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March 20, 2018

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

Attention: Mr. Patrick Wruck, Commission Secretary and Manager, Regulatory Support

Dear Mr. Wruck:

Re: FortisBC Energy Inc. (FEI)

Project No. 3698899

2016 Rate Design Application (the Application)

Response to the British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 3

On December 19, 2016, FEI filed the Application referenced above. In accordance with Commission Order G-5-18 setting out the remainder of the Regulatory Timetable for the review of the Application, FEI respectfully submits the attached response to BCUC IR No. 3.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Diane Roy

Attachments

cc (email only): Registered Parties

FORTISBC ENERGY INC.

A. CHAPTER 2 – APPROVALS SOUGHT

91.0 Reference: APPROVALS SOUGHT

Exhibit B-1-5, Section 2.3, pp. 2-5 – 2-6

Implementation

On page 2-5 of Exhibit B-1-5, FEI states:

> Based on the regulatory timetable as established by the Commission in Appendix A of Order G- 5-18, FEI is seeking to implement its proposed rate design changes in the fourth quarter (Q4) of 2018. In order to provide adequate time to prepare for the implementation of approved changes, including billing system changes and notification to customers of the changes, FEI requests a Commission decision by August 2018.

91.1 If the Commission decision is issued by August 2018, please state FEI's target date to implement the rate design changes.

Response:

The targeted implementation date cannot be determined until a decision is received and FEI has had an opportunity to review the decision and prepare a compliance filing to reflect the implications of the decision. FEI then requires 60 to 90 days following acceptance of the compliance filing to implement the rate changes.

Therefore, FEI requests that the effective date for the rate design changes be determined as part of the compliance filing following the Commission's final decision on the Application. In that way, FEI can assess the implications of the decision and be in a better position to consider the effects of the decision in conjunction with any other pending Commission decisions which may impact rates, such as quarterly gas cost changes, and in consideration of the appropriate customer communications that need to take place.

On page 2-6 of Exhibit B-1-5, FEI states:

> … FEI requests that the effective date of any rate design changes should, instead, be determined as part of the compliance filing following the Commission's determination of this Application.

91.2 Please provide an estimate of the amount of time FEI may need to prepare its compliance filing following the final Commission decision on the FEI 2016 RDA.

Response:

Please refer to the response to BCUC-FEI IR 3.91.1.

91.3 Please confirm, or otherwise explain, that FEI is seeking approval to implement its proposed rate design changes in the fourth quarter (Q4) of 2018 with the specific effective date of the rate design changes to be determined by FEI at the time of the compliance filing following the final decision of this Application.

Response:

Please refer to the response to BCUC-FEI IR 3.91.1.

B. CHAPTER 7 – RATE DESIGN FOR RESIDENTIAL CUSTOMERS

92.0 Reference: RATE DESIGN FOR RESIDENTIAL CUSTOMERS

Exhibit B-1-5, Section 12.4, p. 12-9; Exhibit B-5, BCUC IR 20.5, pp. 88–90; Exhibit B-21, BCUC IR 65.0, pp. 11–19

Fixed and variable cost recovery

On page 12-9 of Exhibit B-1-5, FEI is proposing to change the RS 1 – Residential Delivery Charge to $4.762/GJ, adjusted upwards from FEI's original proposal of $4.746/GJ based on updates to the Application.

In response to BCUC IR 20.5, FEI presented a table using 5 GJ increments for the 0–30 GJ range and 10 GJ increments for the 31–140 GJ range to provide information regarding the recovery of costs from charges for residential customers. A fully functional electronic spreadsheet containing the data was also included.

In response to BCUC IR 65.1, 65.5 and 65.9, FEI provided information regarding the fixed and variable cost recovery of the RS 1 – Residential charges.

92.1 Based on FEI's update to the proposed Residential Delivery Charge, please provide updates for FEI's responses to:

(i) BCUC IR 20.5;

<u>Response:</u>

As requested, the updated table is provided below. Please refer to Attachment 92.1iv in the response to BCUC-FEI IR 3.92.1iv for the fully functional electronic spreadsheet.

Annual Consumption (GJ)	Annual Revenue from Proposed Basic Charge (a)	Annual Customer Related Cost based on COSA Results (b)	Difference (c) = (a) - (b)	Difference as a % of Annual Customer Related Costs (c) / (b)	Annual Revenue from Proposed Volumetric Charge (d)	Total Annual Cost based on COSA Results to be recovered through Volumetric Charge (e) = 538 - (a)	Difference (f) = (d) - (e)	Difference as a % of costs to be recovered through Volumetric Charge (f) / (e)
5	149	326	(177)	-54%	24	389	(365)	-94%
10	149	326	(177)	-54%	48	389	(342)	-88%
15	149	326	(177)	-54%	71	389	(318)	-82%
20	149	326	(177)	-54%	95	389	(294)	-76%
25	149	326	(177)	-54%	119	389	(270)	-69%
30	149	326	(177)	-54%	143	389	(246)	-63%
40	149	326	(177)	-54%	190	389	(199)	-51%
50	149	326	(177)	-54%	238	389	(151)	-39%
60	149	326	(177)	-54%	286	389	(103)	-27%
70	149	326	(177)	-54%	333	389	(56)	-14%
80	149	326	(177)	-54%	381	389	(8)	-2%
90	149	326	(177)	-54%	428	389	39	10%
100	149	326	(177)	-54%	476	389	87	22%
110	149	326	(177)	-54%	524	389	135	35%
120	149	326	(177)	-54%	571	389	182	47%
130	149	326	(177)	-54%	619	389	230	59%
140	149	326	(177)	-54%	667	389	277	71%

ii) BCUC IR 65.1;

Response:

The updated table is provided below.

Description	Existing Basic Charge	Percentage Increase in the Basic Charge *(with offsetting decrease in volumetric charge)*		
		5%	10%	15%
A) Daily Basic Charge ($/day)	0.389	0.4085	0.4279	0.4474
B) Monthly Basic Charge ($/month) [A*365.25/12]	11.84	12.43	13.02	13.62
C) % Recovery of customer-related costs from:				
i) Basic Charge	44%	46%	48%	50%
ii) Volumetric Delivery Charge	56%	54%	52%	50%
D) % Recovery of total customer and demand-related costs from:				
i) Basic Charge	26%	28%	29%	30%
ii) Volumetric Delivery Charge	74%	72%	71%	70%

(iii) BCUC IR 65.5; and

Response:

The updated table provided in response to BCUC-FEI IR 3.92.1.ii indicates that the revenue-neutral monthly Basic Charge increases of 5, 10 and 15 percent would recover between 28 to 30 percent of the total customer and demand-related costs and between 46 and 50 percent of the customer-related costs.

(iv) BCUC IR 65.9.

Response:

The updated tables are provided below. Refer to Attachment 92.1iv for the fully functional electronic spreadsheets.

Table 1: Basic Charge set at $0.4085/Day (5% higher than existing)

Annual Consumption (GJ) (a)	Annual Revenue from Proposed Basic Charge (b)	Annual Customer Related Cost based on COSA Results (c)	Difference (d) = (b) - (c)	Difference as a % of Annual Customer Related Costs (d) / (c)	Annual Revenue from Proposed Volumetric Charge (e)	Annual Demand and Energy Related Costs per Customer based on COSA Results (f)	Annual Demand and Energy Related Costs Caused by Peak Day Demand (g) = (a) / 81.7 x (f)	Total Annual Cost based on COSA Results to be recovered through Volumetric Charge (h) = (g) - (d)	Difference (i) = (h) - (e)	Difference as a % of costs to be recovered through Volumetric Charge (i) / (h)
5	149	326	(177)	-54%	24	212	13	190	(166)	-87%
10	149	326	(177)	-54%	48	212	26	203	(155)	-77%
15	149	326	(177)	-54%	71	212	39	216	(144)	-67%
20	149	326	(177)	-54%	95	212	52	229	(134)	-58%
25	149	326	(177)	-54%	119	212	65	242	(123)	-51%
30	149	326	(177)	-54%	143	212	78	255	(112)	-44%
40	149	326	(177)	-54%	190	212	104	281	(90)	-32%
50	149	326	(177)	-54%	238	212	130	307	(69)	-22%
60	149	326	(177)	-54%	286	212	156	333	(47)	-14%
70	149	326	(177)	-54%	333	212	182	359	(25)	-7%
80	149	326	(177)	-54%	381	212	208	385	(4)	-1%
90	149	326	(177)	-54%	429	212	234	411	18	4%
100	149	326	(177)	-54%	476	212	260	437	39	9%
110	149	326	(177)	-54%	524	212	286	463	61	13%
120	149	326	(177)	-54%	571	212	312	489	83	17%
130	149	326	(177)	-54%	619	212	338	515	104	20%
140	149	326	(177)	-54%	667	212	364	541	126	23%

Table 2: Basic Charge set at $0.4279/Day (10% higher than existing)

Annual Consumption (GJ) (a)	Annual Revenue from Proposed Basic Charge (b)	Annual Customer Related Cost based on COSA Results (c)	Difference (d) = (b) - (c)	Difference as a % of Annual Customer Related Costs (d) / (c)	Annual Revenue from Proposed Volumetric Charge (e)	Annual Demand and Energy Related Costs per Customer based on COSA Results (f)	Annual Demand and Energy Related Costs Caused by Peak Day Demand (g) = (a) / 81.7 x (f)	Total Annual Cost based on COSA Results to be recovered through Volumetric Charge (h) = (g) - (d)	Difference (i) = (h) - (e)	Difference as a % of costs to be recovered through Volumetric Charge (i) / (h)
5	156	326	(170)	-52%	23	212	13	183	(159)	-87%
10	156	326	(170)	-52%	47	212	26	196	(149)	-76%
15	156	326	(170)	-52%	70	212	39	209	(139)	-66%
20	156	326	(170)	-52%	93	212	52	222	(128)	-58%
25	156	326	(170)	-52%	117	212	65	235	(118)	-50%
30	156	326	(170)	-52%	140	212	78	248	(107)	-43%
40	156	326	(170)	-52%	187	212	104	274	(87)	-32%
50	156	326	(170)	-52%	234	212	130	300	(66)	-22%
60	156	326	(170)	-52%	280	212	156	326	(45)	-14%
70	156	326	(170)	-52%	327	212	182	352	(24)	-7%
80	156	326	(170)	-52%	374	212	208	378	(4)	-1%
90	156	326	(170)	-52%	421	212	234	404	17	4%
100	156	326	(170)	-52%	467	212	260	430	38	9%
110	156	326	(170)	-52%	514	212	286	456	59	13%
120	156	326	(170)	-52%	561	212	312	482	79	16%
130	156	326	(170)	-52%	608	212	338	508	100	20%
140	156	326	(170)	-52%	654	212	364	534	121	23%

