to continuing existing information streams it "proposes to develop an annual report to the BCUC on its Renewable Gas program that provides a more comprehensive overview of all of the activities undertaken in support of the program." FEI stated:

> "FEI would report, for example, on its progress on various initiatives, technical and economic feasibility studies, testing programs, work to support codes and standards development, and education, safety and training that may need to occur before FEI could acquire, produce or deliver these new types of renewable gases and hydrogen gas to our customers. FEI proposes that this reporting be aligned with the timing and content of the reporting that FEI currently undertakes to MEMPR on its GGRR activities, to avoid duplication of any overlapping content."

3.2 What is the current status of the development of an annual report to the BCUC on the Renewable Gas program?

**Response:**

In response to BCSEA IR1 6.2 in FEI's 2020 and 2021 Annual Review proceeding, FEI confirmed that information is provided on the Renewable Natural Gas (biomethane) program to the BCUC through four streams of information:

1. As projects are developed, biomethane purchase agreements are filed with the BCUC for acceptance;
2. Each year, FEI provides the BCUC with a BVA Annual Status Report, which provides information on the quantities and costs of biomethane purchased, and quantities and prices for biomethane sold;
3. In its Annual Review materials, FEI reports on the revenues, capital and O&M related to its biomethane projects to be recovered in rates; and
4. FEI copies the BCUC on its Annual Report under Section 18 of the *Clean Energy Act* to the Ministry of Energy, Mines and Petroleum Resources (MEMPR) for biomethane projects that are undertaken through the Greenhouse Gas Reduction (Clean Energy) Regulation (the "GGRR").

Further, in May 2021 the GGRR was amended[2] to enable a portfolio of renewable energy resources in BC, to stimulate the domestic market for renewable gas, and to broaden the methods by which FEI can obtain renewable gases to fulfill the CleanBC 15 percent renewable gas target, including all of the following that may be used to displace conventional natural gas:

1. RNG (biomethane);[3]
2. Waste hydrogen;[4]
3. Electrolytic hydrogen;[5]
4. Synthesis gas (syngas) derived from biomass,[6] and lignin,[7] both of which may be used to displace conventional natural gas at industrial gas customers' plant operations.

Although FEI will continue with the above noted reporting, FEI intends to set out the outline of a comprehensive report to the BCUC in its Renewable Gas Comprehensive Review application expected to be filed by the end of 2021. FEI intends that the comprehensive report would align

[2] https://www.bclaws.gov.bc.ca/civix/document/id/oic/oic_cur/0306_2021.
[3] RNG as defined in section 2, subsection 3.8 of the GGRR.
[4] Waste Hydrogen as defined in section 6 (b)(ii) of the GGRR.
[5] Electrolytic Hydrogen as defined in section 6 (b)(i) of the GGRR.
[6] Synthesis gas as defined in section 7(1) of the GGRR.
[7] Lignin as defined in section 8(a) of the GGRR.

with the timing and content of the reporting that FEI currently undertakes to MEMPR on its GGRR activities, to avoid duplication of any overlapping content.

3.3 If an annual report to the BCUC on the Renewable Gas program is available, please provide a copy.

**Response:**

Please refer to the response to BCSEA IR1 3.2.

**4.0 Topic: Clean Growth Innovation Fund**

**Reference: Exhibit B-1, pp. 86 – 93; FortisBC's 2020-2024 MRP Application, Figure C6-4, page C-139, https://www.bcuc.com/Documents/Proceedings/2019/DOC_53564_B-1-FortisBC-2020-2024-Multi-YearRatePlan-Application.pdf**

"Actual expenditures [for the Clean Growth Innovation Fund (CGIF)] for 2020 were $1.0 million and are forecast to be $1.7 million and $5.0 million in 2021 and 2022, respectively." (p. 86)

**Table 10-6: Approved and Rejected Spending for Portfolios One and Two ($ millions)**

| | Portfolio One | Portfolio Two | Total |
|---|---|---|---|
| **Approved** | $1.450 | $0.527 | $1.977 |
| **Rejected** | $0.231 | $3.173 | $3.404 |

4.1 Please explain the differences between the 2020 actual and 2021 forecast CGIF expenditures shown on page 86 with the approved spending amounts shown in Table 10-6 on page 87.

