Diane Roy
Vice President, Regulatory Affairs

Gas Regulatory Affairs Correspondence
Email: gas.regulatory.affairs@fortisbc.com

Electric Regulatory Affairs Correspondence
Email: electricity.regulatory.affairs@fortisbc.com

FortisBC
16705 Fraser Highway
Surrey, B.C. V4N 0E8
Tel: (604) 576-7349
Cell: (604) 908-2790
Fax: (604) 576-7074
Email: diane.roy@fortisbc.com
www.fortisbc.com

July 10, 2018

B.C. Sustainable Energy Association
c/o William J. Andrews, Barrister & Solicitor
1958 Parkside Lane
North Vancouver, B.C.
V7G 1X5

Attention: Mr. William J. Andrews

Dear Mr. Andrews:

Re: FortisBC Inc. (FBC)

Project No. 1598939

2017 Cost of Service Analysis and Rate Design Application (the Application)

Response to the B.C. Sustainable Energy Association and Sierra Club of British Columbia (BCSEA) Information Request (IR) No. 2

On December 22, 2017, FBC filed the Application referenced above. In accordance with the British Columbia Utilities Commission Order G-101-18 establishing the Regulatory Timetable for the review of the Application, FBC respectfully submits the attached response to BCSEA IR No. 2.

If further information is required, please contact Corey Sinclair at (250) 469-8038.

Sincerely,

FORTISBC INC.

Original signed:

Diane Roy

Attachments

cc (email only): Commission Secretary
Registered Parties

1.0 Topic: Customer Costs

Reference: Exhibit B-12, BCSEA IR 4.2, pdf page 10

Preamble:

In the provided breakdown of the $49.38 million of customer-related costs allocated to the residential class, the largest single item is "Return and Income Taxes", accounting for 42.7% of the total costs.

The minimum system approach is described on pages 25-26 of the COSA (Exhibit B-1, Appendix A, pdf pages 164-165).

1.1 Please present a version of the same table, but with Return and Income Taxes separated into two separate rows.

Response:

The Company consulted with EES to provide the following response.

The following provides the requested breakdown.

	Residential	
	Customer-Related Costs	Costs per Customer
Distribution	$5,606,873	$4.04
Customer Service, Accounts & Sales	$5,186,142	$3.74
Administrative & General	$2,175,934	$1.57
Depreciation	$14,884,533	$10.73
Property Taxes	$3,987,090	$2.87
Return (Debt Component)	$8,647,233	$6.23
Return (Equity Component)	$10,122,109	$7.30
Income Taxes	$2,334,200	$1.68
Other Revenues	-$3,563,723	-$2.57
	$49,380,392	$35.60

Note that the proposed residential customer charge is well below the cost per customer, ranging from $16.58 in year 1 to $18.70 in year 5. FBC is therefore not recovering all of the costs shown in the table through its customer charge. In fact, the amount that is not being recovered is greater than the return and income tax components combined.

1.2 Please indicate the percentage of total customer-related costs allocated to the residential class that are capital-related (e.g., depreciation and return).

Response:

The Company consulted with EES to provide the following response.

The percent related to the combined depreciation and return components is 68.2 percent.

1.3 Please describe the assets underlying these capital costs, and indicate the value attributed to them in the rate base.

Response:

The Company consulted with EES to provide the following response.

The detailed list of assets included as customer-related for the residential class are shown in the following table.

	Residential Customer-Related Rate Base
Distribution Plant	
Poles, Towers, & Fixtures	$155,404,263
Conductors & Devices	$160,746,183
Line Transformers	$78,048,457
Services	$5,816,687
Meters/AMI Meters	$21,273,886
Installation on Customer Premises	$573,055
Total Distribution Plant	**$421,862,531**
General Plant	
Land & Rights	$2,579,314
Structures - Frame & Iron	$70,360
Structures - Masonry	$9,506,235
Office Furniture & Equipment	$1,457,206
Computer Equipment	$20,977,333

	Residential Customer-Related Rate Base
AMI Software	$7,017,583
Transportation Equipment	$5,531,306
Tool and Work Environment	$3,047,407
Communication Structures & Equipment	$6,150,350
AMI Communications & Equipment	$5,103,033
Total General Plant	**$61,440,127**
Total Gross Plant in Service	**$483,302,658**
Less: Accumulated Depreciation	
Distribution Plant	$107,821,202
General Plant	$36,205,815
Total Accumulated Depreciation	**$144,027,017**
Total Net Plant	**$339,275,640**
Working Capital	
Allowance for Working Capital	$86,321
Adjustment for Capital Additions	$88,727
Total Working Capital	**$175,048**
Less: Net Customer Contributions	
Distribution Plant CIAC	-$66,772,743
SUB-TOTAL RATE BASE	**$272,677,946**
Other Rate Base Items	
General Plant CWIP not subject to AFUDC	$1,824,711
Deferred DSM	$427,807
Plant Acquisition Adjustment & Deferred	$1,439,098
Total Other Rate Base Items	**$3,691,616**
TOTAL RATE BASE	**$276,369,562**

1.4 Please estimate the share of these capital costs that are related to the "minimum system".

Response:

The Company consulted with EES to provide the following response.