Table 3: Basic Charge set at $0.4474/Day (15% higher than existing)

Annual Consumption (GJ) (a)	Annual Revenue from Proposed Basic Charge (b)	Annual Customer Related Cost based on COSA Results (c)	Difference (d) = (b) - (c)	Difference as a % of Annual Customer Related Costs (d) / (c)	Annual Revenue from Proposed Volumetric Charge (e)	Annual Demand and Energy Related Costs per Customer based on COSA Results (f)	Annual Demand and Energy Related Costs Caused by Peak Day Demand (g) = (a) / 81.7 x (f)	Total Annual Cost based on COSA Results to be recovered through Volumetric Charge (h) = (g) - (d)	Difference (i) = (h) - (e)	Difference as a % of costs to be recovered through Volumetric Charge (i) / (h)
5	163	326	(163)	-50%	23	212	13	176	(153)	-87%
10	163	326	(163)	-50%	46	212	26	189	(143)	-76%
15	163	326	(163)	-50%	69	212	39	202	(133)	-66%
20	163	326	(163)	-50%	92	212	52	215	(123)	-57%
25	163	326	(163)	-50%	115	212	65	228	(113)	-50%
30	163	326	(163)	-50%	138	212	78	241	(103)	-43%
40	163	326	(163)	-50%	183	212	104	267	(83)	-31%
50	163	326	(163)	-50%	229	212	130	293	(63)	-22%
60	163	326	(163)	-50%	275	212	156	319	(43)	-14%
70	163	326	(163)	-50%	321	212	182	345	(23)	-7%
80	163	326	(163)	-50%	367	212	208	371	(4)	-1%
90	163	326	(163)	-50%	413	212	234	396	16	4%
100	163	326	(163)	-50%	459	212	260	422	36	9%
110	163	326	(163)	-50%	505	212	286	448	56	13%
120	163	326	(163)	-50%	550	212	312	474	76	16%
130	163	326	(163)	-50%	596	212	338	500	96	19%
140	163	326	(163)	-50%	642	212	364	526	116	22%

C. CHAPTER 9 – RATE DESIGN FOR INDUSTRIAL CUSTOMERS

93.0 Reference: RATE DESIGN FOR INDUSTRIAL CUSTOMERS

Exhibit B-1-5, Section 12.2.2, p. 12-6; Exhibit B-5, BCUC IR 27.6, pp. 139-140

Rate schedule 5/25 rebalancing

On page 12-6 of Exhibit B-1-5, FEI states:

> After Rate Design proposals, the R:C ratio for RS 5/25 is 106.3%, which is outside the range of reasonableness established by Order G-4-18. To rebalance within the range of reasonableness, FEI proposes for the following reasons to decrease RS 5/25 revenues by reducing the basic charge … FEI is therefore proposing to decrease the RS 5/25 Basic Charge by $118 per month to $469 per month.

In response to BCUC IR 27.6, FEI provided a table showing the percentage of costs recovered through all fixed charges using existing and proposes rates for both RS 5 and RS 25.

93.1 Based on FEI's proposal in the preamble, please provide an updated response to BCUC IR 27.6.

<u>Response:</u>

The updated table is provided below. The original table was provided in Exhibit B-5, response to BCUC-FEI IR 1.27.6. To update the table, the Basic Charge under the Proposed Rates was decreased from $587 to $469, i.e. reduced by $118 (Line 5 in the table below).

Consequently, under proposed rates:

1. Total Monthly Charge Revenue (Line 10) decreased from $1,684 (RS 5) and $4,019 (RS 25) to $1,345 (RS 5) and $3,261 (RS 25).
2. Total Fixed Charge Revenue (Line 12) decreased from $5,004 (RS 5) and $20,781 (RS 25) to $4,665 (RS 5) and $20,024 (RS 25).
3. Total Delivery Margin Revenue (Line 14) decreased from $7,026 (RS 5) and $32,091 (RS 25) to $6,687 (RS 5) and $31,334 (RS 25).
4. Percent of Fixed Charge Revenue to Total Delivery Martin Revenue (Line 15) decreased from 71.2 percent (RS 5) and 64.8 percent (RS 25) to 69.8 percent (RS 5) and 63.9 percent (RS 25).

Line No.	Particulars	Existing Rates [1)] RS 5	Existing Rates [1)] RS 25	Proposed Rates RS 5	Proposed Rates RS 25
1	Number of Customers	239	535	239	535
2	Annual Volume (TJ)	2,280	12,751	2,280	12,751
3	Daily Demand Using 1.25 Multiplier (GJ)	12,784	64,537		
	Daily Demand Using 1.10 Multiplier (GJ)			11,250	56,792
4	Monthly Charges				
5	Basic Charge $ / Month	$ 587.00	$ 587.00	$ 469.00	$ 469.00
6	Administration Charge $ / Month	N / A	$ 78.00	N / A	$ 39.00
7	Demand Charge $ / Month / GJ of Daily Demand	$ 20.077	$ 20.077	$ 24.596	$ 24.596
8	Delivery Charge $ / GJ	$ 0.825	$ 0.825	$ 0.887	$ 0.887
9	**Revenues ($000's)**				
10	Total Monthly Charge Revenue [2)]	$ 1,684	$ 4,269	$ 1,345	$ 3,261
11	Demand Charge Revenue [3)]	3,080	15,548	3,320	16,762
12	Total Fixed Charges Revenues	4,763	19,818	4,665	20,024
13	Delivery Charge Revenue [4)]	1,881	10,519	2,022	11,310
14	Total Delivery Margin Revenue	$ 6,644	$ 30,337	$ 6,687	$ 31,334
15	**% of Fixed Charge Revenue to Total Delivery Margin Revenue [5)]**	71.7%	65.3%	69.8%	63.9%

Notes:

1. Refer to Exhibit B-5, response to BCUC-FEI IR 1.27.5 for the existing charges and Exhibit B-1-5, page 12-6 for the proposed charges.
2. Total Monthly Charge Revenue is equal to Line 1 x 12 months x Line 5 / 1,000 for RS 5 whereas for RS 25 it is the sum of Lines 5 and 6.
3. Demand Charge Revenue is equal to Line 3 x 12 months x Line 7 / 1,000.
4. Delivery Charge Revenue is equal to Line 2 x Line 8.
5. Percentage of Fixed Charge Revenue to Total Delivery Margin Revenue is equal to Line 12 / Line 14.

94.0 Reference: RATE DESIGN FOR INDUSTRIAL CUSTOMERS

Exhibit B-1-5, Section 9.8, pp. 9-36 – 9-37; Exhibit B-5, BCUC IR 34.7.1, p. 174; Exhibit B-7, BC Hydro IR 1.1; Commission Order G-6-18, dated January 11, 2018;

Catalyst Paper Final Argument regarding Revenue to Cost ratios, p. 11

Firm rate for RS 22, VIGJV and BC Hydro IG

On pages 9-36 to 9-37 of Exhibit B-1-5, FEI states:

> Based on a review of the existing large volume industrial transportation rates, FEI proposes the following:
>
> - To continue RS 22A and RS 22B as closed service offerings, with grandfathered terms due to their unique characteristics.
> - To create a firm rate for RS 22, VIGJV and BC Hydro IG based on a cost of service allocation from the COSA model. <u>VIGJV will become a RS 22 customer taking service and paying for service at the tariff rates under this rate schedule.</u> Under this proposal, the current contract for BC Hydro IG would be included as a Tariff Supplement at their current rates. (Emphasis Added)

In response to BCUC IR 34.7.1, FEI stated:

> <u>If the VIGJV chooses not to become a RS 22 customer,</u> then FEI would have to negotiate a rate under a new agreement with the VIGJV that would be subject to Commission approval. If BC Hydro elects not to become a RS 22 customer, BC Hydro could elect to become an RS 50 customer, if they meet the requirements of that rate schedule. BC Hydro could also elect to extend their current agreement, which would require negotiation of a rate that would need to be approved by the Commission. (Emphasis added)

94.1 If the Commission approves FEI's proposal for a firm rate for RS 22, VIGJV and BC Hydro IG, please explain if each member of the VIGJV will be <u>required</u> to become a separate RS 22 customer or if the VIGJV has the option to choose not to become a RS 22 customer and remain a contract customer. Please provide any term(s) from the letter agreement that supports your response.

Response:

The sentence on page 9-37 of the Application stating that the "*VIGJV will become a RS 22 customer taking service and paying for service at the tariff rates under this rate schedule*" should have indicated that the individual members of the VIGJV "*may*" instead of "*will*" become an RS 22 customer.

The Transportation Service Agreement (TSA) that was in place between the VIGJV and FEI at the time the Application was filed expired on December 31, 2017. FEI and the VIGJV agreed under a letter agreement to extend the current TSA until November 1, 2022, which was approved by Order G-6-18. The extension allows for the option of early termination of the TSA by the VIGJV by providing written notice terminating the TSA no more than 15 days from the issuance of a decision by the Commission on the Application. If any of the three members of the VIGJV provide notice to FEI to terminate the TSA, then each member of the VIGJV that continues to require transportation service will have to apply for service pursuant to one of FEI's rate schedules available to large industrial customers. Therefore, each of the three members of VIGJV could become an RS 22 customer.

If the VIGJV members choose not to exercise the option for early termination within the letter agreement, then the VIGJV would remain a contract customer. Any agreement beyond November 1, 2022 would need to be negotiated and would be subject to Commission approval.

Commission Order G-6-18 approved a letter agreement which extended the transportation service agreement between FEI and VIGJV.

94.2 Please confirm, or otherwise explain, that if the Commission does not approve FEI's proposal for a firm rate for RS 22, VIGJV and BC Hydro IG, then FEI's contract with the VIGJV will continue until it expires on November 1, 2022.

Response:

Please refer to the response to BCUC-FEI IR 3.94.1.