**Response:**

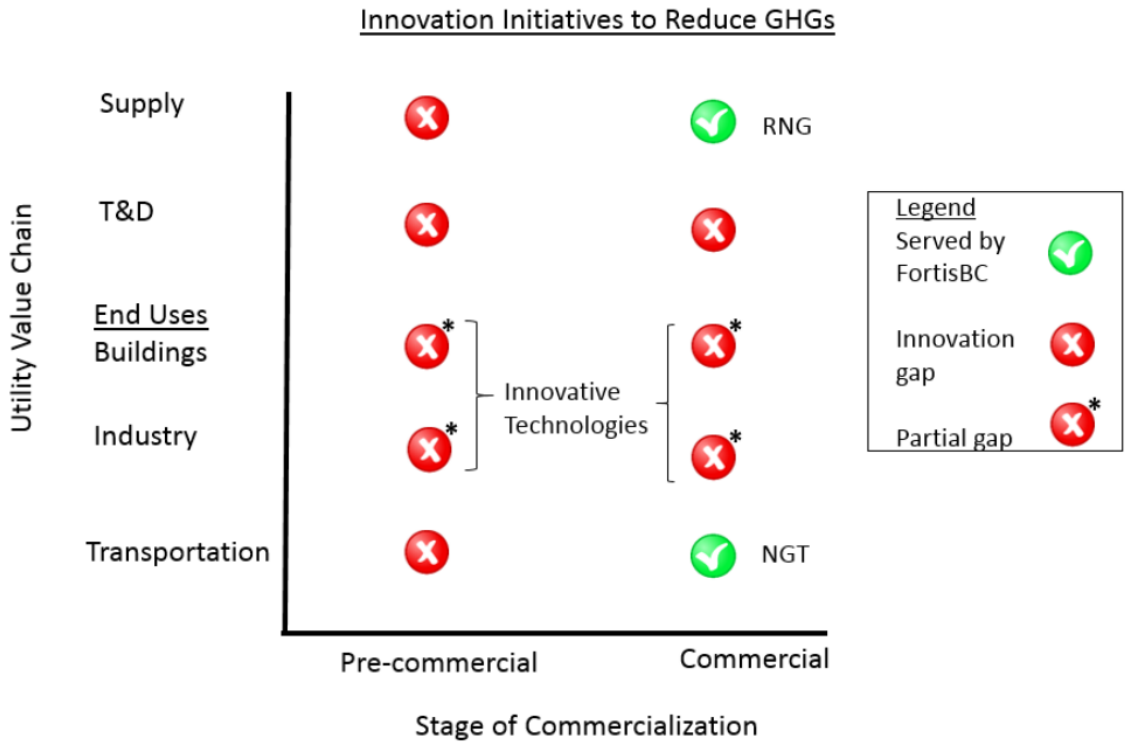
As explained in the response to BCUC IR1 20.1, the forecast for 2021 expenditures should be $0.6 million, not $1.7 million. The cumulative expenditures for 2020 and 2021 are $1.7 million (2020 actual expenditures of $1.1 million and 2021 projected expenditures of $0.6 million).

The forecast 2020-2021 expenditure of $1.7 million represents cash outflows from the CGIF to the various approved projects.

The approved spending amounts totaling $1.977 million shown in Table 10-6 are the amounts that are approved thus far to be spent over the MRP term, not actual or forecast expenditures.