A total of 90.5 percent of the customer-related rate base for the residential class is related to the minimum system approach. Note that if FBC used a 100 percent demand approach rather than a minimum system approach, the results would show a lower customer-related unit cost. However, the demand-related component associated with distribution would still reflect a fixed cost to the utility and may be appropriate to recover in the customer charge.

1.5 Please estimate the residential customer-related revenue requirement and costs per customer that would result from excluding the "minimum system" capital costs.

Response:

The Company consulted with EES to provide the following response.

If FBC did not use the minimum system approach in the COSA, the residential customer-related costs would be $8.8 million and the unit cost would be $6.35 per customer per month. However, another $53.2 million would be demand-related costs, a large portion of which would be considered fixed costs. These demand-related costs would result in a demand charge of $6.10 per kW per month or the equivalent of another $38 per customer per month.

2.0 Topic: Net Metering Program

Reference: Exhibit B-12, BCSEA IR 5.1, pdf page 11

Preamble:

As requested, FBC provided a table showing NM New and Total Customers and New and Total Installed Capacity (kW DC) by Year.

2.1 Please confirm that the figures in the table are for NM participants in all rate classes.

Response:

The Company consulted with EES to provide the following response.

Confirmed.

2.2 Please confirm, or otherwise explain, that the figures are for calendar year end.

Response:

The Company consulted with EES to provide the following response.

Confirmed.

2.3 Please provide a version of the table, for 2017 and with a breakdown by rate class.

Response:

The following tables provide a breakout of NM customers and installed capacity by customer class.

	New Residential NM Customers	New Small Commercial NM Customers	New Commercial NM Customers	New Irrigation NM Customers	Total New NM Customers
2013	8	0	1	0	9
2014	18	2	0	1	21
2015	37	3	0	0	40
2016	78	3	1	0	82
2017	87	6	2	0	95

	New Residential Capacity (kW DC)	New Small Commercial Capacity (kW DC)	New Commercial Capacity (kW DC)	New Irrigation Capacity (kW DC)	Total New NM Capacity (kW DC)
2013	48	0	4	0	52
2014	77	11	0	10	98
2015	245	25	0	0	270
2016	648	37	11	0	696
2017	570	108	86	0	764

2.4 For each rate class that has NM participation, please indicate whether the rate class has a demand charge.

Response:

The only rate class for which FBC has NM customers and also has a Demand Charge is RS 21, Commercial.

3.0 Topic: Net Metering Costs

Reference: Exhibit B-1, Appendix A, Schedules, pdf page 197, et. seq.

Preamble:

The cost allocation schedules have columns for "Residential w/o Net Metering" and "Net Metering."

3.1 Please explain the columns for "Residential w/o Net Metering" and "Net Metering" in the cost of service schedules.

Response:

The Company consulted with EES to provide the following response.

Those two columns were set up as separate rate classes to determine whether there was a different cost to serve Net Metering customers. FBC did not use this information for RC ratios used in the Application or in developing proposed rates.

3.2 Are the figures for "Net Metering" limited to NM participants in the Residential rate classes?

Response:

The Company consulted with EES to provide the following response.

No, it includes some participants in other classes.

4.0 Topic: Rate Impacts

References: 1. Exhibit B-12, BCSEA IR 9.3, pdf page 16

2. Exhibit B-12, BCSEA IR 21.1, Table 1, pdf page 39

Citation (Reference 1):

> With respect to the FBC proposal, as described in Table 6-10 of the Application, the Company cannot conceive of a situation where a customer could have a 3.5 percent impact in each of the five years. Each set of energy rates within the RCR in each year has a different rate differential that will produce a different impact when applied to an account with sufficient consumption to generate a 3.5 percent bill impact in any year. Of the 89,661 accounts included in the analysis, only 208 (0.2 percent) show the same impact in all years, and in none of these cases was the impact greater than 0.7 percent in each year.

Preamble:

> Table 1 of Response 21.1 demonstrates, for each consumption tranche, the percent change over 5 years at FBC's Recommended Rates (column D) and over 5 years billed at the 5th Year Rate (column G).

4.1 For the two cases described in Table 1 of Response 21.1 (5 years at FBC's Recommended Rates, and 5 years billed at the 5th Year Rate), please indicate the number and the percent of the 89,661 accounts included in the analysis for which the five-year rate increase would exceed a) 5%, b) 10%, c) 15% and d) 20%.