In response to BC Hydro IR 1.1, FEI confirmed that BC Hydro's existing Transportation Service Agreement (TSA) contains a renewal provision that allows BC Hydro to extend the existing TSA up to 2042. FEI stated: "If BC Hydro chooses to extend the agreement beyond April 2022, the rates applicable to the extension need to be approved by the

Commission. After the initial term ends in April of 2022, BC Hydro could also elect to become an RS 22 or RS 50 customer for service to its Island Generation facility."

On page 11 of its final argument regarding the COSA and revenue to cost ratios, Catalyst Paper stated: "Catalyst Paper asks the Commission to not accept FEI's proposed final COSA and associated R:C ratio as it pertains to the proposed RS22 and the VIGJV."

94.3 If FEI's proposal for a firm rate for RS 22, VIGJV and BC Hydro IG was not approved, please explain if and how FEI's rate design and rebalancing proposals would be impacted.

<u>Response:</u>

If FEI's RS 22 firm service proposal is not approved by the Commission, the following rate design and rebalancing impacts would occur:

- Existing RS 22 customers would experience a rate increase of more than 35 percent based on continuing the status quo (referred to as Option 1 in the Application). FEI would consider this level of rate increase to be rate shock.
- There would be a migration of customers from RS 22 to RS 27 or RS 7, as the breakeven economics between the different rate classes will change significantly; this could in turn lead to a need to redesign the RS 7 / 27 rate to maintain appropriate price signals.
- If FEI's RS 22 proposal firm service is not approved, FEI would need to amend the final COSA based upon the Commission's direction in the decision.
- The Commission's concerns in the approval of Creative Energy's tariff supplement (Order G-128-05) would not be addressed. There, the Commission stated that it was "not persuaded as to the merits of the methodology that was used to adjust the Rate Schedule 25 demand charge for Tariff Supplement G-21, but concludes that the application including the proposed rates should be approved until such time as the rates can be reviewed in a rate design proceeding." Since, under Option 1, the firm and interruptible RS 22 rates would remain tied to RS 5 and RS 25, they would continue to be value of service based rates, rather than cost of service based. FEI's proposal to establish a postage stamp, cost of service firm rate for all large industrial customers was created to address the concern.
- There would continue to be a lack of an established firm rate for RS 22. FEI's proposed RS 22 would create a firm service option that would be available for all RS 22 customers, including the VIGJV and BC Hydro IG subject to the terms of their current contracts.

In contrast, FEI's rate design and rebalancing proposals are not materially affected if FEI's firm RS 22 proposal is approved by the Commission but the VIGJV and BC Hydro do not elect to become RS 22 Firm customers.

The initial term of BC Hydro's existing Transportation Service Agreement (TSA) ends in April of 2022, at which time BC Hydro may extend the existing TSA up to 2042 (with rates approved by the Commission), or elect to become an RS 22 or RS 50 customer for service to its Island Generation facility.

The VIGJV's existing TSA now expires on November 1, 2022. If the VIGJV chooses not to become an RS 22 customer, it could seek to remain a contract customer. In that case, FEI and the VIGJV would need to negotiate an agreement effective November 1, 2022 and beyond, which would be subject to Commission approval.

94.4 Please provide updated versions of Table 12-2, Table 12-3 and Table 12-4 that shows the impacts, if any, of FEI's proposal for a firm rate for RS 22, VIGJV and BC Hydro IG being denied by the Commission.

Response:

FEI provides the requested versions of Tables 12-2, Table 12-3 and Table 12-4 below, showing the impacts if the Commission were to deny FEI's proposed RS 22. In summary:

- The costs and revenues allocated to RS 22 to create the R:C and M:C ratios for RS 22 in Table 12-2 of the Application would be removed, as RS 22 would instead remain as a value of service based rate.
- The revenue shift to RS 1 from RS 22 shown in Table 12-2 would be removed, as the required revenues would now be absorbed by the existing RS 22 customers, who would see a rate increase of greater than 35 percent. Please refer to FEI's response to BCUC-FEI IR 3.94.3 for further consequences of this rate change.
- There would no longer be a need to rebalance RS 5/RS 25, as the R:C ratio of RS 5/RS 25 would be within the range of reasonableness after rate design proposals. Table 12-3 below is thus revised to remove the rebalancing amount from RS 5/RS 25 to RS 1.
- The above changes are reflected in a lower Delivery Charge for RS 1 and a higher Basic Charge for RS 5/RS 25 in Table 12-4.

Table 12-2 Revised: COSA R:C and M:C Results after Rate Design Proposals

Rate Schedule	Initial COSA		Revenue Shift ($000)	Approximate Annual Bill Change	COSA after Rate Design Proposals	
	R:C	M:C			R:C	M:C
Rate Schedule 1 *Residential Service*	95.6%	93.1%	32.2	0.0%	95.6%	93.1%
Rate Schedule 2 *Small Commercial Service*	101.3%	102.5%	(1,174.1)	-0.5%	100.9%	101.6%
Rate Schedule 3/23 *Large Commercial Sales and Transportation Service*	101.6%	103.3%	1,174.1	0.6%	102.2%	104.6%
Rate Schedule 5/25 *General Firm Sales and Transportation Service*	104.9%	112.2%	45.2	0.0%	105.0%	112.4%
Rate Schedule 6/6P *Natural Gas Vehicle Service*	131.2%	159.1%			131.2%	159.1%
Rate Schedule 22A *Transportation Service (Closed) Inland Service Area*	109.5%	109.8%			109.5%	109.8%
Rate Schedule 22B *Transportation Service (Closed) Columbia Service Area*	99.7%	99.7%			99.7%	99.7%

Rate Schedule *(rates not set using allocated costs)*	Initial COSA		Revenue Shift ($000)	Approximate Annual Bill Change	COSA after Rate Design Proposals	
	R:C	M:C			R:C	M:C
Rate Schedule 4 *Seasonal Firm Gas Service*	147.4%	550.9%	13.3	1.9%	150.2%	577.1%
Rate Schedule 7/27 *General Interruptible Sales and Transportation Service*	139.6%	712.3%	(90.7)	-0.3%	139.2%	706.4%
Rate Schedule 22 *Large Volume Transportation Service*	1425.5%	1864.4%			1425.5%	1864.4%

1 **Table 12-3 Revised: COSA R:C and M:C Results after Rate Design Proposals and Rebalancing**

Rate Schedule	COSA after Rate Design Proposals		Rebalance Amount ($000)	Approximate Annual Bill Change	COSA after Rate Design Proposals and Rebalancing	
	R:C	M:C			R:C	M:C
Rate Schedule 1 *Residential Service*	95.6%	93.1%	74.7	0.0%	95.6%	93.1%
Rate Schedule 2 *Small Commercial Service*	100.9%	101.6%			100.9%	101.6%
Rate Schedule 3/23 *Large Commercial Sales and Transportation Service*	102.2%	104.6%			102.2%	104.6%
Rate Schedule 5/25 *General Firm Sales and Transportation Service*	105.0%	112.4%			105.0%	112.4%
Rate Schedule 6/6P *Natural Gas Vehicle Service*	131.2%	159.1%	(74.7)	-19.9%	105.0%	109.5%
Rate Schedule 22A *Transportation Service (Closed) Inland Service Area*	109.5%	109.8%			109.5%	109.8%
Rate Schedule 22B *Transportation Service (Closed) Columbia Service Area*	99.7%	99.7%			99.7%	99.7%

Rate Schedule *(rates not set using allocated costs)*	COSA after Rate Design Proposals		Rebalance Amount ($000)	Approximate Annual Bill Change	COSA after Rate Design Proposals and Rebalancing	
	R:C	M:C			R:C	M:C
Rate Schedule 4 *Seasonal Firm Gas Service*	150.2%	577.1%			150.2%	577.1%
Rate Schedule 7/27 *General Interruptible Sales and Transportation Service*	139.2%	706.4%			139.2%	706.4%
Rate Schedule 22 *Large Volume Transportation Service*	1425.5%	1864.4%			1425.5%	1864.4%

2

Table 12-4 Revised: FEI Rate Proposal Summary

Rate Schedule	Estimated COSA-Based 2018 Rates[1]	Proposed Rate Changes	Estimated 2018 Rates After Proposed Changes
RS 1 – Residential			
Basic Charge (daily)	$0.3890	$0.0195	$0.4085
Delivery Charge ($/GJ)	$4.821	($0.085)	$4.736
RS 2 – Small Commercial			
Basic Charge (daily)	$0.8161	$0.1324	$0.9485
Delivery Charge ($/GJ)	3.850	($0.186)	3.664
RS 3/RS 23 – Large Commercial			
Basic Charge (daily)	$4.3538	$0.4357	$4.7895
Delivery Charge ($/GJ)	$3.189	$0.001	$3.190
RS 4			
Basic Charge (Monthly)	$439	Nil	$439
Delivery Charge ($/GJ) Off Peak	$1.278	$0.114	$1.392
Delivery Charge ($/GJ) Extended Period	$2.183	($0.018)	$2.165
RS 5/RS 25			
Basic Charge (Monthly)	$587.00	Nil	$587.00
Delivery Charge ($/GJ)	$0.887	Nil	$0.887
Demand Charge ($/Month/GJ)	$21.596	$3.00	$24.596
RS 6/RS 26			
Basic Charge (Monthly)	$61	Nil	$61
Delivery Charge ($/GJ)	$4.873	($1.596)	$3.277
RS 7/RS 27			
Basic Charge (Monthly)	$880.00	Nil	$880.00
Delivery Charge ($/GJ)	$1.455	($0.012)	$1.443

94.5 If the Commission approves FEI's RS 22 firm rate proposal, please explain if and how FEI would address its rate design and rebalancing if BC Hydro IG chooses, by 2022, not to become a RS 22 firm customer.

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1 The COSA rates shown are 2016 approved rates plus known and measureable changes discussed above in Section 6.

Response:

FEI has been directed to file a COSA Study for review by the Commission five years after the release of the final decision on this Application.[2] Assuming a decision is received by the third quarter of 2018, the next COSA Study will be filed in late 2023. At this time, FEI has not been directed to file a Rate Design application at the same time as the COSA Study but may choose to do so if customer characteristics or other as yet unidentified changes warrant a revision to the design of rates.

At this time, it is not possible to determine the treatment of BC Hydro IG for the 2023 COSA Study because BC Hydro IG may choose to extend its contract (as allowed by the existing contract), become an RS 50 customer, or some other alternative based on its business needs. FEI does not know which alternative BC Hydro IG will choose, or what the impacts of the alternatives may be, and therefore cannot determine how it would address rate design or rebalancing.