Figure 10-1 of the application (p.88) shows dollar figures for CGIF Approved Spending by Category. Figure C6-4 of FortisBC's 2020-2024 MRP Application shows "Innovation Gaps to be Addressed by the Fund, according to location on the "utility value chain" and stage of commercialization:

**Figure C6-4: Innovation Gaps to be Addressed by the Fund**




4.2 Please map the spending figures in Figure 10-1 to the categories in Figure C6-4 and present it in a tabular format.

**Response:**

The CGIF expenditures approved to date include a number of pre-commercial projects related to the supply of renewable and low carbon gaseous fuel options; in fact, a large portion of approved expenditures (i.e., $730 thousand) address this critical gap in delivering clean growth.

As mentioned on page 88 of the Application, the "hydrogen lab" that will be established at UBC Okanagan will address the pre-commercial T&D gap by studying a variety of topics related to delivering hydrogen-enriched natural gas to customers. $500 thousand has been approved related to this initiative. FEI expects to address the commercial T&D gaps in upcoming CGIF portfolios.

The partial pre-commercial gaps in building and industrial end-use has been addressed by the referenced Combined Heat and Power and Carbon Capture projects, totaling $336 thousand. At this time, no commercial projects are contemplated in these areas.

Finally, the pre-commercial transportation sector is addressed by a $65 thousand project focused on reducing GHG emissions from natural gas engines.

The remaining CGIF approved expenditure of $345 thousand (which is unlabeled in Figure 10-1) relates to NGIF operating expenses and NGIF small projects and addresses all of the gaps mentioned above.

| | Pre-Commercial | Commercial |
|---|---|---|
| Supply | $730,000 | N/A |
| T&D | $500,000 | $0 |
| End Use – Buildings & Industry | $336,000 | $0 |
| Transportation | $65,000 | N/A |
| All | $345,000 | N/A |

4.3 Please discuss the CGIF's success so far in funding projects across the range of categories in Figure C6-4, including any gaps or problem areas.

**Response:**

Please refer to the response to BCSEA IR1 4.2.

4.4 Please discuss FEI's forecast CGIF spending for 2022 of $5.0 million. Does FEI expect it will be able to approve funding for projects in most or all of the categories in Figure C6-4?

**Response:**

As discussed in the response to BCSEA IR1 4.3, FEI has approved funding for projects across the majority of the gaps identified in Figure C6-4. FEI expects future spending to continue to address the gaps as opportunities become available.

**5.0 Topic: 2022 Long Term Gas Resource Plan**

**Reference: FEI Annual Review for 2020 and 2021 Rates, Exhibit B-5, FEI Response to BCSEA IR 7.2 (https://www.bcuc.com/Documents/Proceedings/2020/DOC_59290_B-5-FEI-Response-to-BCSEA-IR1.pdf)**

In response to BCSEA IR 7.2 in the FEI Annual Review for 2020 and 2021 Rates, FEI said:

> "FEI intends to file the 2022 LTGRP on March 31, 2022 in accordance with Order G-39-19. Ongoing scanning of the planning environment and a range of analytical activities are currently underway and will continue through 2021. FEI will be undertaking stakeholder engagement activities this fall. As part of the engagement activities, FEI will present a timeline of the major activities involved in preparing the LTGRP and key points when FEI will seek input from the Resource Planning Advisory Group, Indigenous communities and other stakeholders."

5.1 Are there any changes to FEI's timeline for developing and filing the 2022 LTGRP?

**Response:**

At this time it remains FEI's intention to file the 2022 LTGRP by March 31, 2022.