[2] Order G-4-18.

95.0 Reference: RATE DESIGN FOR INDUSTRIAL CUSTOMERS

Exhibit B-21, BCUC IR 71.4, Attachment 71.4

Treatment of interruptible volumes

In response to BCUC IR 71.4, FEI provided a Microsoft Excel spreadsheet that showed the 2016 actual annual throughput for each rate schedule and contract customer. The spreadsheet shows that in 2016:

- RS 22 customers, excluding Creative Energy, had no firm volume and 12,761 TJ of interruptible volume for its total annual throughput;
- Creative Energy had 730 TJ of firm volume and 1,022 TJ of interruptible volume for a total annual throughput of 1,752 TJ;
- VIGJV had 4,745 TJ of firm volume and 2,743 TJ of interruptible volume for a total annual throughput of 7,488 TJ; and
- BC Hydro IG VIGJV had 4,745 TJ of firm volume and 2,743 TJ of interruptible volume for a total annual throughput of 7,488 TJ.

95.1 Please confirm, or otherwise explain, that FEI proposes that VIGJV and Creative Energy take their interruptible volumes under RS 22.

Response:

Confirmed. As described on page 9-46 of the Application, FEI is proposing a new firm rate and a revised interruptible rate for RS 22, under which all large (non-grandfathered) industrial customers, which includes existing RS 22 customers, BC Hydro IG and VIGJV, would take firm and interruptible service.

Creative Energy was shown separately in the response to BCUC-FEI IR 2.71.4 referenced in the preamble; however, it is already an RS 22 customer that has a tariff supplement for the portion of firm capacity that it has requested. FEI's proposal is for Creative Energy to continue being a RS 22 customer for its firm and interruptible volumes. FEI has proposed that the individual members of the VIGJV could become RS 22 customers for both their firm and interruptible volumes; however, they have a choice whether they remain a contract customer until the end of their contract term or elect service under RS 22.

95.2 Based on FEI's proposed RS 22 firm and interruptible rates, please explain if there exists a mix of firm and interruptible volume that results in an effective firm rate in $/GJ that is equal to an effective interruptible rate in $/GJ.

Response:

FEI is providing its response to BCUC-FEI IRs 3.95.2 and 3.95.2.1 here.

Based on FEI's proposed RS 22 firm and interruptible rates, there are many possible combinations of firm and interruptible volumes that would yield an effective rate per GJ of $0.972. FEI has provided three examples as proofs in Attachment 95.2. As can be seen on rows 23, 24, 25, 42, 43, 44, 61, 62 and 63 in Attachment 95.2, the effective rate per GJ is $0.972 in the various mixes of firm and interruptible volumes. Other combinations could be developed to give the same result.

Under FEI's RS 22 proposal, all interruptible service is set at $0.972 per GJ. All firm service will also be at $0.972 per GJ, given the following conditions.

1. The customer's firm load factor for firm volume is 100 percent, meaning that the total monthly volume delivered exceeds the monthly firm demand (monthly firm demand equals daily firm demand per day multiplied by number of days in the month),
2. The customer's volume meets or exceeds the minimum take or pay volume of 12,000 GJ per month, and
3. The basic charge is ignored in the calculation of the effective rate.

The proposed firm pricing is appropriate as the firm service rate is a charge for the amount of reserved capacity, rather than a volumetric charge. The demand charge for firm service provides price signals to encourage efficient use, such that the customer is charged more on a per GJ basis for firm service to the extent the customer is not fully utilizing the capacity which it has reserved.

95.2.1 Using FEI's proposed rates, please calculate this mix of firm and interruptible volume that results in an effective firm rate in $/GJ that is equal to an effective interruptible rate in $/GJ.

Response:

Please refer to the response to BCUC-FEI IR 3.95.2.

95.2.2 Based on historical total throughput of the RS 22 customers, Creative Energy, VIGJV and BC Hydro IG, please discuss the possibility of any of these customers achieving this mix of firm and interruptible calculated in the previous question.

Response:

FEI believes that the question is being asked to ensure that RS 22 customers will be able to achieve the effective rate of $0.972 per GJ at various mixes of firm and interruptible volume. Based on the historical annual throughput for RS 22 customers (including Creative Energy), VIGJV and BC Hydro IG, all RS 22 customers (including Creative Energy, VIGJV and BC Hydro IG) will be able to select a throughput mix of firm and interruptible that will yield an effective rate of $0.972 per GJ[3].

Under FEI's RS 22 proposal, the existing RS 22 customers (other than Creative Energy) will automatically have an effective rate of $0.972 per GJ since all of their volume is interruptible and FEI has proposed to set the interruptible rate at $0.972 per GJ. If FEI's proposal is accepted and an RS 22 customer decides to contract for firm volume, FEI will ensure that the customer understands how the RS 22 firm mechanism works, so that they can make an informed decision on how much firm volume to take. If they take an amount that yields a 100 percent load factor[4], then their effective rate will continue to be $0.972 per GJ. Another factor that will affect the customer's ability to achieve the effective rate is the monthly minimum take or pay volume of 12,000 GJ, which will increase the effective rate for customers whose volume in any month is less than 12,000 GJ.

Creative Energy, VIGJV and BC Hydro IG can also achieve a mix of firm and interruptible that would yield an effective rate of $0.972 per GJ. Based on Creative Energy and VIGJV's current throughput of firm and interruptible load, they in fact would achieve an effective rate of $0.972 per GJ under FEI's proposal. For BC Hydro IG, in the past when they have run the generation plant at base load, they would have achieved an effective rate of $0.972 per GJ since their load factor at that time was 100 percent. Today, BC Hydro IG does not have a 100 percent load factor (their actual throughput is less on average than their firm load) so they will not be able to achieve an effective rate of $0.972 per GJ. However, it should be noted that under both their existing

[3] Ignoring basic charges as described in the response to BCUC IR 3.95.2.

[4] 100 percent load factor means that a customer will always consume at least their firm load in each month. If a customer has a firm load of 100 GJ per day and **in all months** they consume 100 GJ multiplied by the number of days in the month, they will have a 100 percent load factor (for January, this will be 3,100 GJ). If the same customer consumes less than their firm load **in any given month**, they will have less than a 100 percent load factor.

contract and the RS 22 proposal BC Hydro IG has a higher effective rate because they contract for a large volume of firm capacity and consume a relatively small amount of gas.

95.2.3 Please discuss the benefits and risks to FEI of the large industrial customers discussed in the preamble switching from interruptible to firm demand. Please include the topics of system capacity planning, peak demand and impact to FEI's other customers in your response.

Response:

Similar to any of FEI's firm offerings, there is little risk to FEI's other customers as a result of a portion of the RS 22 load switching from interruptible to firm as the granting of any firm service would be subject to the availability of firm capacity and the associated agreements.

Both non-RS 22 customers and RS 22 customers benefit from the ability of RS 22 customers to select firm service.

Non-RS 22 customers would benefit from the additional revenues associated with firm service. If an RS 22 customer wished to secure a portion of their capacity on a firm basis, then FEI's system capacity planning would assess if firm capacity is available to the customer's site under peak demand conditions. If FEI's system capacity planning determines that capacity is available at the customer's site under peak conditions, and the customer signs up for firm capacity, the incremental RS 22 firm revenue would be a benefit to FEI's other customers. If that customer was not taking firm service during peak conditions, the capacity would otherwise go unutilized, and FEI would not have received revenues, as the customer would have been curtailed during that period.

RS 22 customers also benefit from the availability of firm service as it provides another option for service for this type of customer, thereby meeting the customer's needs and increasing the likelihood that the customer will continue to take service from FEI.

95.2.3.1 Please describe how FEI could address any risks identified above associated with RS 22 customers, VIGJV, Creative Energy or BC Hydro IG switching from interruptible to firm demand.

Response:

Please refer to the response to BCUC-FEI IR 3.95.2.3.

96.0 Reference: RATE DESIGN FOR INDUSTRIAL CUSTOMERS

Exhibit B-21, BCUC IR 71.3, p. 43; Attachment 71.3

VIGJV and BC Hydro IG costs and revenue

In response to BCUC IR 71.3, FEI provided Excel spreadsheets to show the breakdown by rate schedule and contract customer of (i) annual volumes, (ii) the allocations for the delivery cost of service based on existing and proposed rates and (iii) the total revenue. The spreadsheet titled “2) Approved 2016 Test Yr” for Existing Rates contained column 11 that presented the total existing delivery revenue based on the approved 2016 test year. The revenue for Creative Energy is presented as $1,156 and “N/A” is presented for BC Hydro and VIGJV.

96.1 Please update the spreadsheet titled “1) Approved 2016 Test Yr” based on FEI’s Proposed Rates in a fully functional Excel spreadsheet.

Response:

The allocated costs in the spreadsheet do not change; however, the Commission Decision regarding the range of reasonableness of the R:C ratio from 95 percent to 105 percent does change some of the values in Total Proposed Delivery Revenue ($) (column 11). Please refer to Attachment 96.1 for the requested live excel spreadsheet.

While providing a response to this IR, FEI noted an error in BC Hydro annual volume provided in response to BCUC-FEI IR 2.71.3 and row 11 of the Attachment 71.3. The annual volume for BC Hydro should have been based on 45 TJ/d for 366 days (not 365 days) for a total of 16,470 TJ. FEI has included a revised Attachment 71.3 with this response.

96.2 For each of firm and interruptible demand, please state the total actual revenue from (i) BC Hydro; and (ii) VIGJV based on the approved rates for 2016.

Response:

The table below shows BC Hydro IG and VIGJV actual 2016 firm and interruptible revenues, as well as what the BC Hydro IG and VIGJV revenues would be using 2016 actual volumes and FEI’s proposed RS 22 firm and interruptible charges.

Line No.	Particulars	2016 Actual Volumes at 2016 Rates ($000)	2016 Actual Volumes at RS 22 Proposed Rates ($000)
		Column 1	**Column 2**
1	***BC Hydro IG***		
2	Firm Revenue[1]	$15,778	$13,545 - $16,016
3	Interruptible Revenue	$0	$0
4	***VIGJV***		
5	Firm Revenue[2]	$4,599	$4,659
6	Interruptible Revenue[3]	$2,570	$2,653
7	Total Revenue	$7,169	$7,312
8	Estimated Customer's System Gas	$972	N/A
9	Total Estimated Revenue	$8,141	$7,312

Notes:

[1] For Column 1: Based on 2016 contract demand of 40,000 GJ/day (Jan-Oct) at $0.858 per GJ and 45,000 GJ/day (Nov-Dec) at $0.958 per GJ the Actual Firm Revenue in 2016 was $13,097,310 on Firm volume of 14,945 TJs. As explained in Section 6 for Known and Measureable Changes related to the cancellation of the BC Hydro Burrard Thermal Agreement, the firm contract demand from BC Hydro is now 45 TJs per day. For the purposes of this table, FEI has assumed 45 TJs per day of firm contract demand and an annual demand of 16,470 TJ (45 TJ x 366 days) and firm revenue of $0.958 per GJ is $15,778,260 as shown in table above.

For Column 2: Based on firm volume of 16,470 TJ and proposed Demand Charge of $25.000/GJ/Month and MTQ charge of $0.150/GJ.

[2] Based on firm volume of 4,758,000 GJ and current approved Demand Charge of $0.9665/GJ/day for Column 1 and proposed Demand Charge of $25.000/GJ/Month and MTQ charge of $0.150/GJ and assuming one basic charge for Column 2.

3 Based on interruptible volume of 1,700,187 GJ (Level 1), 1,039,813 GJ (Level 2), 127,622 GJ (Level 3) and using interruptible charges of $0.9665/GJ (Level 1), $0.7608/GJ (Level 2) and $1.0632/GJ (Level 3) respectively for Column 1. Interruptible revenues for VIGJV shown in Column 2 are based on proposed Interruptible Charge of $0.972/GJ.

FEI summarizes the results for BC Hydro IG below:

BC Hydro is on a special contract which cannot be terminated until 2022. The revenues that FEI expects to collect from BC Hydro will remain at the approved 2016 rates of $0.958 per GJ until 2022, and will not be based on the proposed RS 22 rates as shown in Column 2 above and in Attachment 96.1. Depending on actual consumption, FEI expects the revenue from BC Hydro IG will be based upon 45 TJ per day of firm contract demand and a firm toll of $0.958 per GJ per day.

If BC Hydro IG were taking service under FEI's proposed RS 22 rates, FEI would expect to receive a possible range in firm revenue from $13.545 million (assuming 45 TJ per day of firm demand charges with zero annual consumption) to $16.016 million (assuming 45 TJ per day of firm demand charges and an annual consumption of 16,470 TJ of firm load). FEI expects this range as the firm charges under proposed RS 22 are made up of a combination of a demand charge and a firm delivery (MTQ) charge. In addition to the firm and interrutible revenues described above, BC Hydro is also currently responsible to provide their allocated portion of system gas to FEI on days during which they operate the facility. As shown in response to Catalyst IR 3.7, BC Hydro's estimated cost of system gas in 2016 was approximately $58 thousand. After 2022, if BC Hydro elects to receive service under the proposed RS 22, then BC Hydro would no longer be responsible for system gas, consistent with the terms and conditions of other RS 22 customers on FEI's system.

FEI summarizes the results for the VIGJV below.

VIGJV's contract expires on November 1, 2022, but the VIGJV can provide written notice terminating the TSA no more than 15 days from the issuance of a decision by the Commission on the Application. If they exercise this option, they may become an RS 22 customer at that time.

Based on 2016 actual volumes, the impact of FEI's RS 22 proposal on the VIGJV would be an increase in firm revenues from $4.599 million to $4.659 million and an increase in interruptible revenue from $2.570 million to $2.653 million. Total revenues from the VIGJV would be $7.169 million based upon 2016 rates and volumes and $7.312 million under FEI's RS 22 proposed rates and 2016 volumes. It should be noted that the VIGJV's firm and interruptible rates within their contract are adjusted annually by half of the Consumer Price Index. For example, the 2016 firm rate of $0.9665 has since increased to $0.9883 in 2018, which moves total revenues in 2018 to $7.330 million (Firm $4.702 million + Interruptible $2.628 million), which is above FEI's proposed revenues $7.312 (before consideration of any system gas).

In addition to their firm and interruptible rates described above, the VIGJV is also currently responsible to provide system gas to FEI as fuel in kind to cover their allocated portion of compressor fuel and unaccounted for gas on the Vancouver Island system, plus any meter station line heater fuel. In 2016, the VIGJV was required to provide 2.65 percent of fuel on top of their VIGJV consumption or roughly 198,000 GJ of system gas as fuel in kind to FEI.

If the VIGJV elects to receive service under the proposed RS 22, then the VIGJV would no longer be responsible for system gas, consistent with the terms and conditions of other RS 22 customers on FEI's system. FEI estimates $972 thousand in cost savings to the VIGJV based on the assumption of 2016 Sumas Daily Index pricing plus carbon tax and motor fuel tax on compressor fuel allocated to the VIGJV. These savings should be factored in when comparing the true change in revenues from 2016 or current to the RDA proposals.

Overall, FEI estimates that the net savings to VIGJV from Line 9 in the table above would be approximately $829 thousand ($8,140,615 - $7,312,097) using 2016 volumes and 2016 rates. If adjusted to 2018 rates and using 2016 volumes, the estimated net savings would be $990 thousand ($8,302,343 - $7,312,097).

96.2.1 Please compare and discuss any significant differences between the revenues provided in response to the question (8.1) above, with the revenues for BC Hydro IG and VIGJV based on the updated rates proposed in the FEI 2016 RDA.

Response:

Please refer to the response to BCUC-FEI IR 3.96.2.

D. CHAPTER 12 – FEI FINAL COST OF SERVICE RESULTS AND REBALANCING

97.0 Reference: FEI FINAL COST OF SERVICE RESULTS AND REBALANCING

Exhibit B-1-5, Section 12.2.2, p. 12-6; Section 12.3, p. 12-8; Section 7.8.1, p. 7-22; Exhibit B-21, BCUC IR 67.3, pp. 26-29

Rate design and rebalancing

On page 12-6 of Exhibit B-1-5, FEI states:

> FEI is therefore proposing to decrease the RS 5/25 Basic Charge by $118 per month to $469 per month.
>
> Decreasing the basic charge by $118 per month creates a revenue responsibility decrease of $1.093 million for RS 5/25. Recognizing that RS 1 is within the approved range of reasonableness, but at the lower bound, FEI proposes to shift this revenue responsibility to RS 1, which results in an annual average bill impact for all RS 1 of approximately 0.15%.

Table 12-3 on page 12-8 of Exhibit B-1-5 shows a rebalance amount of $1,138.5 thousand for RS 5/25.

97.1 Please explain and reconcile the difference between the $1.093 million stated on page 12-6 and the $1,138.5 thousand on page 12-8 for RS 5/25 rebalancing amount.

Response:

The following table reconciles the difference on Page 12-6 showing $1.093 million and Page 12-8 showing $1.138.5 million. The difference is the revenue shift of $45.2 thousand related to the Rate Design proposals of increasing the Demand Charge by $3.000 per GJ per Month and changing the method by which Peak Day Demand is estimated for setting Contract Demand as described in Section 9.5.5.1 and 9.5.8 of the Application.

Particulars	Amount ($000's)	Reference
Rate Design Proposal Revenue Shift from Increase in Demand Charge by $3 / GJ / Month of Daily Demand and change in Peak Day Demand estimation method of Daily Demand	$ 45.2	Exhibit B-1-5, Table 12-2, Page 12-5
Rebalancing Revenue Shift from Decrease in Basic Charge by $118 / Month	(1,138.5)	Exhibit B-1-5, Table 12-3, Page 12-8
Total Revenue Shift	$ (1,093.3)	Exhibit B-1-5, Page 12-6, Line 29

97.1.1 If the $1,138.5 thousand figure used in Table 12-3 is incorrect, please provide updated versions of Table 12-3, Table 12-4 and Table 7-7 using the correct figure.

Response:

The figure of $1,138.5 thousand used in Table 12-3 is correct.

97.2 Using a 95 percent to 105 percent range of reasonableness, please revise the adjusted Tables 12-2, 12-3 and 12-4 provided in response to BCUC IR 67.3 to show the impact of sharing the additional revenue reduction of $1.093 million among all rate classes that had an R:C ratio within the range of reasonableness.

Response:

FEI provides updated tables below. For rate schedules with R:C ratios between the 95 percent to 105 percent range of reasonableness, FEI has used that rate schedule's delivery margin to allocate the revenue reduction of $786.4 thousand from rate design proposals and the rebalancing amount of $1,214.4[5] thousand. FEI has not used this approach in its previous Rate Designs in 1993, 1996, and 2001; in these rate designs the revenue shift was to the residential class whose R:C ratio was the lowest at approximately 90 percent.

Table 12-2 Revised: COSA R:C and M:C Results after Rate Design Proposals

Rate Schedule	Initial COSA		Revenue Shift ($000)	Approximate Annual Bill Change	COSA after Rate Design Proposals	
	R:C	M:C			R:C	M:C
Rate Schedule 1 *Residential Service*	95.6%	93.1%	526.9	0.1%	96.4%	94.3%
Rate Schedule 2 *Small Commercial Service*	101.3%	102.5%	(1,026.6)	-0.4%	102.3%	104.3%
Rate Schedule 3/23 *Large Commercial Sales and Transportation Service*	101.6%	103.3%	1,283.2	0.6%	103.7%	107.7%
Rate Schedule 5/25 *General Firm Sales and Transportation Service*	104.9%	112.2%	45.2	0.0%	106.3%	116.0%
Rate Schedule 6/6P *Natural Gas Vehicle Service*	131.2%	159.1%			131.7%	160.4%
Rate Schedule 22A *Transportation Service (Closed) Inland Service Area*	109.5%	109.8%			113.0%	113.4%
Rate Schedule 22B *Transportation Service (Closed) Columbia Service Area*	99.7%	99.7%	2.9	0.1%	103.2%	103.2%
Rate Schedule 22 *Large Volume Transportation Service*	1425.5%	1864.4%	(754.2)	-3.4%	100.0%	100.0%

Rate Schedule *(rates not set using allocated costs)*	Initial COSA		Revenue Shift ($000)	Approximate Annual Bill Change	COSA after Rate Design Proposals	
	R:C	M:C			R:C	M:C
Rate Schedule 4 *Seasonal Firm Gas Service*	147.4%	550.9%	13.3	1.9%	150.2%	578.3%
Rate Schedule 7/27 *General Interruptible Sales and Transportation Service*	139.6%	712.3%	(90.7)	-0.3%	139.3%	713.6%

5 $1.093 million is not the correct rebalancing amount as described in IR 3.97.1. $1,214.4 is the total rebalancing required and is the sum of RS 5/25 rebalancing amount of $1,138.5 thousand as shown in response to IR 3.97.1 plus RS 6/6P rebalancing amount of $75.9 thousand.