**6.0 Topic: FEI GHG Emissions**

**Reference: FEI Annual Review for 2020 and 2021 Rates, Exhibit B-5, FEI Response to BCSEA IR 8.1, 8.2, 8.3, 8.4, 8.5 (https://www.bcuc.com/Documents/Proceedings/2020/DOC_59290_B-5-FEI-Response-to-BCSEA-IR1.pdf)**

In response to BCSEA IR 8.1 in the FEI Annual Review for 2020 and 2021 Rates, FEI provided the following table showing FEI's annual reported estimated GHG emissions from the year 2009 through 2019.

| Year | GHG Emissions Reported to ECCC using IPCC 4th Assessment (tCO2e) |
|---|---|
| 2009 | 177,827 |
| 2010 | 171,059 |
| 2011 | 153,611 |
| 2012 | 150,647 |
| 2013 | 141,948 |
| 2014 | 140,507 |
| 2015 | 120,997 |
| 2016 | 126,612 |
| 2017 | 142,534 |
| 2018 | 123,509 |
| 2019 | 145,127 |

6.1 Please provide an updated table showing FEI's annual reported estimated GHG emissions from the year 2009 through 2020.

**Response:**

Please refer to the following updated table with FEI's annual reported estimated GHG emissions from 2009 through 2020.

| Year | GHG Emissions Reported to ECCC using IPCC 4th Assessment (tCO2e) |
|---|---|
| **2009** | 177,827 |
| **2010** | 171,059 |
| **2011** | 153,611 |
| **2012** | 150,647 |
| **2013** | 141,948 |
| **2014** | 140,507 |
| **2015** | 120,997 |
| **2016** | 126,612 |

| Year | GHG Emissions Reported to ECCC using IPCC 4th Assessment (tCO2e) |
|---|---|
| **2017** | 142,534 |
| **2018** | 123,509 |
| **2019** | 145,127 |
| **2020** | 121,452 |

In its responses to BCSEA IRs 8.2, 8.3 and 8.4 in the FEI Annual Review for 2020 and 2021 Rates, FEI described the measures it took in 2019 and 2020 year-to-date to control and reduce its GHG emissions, with cost estimates and cost comparisons to 2018 and 2021 (expected).

6.2 Please provide an update for 2020 and 2021 year to date.

**Response:**

FEI's day-to-day operational activities are designed to ensure the integrity of the natural gas system, assisting in the control and reduction of GHG emissions to the atmosphere. Examples of these operational activities include:

- fugitive leak detection surveys and repairs at compressor stations and LNG plants,
- maintenance related activities such as pigging to monitor the integrity of the transmission pipeline,
- residential meter set redesign,
- replacement of end of life assets, and
- use of CNG for fleet vehicles.

FEI's costs associated with GHG emissions reduction measures that are in addition to FEI's integrity management costs are discussed below.

For 2020, the cost of these additional GHG emissions reduction measures was approximately $60 thousand for detailed Leak Detection and Repair (LDAR) surveys using Optical Gas Imaging (OGI) cameras by an external consultant at compressor stations and the Tilbury and Mt. Hayes LNG plants. The detailed LDAR survey resulted in the identification of 31 total leaks and resulted in a GHG emissions reduction of approximately 300 tCO2e. The frequency of surveys is dependent on natural gas demand. As natural gas demand is forecast to increase in 2021, the number and associated cost of surveys are expected to increase.

In addition, FEI's capital program in 2020 included the purchase of five Zero Emission Vacuum (ZeVAC) compressor units to reduce venting from transmission pipeline maintenance projects. The total cost for these units was approximately $2.5 million.

In its response to BCSEA IR 8.5 in the FEI Annual Review for 2020 and 2021 Rates, FEI provided the following update on methane emission requirements and FEI's associated additional O&M and capital compliance costs:

> "The BC Ministry of Environment, through the BC Oil and Gas Commission (BC OGC), agreed to equivalency with Environment and Climate Change Canada on methane regulations in Q2 of 2019. For FEI, compliance requirements associated with methane regulations can be categorized as either fugitive survey requirements or seal gas venting requirements.
>
> Fugitive survey requirements came into effect in 2020. These requirements include multiple comprehensive LDAR surveys using OGI devices and subsequent repair report submissions to the BC OGC. The number of required leak detection surveys is dependent on the operating hours of the compressor stations. FEI's forecast O&M cost for these surveys is $100 thousand – $150 thousand.
>
> Seal gas venting requirements come into effect in January 2022. FEI is assessing the capital compliance costs of these requirements." [underline added]

6.3 Please provide an update on the methane emissions requirements (if there has been any change) and FEI's associated additional measures and O&M and capital compliance costs.