Table 12-3 Revised: COSA R:C and M:C Results after Rate Design Proposals and Rebalancing

Rate Schedule	COSA after Rate Design Proposals		Rebalance Amount ($000)	Approximate Annual Bill Change	COSA after Rate Design Proposals and Rebalancing	
	R:C	M:C			R:C	M:C
Rate Schedule 1 *Residential Service*	96.4%	94.3%	813.7	0.1%	96.5%	94.5%
Rate Schedule 2 *Small Commercial Service*	102.3%	104.3%	227.8	0.1%	102.4%	104.4%
Rate Schedule 3/23 *Large Commercial Sales and Transportation Service*	103.7%	107.7%	168.5	0.1%	103.8%	107.9%
Rate Schedule 5/25 *General Firm Sales and Transportation Service*	106.3%	116.0%	(1,138.5)	-1.2%	105.0%	112.6%
Rate Schedule 6/6P *Natural Gas Vehicle Service*	131.7%	160.4%	(75.9)	-20.3%	105.0%	109.5%
Rate Schedule 22A *Transportation Service (Closed) Inland Service Area*	113.0%	113.4%			113.0%	113.4%
Rate Schedule 22B *Transportation Service (Closed) Columbia Service Area*	103.2%	103.2%	4.4	0.2%	103.3%	103.4%
Rate Schedule 22 *Large Volume Transportation Service*	100.0%	100.0%			100.0%	100.0%

Rate Schedule *(rates not set using allocated costs)*	COSA after Rate Design Proposals		Rebalance Amount ($000)	Approximate Annual Bill Change	COSA after Rate Design Proposals and Rebalancing	
	R:C	M:C			R:C	M:C
Rate Schedule 4 *Seasonal Firm Gas Service*	150.2%	578.3%			150.2%	578.3%
Rate Schedule 7/27 *General Interruptible Sales and Transportation Service*	139.3%	713.6%			139.3%	713.6%

1 **Table 12-4 Revised: FEI Rate Proposal Summary**

Rate Schedule	Estimated COSA-Based 2018 Rates[6]	Proposed Rate Changes	Estimated 2018 Rates After Proposed Changes
RS 1 – Residential			
Basic Charge (daily)	$0.3890	$0.0195	$0.4085
Delivery Charge ($/GJ)	$4.821	($0.068)	$4.753
RS 2 – Small Commercial			
Basic Charge (daily)	$0.8161	$0.1360	$0.9521
Delivery Charge ($/GJ)	3.850	($0.176)	3.674
RS 3/RS 23 – Large Commercial			
Basic Charge (daily)	$4.3538	$0.4468	$4.8006
Delivery Charge ($/GJ)	$3.189	$0.009	$3.198
RS 4			
Basic Charge (Monthly)	$439	Nil	$439
Delivery Charge ($/GJ) Off Peak	$1.278	$0.114	$1.392
Delivery Charge ($/GJ) Extended Period	$2.183	($0.018)	$2.165
RS 5/RS 25			
Basic Charge (Monthly)	$587.00	($118.00)	$469.00
Delivery Charge ($/GJ)	$0.887	Nil	$0.887
Demand Charge ($/Month/GJ)	$21.596	$3.00	$24.596
RS 6/RS 26			
Basic Charge (Monthly)	$61	Nil	$61
Delivery Charge ($/GJ)	$4.873	($1.622)	$3.251
RS 7/RS 27			
Basic Charge (Monthly)	$880.00	Nil	$880.00
Delivery Charge ($/GJ)	$1.455	($0.012)	$1.443
RS 22			
Basic Charge (Monthly)	$3,664.00	Nil	$3,664.00
Firm Demand Charge ($/Month/GJ)	n/a		$25.000
Firm MTQ ($/GJ)	n/a		$0.150
Interruptible MTQ ($/GJ)	$1.060	($0.088)	$0.972

2
3

[6] The COSA rates shown are 2016 approved rates plus known and measureable changes discussed above in Section 6.

97.2.1 In a similar manner to FEI's response to BCUC 67.3, please explain how FEI determines the sharing amount or allocation for each rate class.

Response:

Please refer to the response to BCUC-FEI IR 3.97.2.

FORT NELSON SERVICE AREA

E. CHAPTER 13 – RESIDENTIAL RATE DESIGN FOR FORT NELSON

98.0 Reference: RESIDENTIAL RATE DESIGN FOR FORT NELSON

Exhibit B-1-5, p. 13-57; Commission Order G-175-17, dated November 30, 2017

Residential Bill Impacts

On page 13-57 of Exhibit B-1-5, FEI states:

> FEI has re-examined the two year phase-in period option, and does not recommend a phase-in for the following reasons:
>
> - The timing and overall bill impact of 2018 revenue requirement increases: The 2018 delivery margin increases were applied to the rates effective January 1, 2018. The delivery margin increases were more than offset by commodity cost decreases, mitigating the overall bill impact on Rate 1 customers.
> - The timing of rate design and rebalancing implementation: FEI believes that the initial target date of June 1, 2018 to implement rate design changes is no longer achievable. The rate design implementation target date is now in the fourth quarter of 2018 (the actual implementation date depends on the timing of the Commission's rate design decision for entire Application). As such, the rate design and rebalancing related revenue responsibility changes will only apply to the last months of 2018 and their overall impact on customers' 2018 annual bills would be minimal.(Underline emphasis added)

Commission Order G-175-17 approved the following rates effective January 1, 2018 for the Fort Nelson Service Area:

- A decrease in the Gas Cost Recovery Charge from $2.086/GJ to $1.571/GJ
- An increase in RSAM Rate Rider 5 from $0.268/GJ to $0.391/GJ

98.1 Please confirm, or otherwise explain, that the combined effects of the approved January 1, 2018 delivery rates, the approved Gas Cost Recovery Charge and the approved RSAM Rate Rider 5 as shown in the preamble above would decrease the total annual bill for a typical Fort Nelson residential customer with an average annual consumption of 135 gigajoules by approximately $20 or 2.4 percent.

Response:

Confirmed.

FEI presented bill impact items for Fort Nelson Rate 1 customers in Table 13-30 on page 13-57 of Exhibit B-1-5 (reproduced below).

Table 13-30: Percentage Annual Bill Increase for Residential Customers

Bill Impact Items	Percentage annual bill impact for Rate 1
2018 Revenue requirement increases	5.10 %
2018 Rate design proposal	0.10 %
2018 Rate design rebalancing to 95% to 105% range of reasonableness (based on Order G-4-18)	5.40 %
Total year 2018 percentage increase	10.60%

98.2 Please provide bill impact information for a typical Fort Nelson residential customer with an average annual consumption by completing the highlighted cells in the table below. When completing the table, please include the impact of changes to the associated rate riders in the tariff.

Fort Nelson - Rate 1 (Residential)			
Average Annual Consumption[1] (GJ):			
Bill Impact Items	**Impact on total annual bill[1]**		**Effective Date[2]**
	%	**$**	
2018 Revenue Requirement increase/(decrease) *[A]*			January 1, 2018
Gas Cost Recovery increase/(decrease) *[B]*			January 1, 2018
Combined increase/(decrease) *[C = A combined with B]*			January 1, 2018
2018 rate design proposal increase[3]/(decrease) *[D]*			
2018 rate rebalancing increase[3,4]/(decrease) *[E]*			
Combined increase/(decrease) *[F = D combined with E]*			
Total 2018 Combined increase/(decrease) *[C combined with F]*			
Total 2018 Combined increase/(decrease) *[C combined with F]* [5]			

Notes

1. Based on average annual consumption of a typical Fort Nelson residential customer.
2. Please use the actual approved effective date or FEI's target effective date assuming a decision on the FEI 2016 RDA is issued by August 2018.
3. As proposed in Exhibit B-1-5.
4. Rate rebalancing to 95% to 105% range of reasonableness.
5. Please calculate based on FEI's target effective date for item F.

Response:

FEI has completed the table as requested using the following assumptions.

- The starting annual bill uses 2017 delivery rates (exclusive of the RSAM Rate Rider 5), and Fort Nelson's Q4-2017 Gas Costs.
- Except for in the last row, all the rate impacts assume that they were implemented on January 1, 2018. The net increase of 1% for 2018 or $10 per year in the second last line of the table is reflective of the combined annualized effects of the known 2018 rate changes and the proposed rate design and rebalancing amounts.
- The last row assumes that the proposals and rebalancing are implemented on November 1, 2018. Due to the Q1-2018 Gas Cost reduction, a Fort Nelson residential customer consuming 135 GJ per year in 2018 will experience a small annual bill decrease of $13[7] (assuming gas costs do not change from Q1-2018 levels).

Fort Nelson - Rate 1 (Residential)			
Average Annual Consumption1 (GJ)	135		
	Impact on total annual bill		
Bill Impact Items	**%**	**$**	**Effective Date**
2018 Revenue Requirement increase/(decrease) [A]	4%	33	January 1, 2018
Gas Cost Recovery increase/(decrease) [B]	-9%	(70)	January 1, 2018
Combined increase/(decrease) [C = A combined with B]	-5%	(37)	January 1, 2018
2018 rate design proposal increase/(decrease) [D]	2%	13	January 1, 2018
2018 rate rebalancing increase/(decrease) [E]	4%	34	January 1, 2018
Combined increase/(decrease) [F = D combined with E]	6%	47	January 1, 2018
Total 2018 Combined increase/(decrease) [C combined with F]	1%	10	January 1, 2018
Total 2018 Combined increase/(decrease) [C combined with F]	-2%	(13)	November 1, 2018

If implementation does not occur until January 1, 2019, then the Rate Design changes will be combined with Fort Nelson's 2019/2020 Revenue Requirement impacts. It is not known at this time what, if any, the Rate 1 bill impacts may be from the 2019 revenue requirements. Therefore, FEI will review the 2019 revenue requirement changes and may propose a phase in

7 In the annual impact calculation in this case, the rate design / rebalancing increases take account of the fact that November and December are winter months with high consumption.

of the potential rate increases for 2019 in its revenue requirement filing.

98.3 Please confirm, or otherwise explain, that the overall bill impact on customers that FEI characterizes as minimal is the 5.50 percent (0.10% + 5.40%) shown in Table 13-30 on page 13 57 of Exhibit B-1-5.

Response:

Not confirmed. FEI characterized as "minimal" the impact of rate design and rebalancing on the annual bills of customer in 2018 based on implementation in the fourth quarter. The 5.5 percent in Table 13-30 refers to the annual bill impact from rebalancing and rate design proposals based on implementation on January 1, 2018.

Table 13-30 above does not show the additional information provided on page 13-57 from Exhibit B-1-5 where FEI describes the impact of commodity cost decreases and that Fort Nelson customers will not experience both the 2018 Revenue Requirement increase and the Rate Design proposal changes at the same time. As demonstrated in FEI's response to BCUC-FEI IR 3.98.2, the overall 2018 bill impact for an average use customer is about minus two percent and includes the January 1, 2018 change in gas costs, the January 1, 2018 increase from Fort Nelson's 2018 Revenue Requirement, and the November 1, 2018 implementation of changes due to rate design proposals and impacts of rebalancing.

98.3.1 If so, please provide reasons why this overall impact can be described as minimal, taking into consideration affordability for BC residents.

Response:

Please refer to the response to BCUC-FEI IR 3.98.3.

98.4 Please provide a plan showing how the rebalance amount of $66.5 thousand for Rate 1 (Exhibit B-1-5, Table 13-27) could be phased in over a two-year period. Please include calculations and explanations where relevant.

Response:

Please refer to the response to BCUC-FEI IR 2.84.2 where FEI provided a plan for a two-year phase-in proposal based on a $66 thousand revenue shift to Rate 1. However, FEI does not recommend a phased-in approach for rate design proposals or rebalancing at this time given the low annual bill impact calculated in the response to BCUC-FEI IR 3.98.2, and the reasons explained on page 13-57 of Exhibit B-1-5.

FEI recognizes that it is possible that the rate design-related rate changes could occur at the same time as any rate changes resulting from Fort Nelson's 2019/2020 Revenue Requirements Application.[8] FEI will consider both the Rate Design and Revenue Requirement impacts together once they are known and will propose a phase-in of rate changes if warranted in Fort Nelson's 2019/2020 Revenue Requirements Application.

98.4.1 Please state and discuss the impact of the two-year phase-in plan on the average annual bill for a residential customer each of those years.

Response:

Please refer to the response to BCUC-FEI IR 3.98.4.

[8] Fort Nelson's 2019/2020 Revenue Requirement rate change will be determined sometime in August 2018,

F. CHAPTER 13 – COMMERCIAL RATE DESIGN FOR FORT NELSON

99.0 Reference: RATE DESIGN FOR COMMERCIAL CUSTOMERS

Exhibit B-5, BCUC IR 50.1, pp. 222-223; Exhibit B-1-5, p. 13-52

Economic crossover point

In response to BCUC IR 50.1, FEI provided the following table illustrating the Economic Crossover Volume using proposed rates for Rate 2.1 and Rate 2.2:

Economic Crossover Volume for Rate 2.1 and Rate 2.2

Rate Components	Rate 2.1	Rate 2.2	Difference
1. Basic Charge (per day)	$1.2008	$3.1581	
2. Times number of days	365.25	365.25	
3. = Basic Charge Revenue	$438.59	$1,153.50	$714.91
4. Delivery Charge ($/GJ)	$3.989	$3.631	
5. Plus Cost of Gas ($/GJ)[33]	$1.294	$1.294	
6. = Total Variable Cost ($/GJ)	$5.283	$4.925	$0.358
7. Economic Crossover Point (Line 3/Line 6)			**1,997 GJ**

On page 13-52 of Exhibit B-1-5, FEI presents the Rate 2.1 and 2.2 changes after all rate design proposals in Table 13-28 (replicated below).

Table 13-28: Rate 2.1 and 2.2 Charges after all Rate Design Proposals

	Rate 2.1	Rate 2.2
Daily Basic Charge ($/Day)	1.2151	3.6845
Delivery Charge ($/GJ)	3.781	3.330

99.1 Please update the table presented in response to BCUC IR 50.1 based on the rates proposed in Exhibit B-1-5. Please use the same $1.294 per GJ Cost of Gas as was used in your response to BCUC IR 50.1.

Response:

The table presented in Exhibit B-5 in response to BCUC-FEI IR 1.50.1 has been updated and is provided below. With the amended proposed rates the economic crossover is 2,000 GJ per year.

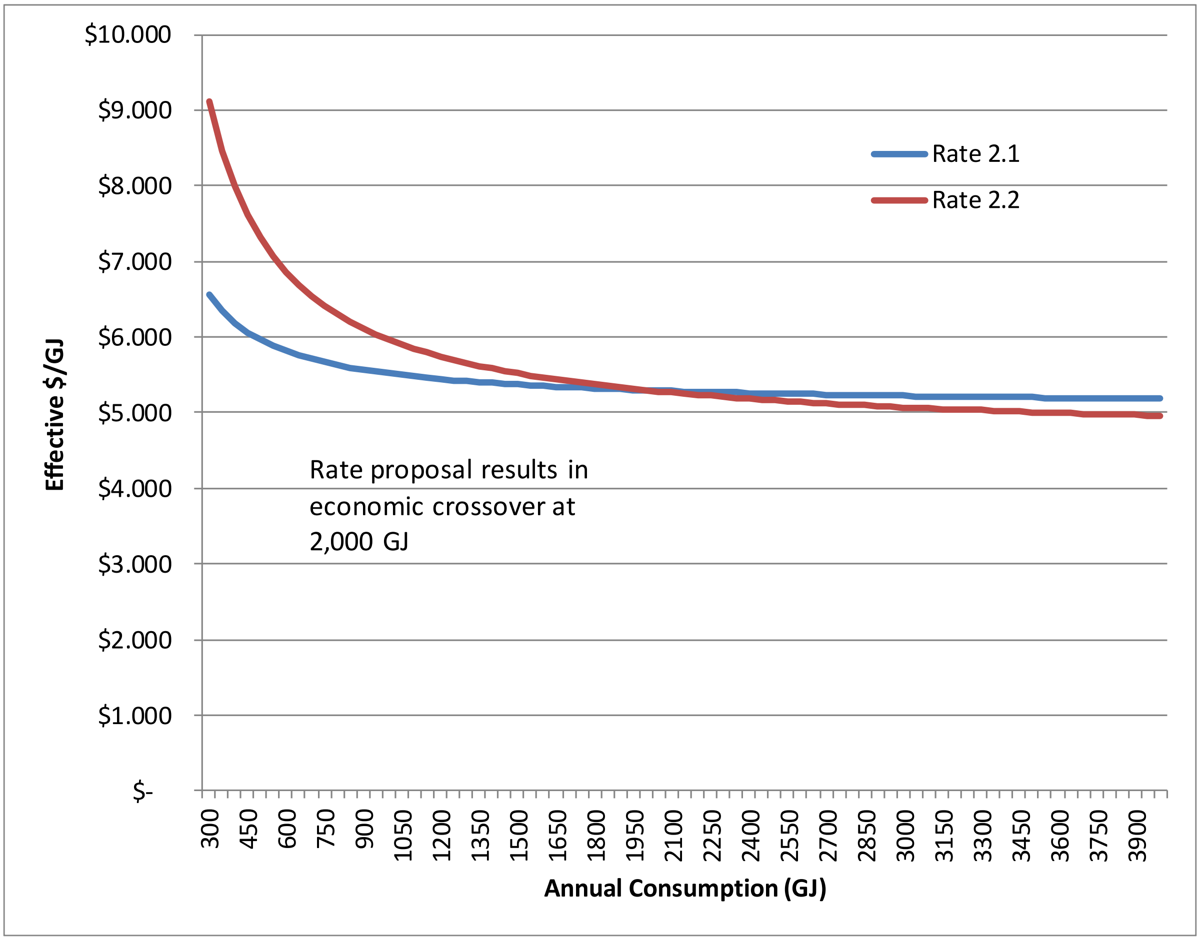
Table 1: Economic Crossover Volume for Rate 2.1 and Rate 2.2

Rate Components	Rate 2.1	Rate 2.2	Difference
1 Basic Charge (per day)	$ 1.2151	$ 3.6845	
2 Times number of days	365.25	365.25	
3 = Basic Charge Revenue	$ 443.82	$ 1,345.76	$ 901.95
4 Delivery Charge ($/GJ)	$ 3.781	$ 3.330	
5 Plus Cost of Gas ($/GJ)	$ 1.294	$ 1.294	
6 = Total Variable Cost ($/GJ)	$ 5.075	$ 4.624	$ 0.451
7 Economic Crossover Point (Line 3/Line 6)			2,000

99.1.1 Using the information from your response above, please provide an updated version of the graph included in the response to BCUC IR 50.1.

Response:

The updated graph based on the updated proposed commercial rates for RS 2.1 and RS 2.2 is shown below.



Effective $/GJ
$10.000
$9.000
$8.000
$7.000
$6.000
$5.000
$4.000
$3.000
$2.000
$1.000
$-
Rate 2.1
Rate 2.2
Rate proposal results in economic crossover at 2,000 GJ
300
450
600
750
900
1050
1200
1350
1500
1650
1800
1950
2100
2250
2400
2550
2700
2850
3000
3150
3300
3450
3600
3750
3900
Annual Consumption (GJ)

100.0 Reference: RATE DESIGN FOR COMMERCIAL CUSTOMERS

Exhibit B-1-5, p. 13-54

Bill impact

On page 13-54 of Exhibit B-1-5, FEI provides Figure 13-20 showing the bill impacts to each Rate 2.1 customer from the rate design proposals. FEI then states:

> The figure above shows Rate 2.1 customers' bill impacts after unbundling and rebalancing, setting the breakeven threshold between Rate 2.1 and Rate 2.2 to 2,000 GJ/year and limiting any one customer's bill impact. … Rate 2.1 customers experience between a 5% increase and 15% decrease in their annual bills.

100.1 Based on an annual consumption of 200 GJ, please calculate the quantity in dollars that is represented by a 5% increase in the annual bill.