**Response:**

There are no changes to methane emissions requirements other than those previously identified.

FEI is currently developing proposals and generating cost estimates for meeting and/or exceeding BC OGC seal gas requirements at compressor stations. These cost estimates vary from location to location; however, class 5 estimates are approximately $3 million per site.

Other measures under consideration include the application of satellite technology to measure fugitive methane emissions on assets along the distribution pipeline system. A trial of this technology in two regions has an estimated O&M cost of approximately $100 thousand.

**7.0 Topic: FortisBC Corporate and Sustainability Report, Environmental Indicators**

**Reference: https://www.fortisbc.com/sustainabilityreport/our-sustainability-performance/protecting-the-environment; FEI Annual Review for 2020 and 2021 Rates, Exhibit B-5, FEI Response to BCSEA IR 10.4 (https://www.bcuc.com/Documents/Proceedings/2020/DOC_59290_B-5-FEI-Response-to-BCSEA-IR1.pdf)**

In Decision and Order G-165-20, p.167, the Panel noted that FEI said it expects that interveners will be free to ask questions regarding FortisBC's Annual Sustainability Report within the Annual Review process.

Annual GHG emissions saved from natural gas used for transportation declined from 48,000 tCO2e in 2017 to 36,400 in 2020. FEI explained the reasons for the decline in its response to BCSEA IR 10.4 in the FEI Annual Review for 2020 and 2021 Rates. FEI anticipated 2021 emissions savings to be higher than 2020, albeit with a caution about potential COVID-19 impacts:

> "FEI anticipates 2021 emissions savings to be higher than 2020 with CNG demand from the transit sector expected to return to pre-COVID levels and continued growth from the addition of new CNG vehicles across all market segments. FEI also anticipates that the additional growth of CNG as an on-road transportation fuel will partially offset the continued gradual decline of LNG for on-road transportation uses.
>
> Given the uncertainty associated with COVID-19 impacts through the remainder of 2020 and into 2021, FEI cautions that the emissions savings for 2021 may be materially impacted if the CNG/LNG on-road customers have to curtail or reduce their operations, especially in the transit segment, and the expected adoption of new CNG vehicles across all market segments slows."

7.1 Please provide an update on the expected 'GHG emissions saved from natural gas used for transportation' for 2021.

**Response:**

The projected 2021 CNG and LNG volumes for NGT are 1.0 and 1.4 PJs, respectively. Total projected GHG savings for natural gas used for transportation are approximately 75,000 tCO2e.

FortisBC's Corporate and Sustainability Report indicates that there was one Class 3 spill in 2020. "A Class 3 spill is defined as an event that results in significant damage that includes large spills in waterways, spills that significantly exceed externally reportable

thresholds, a regulatory non-compliance investigation by regulator and/or a fire that may cause damage more than $100,000."

7.2 Was the Class 3 spill in 2020 associated with FEI or FBC? If it was an FEI spill, please give a short description and discuss the steps FEI has taken to prevent a recurrence.

**Response:**

The Class 3 spill in 2020 is associated with FEI.

On May 8, 2020, the Tilbury 1A Liquefied Natural Gas (LNG) facility experienced a process upset when the mixed refrigeration compressor tripped off resulting in a short release (i.e., approximately 5 minutes) of refrigerant to atmosphere (approximately 1,000 kg of ethylene, 1,700 kg of butane and 350 kg of methane). FEI determined that mix design was not properly proportioned resulting in higher than expected loads on the mixed refrigerant compressor.

FEI has revised its operating procedures to provide direction on determining the appropriate mix of refrigerant and implemented monitoring of the mixed refrigerant compressor in the Tilbury 1A control room.