Response:

For a customer consuming 200 GJ per year, and assuming the customer consumes more than 2 GJ in any month, the proposed rates would result in a 0.3 percent or $4 decrease in the customer's annual bill (shown in Table 1 below). It is not possible that a customer consuming 200 GJ per year would experience an annual bill increase of 5 percent from FEI's proposed changes in this Application. This can be seen from Figure 13-20 noted in the preamble, where customers consuming 200 GJ per year have rate impacts between 0 percent and minus 5 percent. However, FEI has calculated the amount that represents a 5 percent increase in an annual bill for a customer with 200 GJ per year consumption at about $73 per year.

Due to the reference to 2,000 GJ in the preamble, and the discrepancy between that and the requested 200 GJ consumption information, FEI has also provided the same information for 2,000 GJ in case there was a zero missing from the consumption quoted in the question. At this level of consumption, FEI's proposed rates would result in a 4.3 percent or $472 decrease in the customer's annual bill (shown in Table 2 below). It is again not possible that a customer consuming 2000 GJ per year would experience an annual bill increase of 5 percent from FEI's proposed changes in the Application. However, a 5 percent increase in this case would be about $553 per year.

Table 1: Bill Impact for 200 GJ Consumption

	Particulars					Amount
1	Current Charges					
2	Minimum Daily Charge including 1st 2 GJ per month	$ 1.4337	X	365.25	=	$ 523.66
3	Next 298 GJ / Month	$ 5.336	X	176	=	939.14
4	Total Annual Bill					$ 1,462.79
5	Annual Consumption GJ	200				
6	Consumption Included in Minimum Charge	24				
7	Annual Consumption in First Block GJ	176				
8	Proposed Charges					
9	Basic Charge per Day	$ 1.2151	X	365.25	=	$ 443.82
10	Delivery Charge per GJ	$ 3.781	X	200	=	756.20
11	Commodity Cost Recovery Charge per GJ	$ 1.275	X	200	=	255.00
12	Storage and Transport Charge per GJ	$ 0.020	X	200	=	4.00
13	Total Annual Bill					$ 1,459.02
14	Difference in Annual Bill					$ (3.78)
15	Percentage Change					-0.3%

Current and Proposed Charges are from Exhibit B-1-5, Table 13-29, Page 13-56.

Table 2: Bill Impact for 2000 GJ Consumption

	Particulars					Amount
1	Current Charges					
2	Minimum Daily Charge including 1st 2 GJ per month	$ 1.4337	X	365.25	=	$ 523.66
3	Next 298 GJ / Month	$ 5.336	X	1,976	=	10,543.94
4	Total Annual Bill					$11,067.59
5	Annual Consumption GJ	2,000				
6	Consumption Included in Minimum Charge	24				
7	Annual Consumption in First Block GJ	1,976				
8	Proposed Charges					
9	Basic Charge per Day	$ 1.2151	X	365.25	=	$ 443.82
10	Delivery Charge per GJ	$ 3.781	X	2,000	=	7,562.00
11	Commodity Cost Recovery Charge per GJ	$ 1.275	X	2,000	=	2,550.00
12	Storage and Transport Charge per GJ	$ 0.020	X	2,000	=	40.00
13	Total Annual Bill					$10,595.82
14	Difference in Annual Bill					$ (471.78)
15	Percentage Change					-4.3%

100.2 Please calculate (a) the number of customers and (b) the percentage of all Rate 2.1 customers that will experience (i) an annual bill increase from FEI's rate proposal; and (ii) an annual bill decrease from FEI's rate proposal.

Response:

The following table provides the number of customers and percentage of customers in Rate 2.1 that will experience an increase or decrease in the annual bill impact from current rates to proposed rates.

	Annual Bill Increase	Annual Bill Decrease	Total
Number of Customers	39	432	471
% of Customers	8.3%	91.7%	100.0%

Attachment 92.1iv

REFER TO LIVE SPREADSHEET MODELS

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Attachment 95.2

Line	Charge	Reference	Rate	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1	Days per Month			31	28	31	30	31	30	31	31	30	31	30	31	365
2																
3	**Rate Schedule 22 Proposed Charges**															
4	Basic & Administration Charge / Month		$3,742													
5	Firm Demand Charge $/ GJ / Mth		$25.00													
6	Firm Delivery per GJ		$0.150													
7	Interruptible Delivery per GJ		$0.972													
8	**Customer 1**															
9	Firm DTQ GJ	15,000														
10	Monthly Consumption GJ			700,000	850,000	900,000	1,000,000	800,000	600,000	500,000	600,000	600,000	500,000	450,000	800,000	8,300,000
11																
12	Firm MTQ Volume GJ	Line 1 x Line 9		465,000	420,000	465,000	450,000	465,000	450,000	465,000	465,000	450,000	465,000	450,000	465,000	5,475,000
13	Firm GJ Consumed	If Line 10 >= Line 12, Line 12 , else Line 10		465,000	420,000	465,000	450,000	465,000	450,000	465,000	465,000	450,000	465,000	450,000	465,000	5,475,000
14	Interruptible GJ	Max of (Line 10 - Line 12) and 0		235,000	430,000	435,000	550,000	335,000	150,000	35,000	135,000	150,000	35,000		335,000	2,825,000
15	**Revenue**															
16	Basic & Administration Charge	Line 4		3,742	3,742	3,742	3,742	3,742	3,742	3,742	3,742	3,742	3,742	3,742	3,742	44,904
17	Firm Demand Charge	Line 9 x Line 5		375,000	375,000	375,000	375,000	375,000	375,000	375,000	375,000	375,000	375,000	375,000	375,000	4,500,000
18	Firm Delivery	Line 13 x Line 6		69,750	63,000	69,750	67,500	69,750	67,500	69,750	69,750	67,500	69,750	67,500	69,750	821,250
19	Interruptible Delivery	Line 14 x Line 7		228,420	417,960	422,820	534,600	325,620	145,800	34,020	131,220	145,800	34,020	-	325,620	2,745,900
20	Total	Sum of Lines 16 through 19		676,912	859,702	871,312	980,842	774,112	592,042	482,512	579,712	592,042	482,512	446,242	774,112	8,112,054
21																
22	**Total rate/GJ**	**Line 20 / Line 10**														**$0.977**
23	**Firm/GJ**	**(Line 17 + Line 18) / Line 13**														**$0.972**
24	**IT/GJ**	**Line 19 / Line 14**														**$0.972**
25	**Firm + IT/GJ**	**(Sum of Lines 17 through 19) / Line 10**														**$0.972**
26																
27	**Customer 2**															
28	Firm DTQ GJ	100														
29	Monthly Consumption GJ			15,000	15,000	10,000	15,000	8,000	3,000	3,100	3,100	15,000	7,000	12,000	15,000	121,200
30																
31	Firm MTQ Volume GJ	Line 1 x Line 28		3,100	2,800	3,100	3,000	3,100	3,000	3,100	3,100	3,000	3,100	3,000	3,100	36,500
32	Firm GJ Consumed	If Line 29 >= Line 31, Line 31 , else Line 29		3,100	2,800	3,100	3,000	3,100	3,000	3,100	3,100	3,000	3,100	3,000	3,100	36,500
33	Interruptible GJ	Max of (Line 29 - Line 31) and 0		11,900	12,200	6,900	12,000	4,900				12,000	3,900	9,000	11,900	84,700
34	**Revenue**															
35	Basic & Administration Charge	Line 4		3,742	3,742	3,742	3,742	3,742	3,742	3,742	3,742	3,742	3,742	3,742	3,742	44,904
36	Firm Demand Charge	Line 28 x Line 5		2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	30,000
37	Firm Delivery	Line 32 x Line 6		465	420	465	450	465	450	465	465	450	465	450	465	5,475
38	Interruptible Delivery	Line 33 x Line 7		11,567	11,858	6,707	11,664	4,763	-	-	-	11,664	3,791	8,748	11,567	82,328
39	Total	Sum of Lines 35 through 38		18,274	18,520	13,414	18,356	11,470	6,692	6,707	6,707	18,356	10,498	15,440	18,274	162,707
40																
41	**Total rate/GJ**	**Line 39 / Line 29**														**$1.342**
42	**Firm/GJ**	**(Line 36 + Line 37) / Line 32**														**$0.972**
43	**IT/GJ**	**Line 38 / Line 33**														**$0.972**
44	**Firm + IT/GJ**	**(Sum of Lines 36 through 38) / Line 29**														**$0.972**
45																
46	**Customer 3**															
47	Firm DTQ GJ	5,000														
48	Monthly Consumption GJ			157,000	140,000	155,000	150,000	160,000	150,000	155,000	155,000	210,000	155,000	150,000	155,000	1,892,000
49																
50	Firm MTQ Volume GJ	Line 1 x Line 47		155,000	140,000	155,000	150,000	155,000	150,000	155,000	155,000	150,000	155,000	150,000	155,000	1,825,000
51	Firm GJ Consumed	If Line 48 >= Line 50, Line 50 , else Line 48		155,000	140,000	155,000	150,000	155,000	150,000	155,000	155,000	150,000	155,000	150,000	155,000	1,825,000
52	Interruptible GJ	Max of (Line 48 - Line 50) and 0		2,000				5,000				60,000				67,000
53	**Revenue**															
54	Basic & Administration Charge	Line 4		3,742	3,742	3,742	3,742	3,742	3,742	3,742	3,742	3,742	3,742	3,742	3,742	44,904
55	Firm Demand Charge	Line 47 x Line 5		125,000	125,000	125,000	125,000	125,000	125,000	125,000	125,000	125,000	125,000	125,000	125,000	1,500,000
56	Firm Delivery	Line 51 x Line 6		23,250	21,000	23,250	22,500	23,250	22,500	23,250	23,250	22,500	23,250	22,500	23,250	273,750
57	Interruptible Delivery	Line 52 x Line 7		1,944	-	-	-	4,860	-	-	-	58,320	-	-	-	65,124
58	Total	Sum of Lines 54 through 57		153,936	149,742	151,992	151,242	156,852	151,242	151,992	151,992	209,562	151,992	151,242	151,992	1,883,778
59																
60	**Total rate/GJ**	**Line 58 / Line 48**														**$0.996**
61	**Firm/GJ**	**(Line 55 + Line 56) / Line 51**														**$0.972**
62	**IT/GJ**	**Line 57 / Line 52**														**$0.972**
63	**Firm + IT/GJ**	**(Sum of Lines 55 through 57) / Line 48**														**$0.972**

Attachment 96.1

REFER TO LIVE SPREADSHEET MODEL

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