**8.0 Topic: GHG Reduction Targets**

**Reference: Fortis BC Clean Growth Pathway to 2050 (https://www.cdn.fortisbc.com/libraries/docs/default-source/about-us-documents/clean-growth-pathway-brochure.pdf?sfvrsn=1a4b811f_2); FortisBC 30BY30 Target (https://www.fortisbc.com/news-events/media-centre-details/2019/09/23/fortisbc-sets-30by30-target-for-a-lower-carbon-future); FEI Annual Review for 2020 and 2021 Rates, Exhibit B-5, FEI Response to BCSEA IR 12.1, 12.2 and 12.3 (https://www.bcuc.com/Documents/Proceedings/2020/DOC_59290_B-5-FEI-Response-to-BCSEA-IR1.pdf)**

FEI provided the following explanation of its Clean Growth Pathway and its 30BY30 target, as of September 20, 2020:

> "The Clean Growth Pathway to 2050 (Clean Growth Pathway) outlines FortisBC's vision to align with the B.C. government's goal to transition to a low carbon and renewable energy economy and address climate change solutions in a global context. While the Clean Growth Pathway is FortisBC's long-term plan to 2050, the 30BY30 target represents FortisBC plan to track the progress of its activities, outlined in the four key areas of the Clean Growth Pathway, over the next ten years.
>
> The 30BY30 target is an absolute target to avoid 3.9 million tonnes of carbon dioxide equivalent ($CO_2e$) emissions by the year 2030, which is approximately 30 percent of our 2007 customer emissions. Given that the target is absolute, it does not take into account changes in the number of customers over time. This methodology was chosen because it is straightforward, easily understood, and aligned with the provincial government's CleanBC baseline year of 2007.
>
> FortisBC's 30BY30 target applies to customers' GHG emissions from energy supplied by FortisBC.
>
> Since FortisBC's 30BY30 target is the intermediate milestone for the company's Clean Growth Pathway to 2050, FortisBC has not set an intermediate milestone for 30BY30. Rather, FEI anticipates reporting annually on the progress of the activities within its 30BY30 plan. Accordingly, FEI is developing roadmaps for each of the four key GHG reduction pillars identified in the Clean Growth Pathway. The roadmaps, which will be developed over 2020 and 2021, will identify key activities that are required in the near to medium term to achieve our 30BY30 target. The Company has also undertaken an exercise to review existing GHG data and analyses related to the Company's activities in order to ensure consistency and best practices in 30BY30 reporting.

While the roadmaps are being developed, FEI will continue to advance its existing programs and initiatives that support the four key pillars of the Clean Growth Pathway in order to reduce our customers' emissions.

Finally, progress to date on activities and GHG emissions avoided is reported in the Company's annual sustainability report." [underline added]

8.1 What is the status of the development of roadmaps for each of the four key GHG reduction pillars identified in the Clean Growth Pathway?

**Response:**

The internal roadmaps developed to support progress to FortisBC's 30BY30 target and journey toward the Company's Clean Growth Pathway to 2050 are complete. However, the roadmaps are living documents which are subject to annual review and updating to ensure they reflect current market and policy considerations. These roadmaps have been developed for internal planning purposes; however, the Company will communicate activity updates and overall progress externally through the annual Corporate and Sustainability Report, FortisBC.com website as well as through news releases.

8.2 Please provide the 2020 GHG emissions avoided (from the current annual sustainability report) as a percentage of the 2007 customer emissions (i.e., progress toward the 30BY30 target).

**Response:**

Comprehensive progress on FortisBC's 30BY30 target was not available at the time of publication of the 2020 Corporate and Sustainability Report. However, since the report's publication, the Company has determined that in 2020, we helped our customers avoid 420,000 tonnes of carbon dioxide emissions equivalent, which is 3.2 percent of our customers' 2007 emissions. FortisBC is on track to meet the 30BY30 target as we have achieved approximately 10 percent of the 10-year target.