For clarity, it is suggested to use the following template for the response.

	5 years at FBC's Recommended Rates		5 years billed at the 5th Year Rate	
Cumulative rate impact greater than:	number	percent	number	percent
5%				
10%				
15%				
20%				

Response:

Please find the requested information in the table below.

	5 years at FBC's Recommended Rates		5 years billed at the 5th Year Rate	
Cumulative rate impact greater than:	**number**	**percent**	**number**	**percent**
5%	51647	58%	58823	66%
10%	247	0.3%	48958	55%
15%	0	0%	35568	40%
20%	0	0%	0	0%

1

2

5.0 Topic: Rate Impacts

Reference: Exhibit B-8, BCUC 34.1.1, pdf page 94

Citation:

> FBC believes that the preference between a flat rate and the RCR is likely to be driven more by consumption level than income level. Customers across the income spectrum would be expected to prefer the flat rate if their consumption is high.

5.1 Is FBC aware of any correlation between income and consumption level, either a) in the utility literature, generally, or b) with respect to its clientele? If so, please provide details.

Response:

FBC is aware that BC Hydro's 2015 Rate Design Application states that based on its REUS and due to the higher share of low income customers being apartment dwellers compared to the overall residential customer population, the low income annual median and average consumption is slightly lower than the overall residential customer population. However, this does not indicate a correlation between income and consumption. As explained in BC Hydro's final argument in its proceeding, "while a number of low-income customers are low-consumption customers, the reverse is not true, and by a large majority low-consumption customers are not low-income customers" and that "a significant number of low-income customers are not low-consumption customers".

Other studies such as the one provided in the material referenced in KSCA IR 2.8.2 also exist. However, while studies such as these contain summary information related to overall household energy usage and income level, they may not consider factors such as dwelling occupancy levels, heat source and other demographic information that may impact energy usage, and electrical consumption in particular. Unless a study compares income level to consumption while controlling for other variables, (in other words, would the consumption level for a given household change if the only change in circumstance was income related) then FBC does not view the results as determinative.

FBC does not have the data required, and has not conducted a study to assess any correlation between income and consumption in its own service territory given the current statutory framework that precludes that setting rates on an income related basis.

6.0 Topic: Rate Impacts

Reference: 1. Exhibit B-8, BCUC IR 42.2, pdf page 123

Reference: 2. Exhibit B-8, BCUC IR 46.2, pdf page 138

Citation 1 (Ref. 1):

> FBC believes that any rate design proposal should be implemented in a way that avoids rate shock to the majority of customers. FBC considers an annual bill impact of more than 10 percent as a general guideline for a rate shock. However, as stated by the Commission in its Decision on BC Hydro's 1992 Rate Design Application, what constitutes rate shock must be assessed in the circumstances of each case:
>
> > As indicated by the evidence, whether a particular increase constitutes rate shock depends on the overall rate environment and the circumstances of the particular customer (T. 175-178). It is the Commission's responsibility to assess these circumstances and determine when rate shock may be properly said to have occurred.
>
> Therefore, it may or may not be appropriate to characterize a situation where a small percentage of customers have an annual bill increase of more than 10 percent as rate shock.

Citation 2 (Ref. 2):

> FBC is of the opinion that increases of almost 8 percent for two years running could be considered rate shock given the short time frame.

6.1 Please describe the framework proposed by FBC for assessing multi-year rate shock.

Response:

FBC has not proposed, and has not developed a framework for assessing multi-year rate shock. The Company has provided information on the expected annual bill impacts related to its rate proposals and has made recommendations as to the treatment, but it is the Commission that will decide if a threshold for rate shock has been exceeded.

7.0 Topic: Difference Between Tier 1 and Tier 2 Rates

Reference: Exhibit B-12, BCSEA IR 10.1, pdf page 17

Citation:

> In July 2012, when the RCR first came into effect, the second tier rate was $0.03745 per kWh higher (or 45 percent higher) than the first tier rate, while in January 2017 the second tier rate was $0.05500 per kWh higher (or 54 percent higher) than the first tier rate. The effects of the RCR on high consumption customer bills have become more pronounced with these differential increases, and the number of customer comments expressing concern about the effects of the RCR has also increased over time.
>
> FBC is cognizant of the provisions in s. 59 and s. 60 of the UCA that generally make the Commission the arbiter of whether public utility rates are fair, just and reasonable, meaning that FBC's RCR met the Commission's test(s) of fairness based on the information available and submissions made in the relevant proceedings. However, in view of the facts presented above and other evidence being brought forward in this Application, such as the fact that the second tier RCR energy rate is well above the long run marginal cost, as well as the concerns raised, FBC believes that returning to a flat rate structure as proposed in the Application would be appropriate.

7.1 Assuming that the Tier 2 Rate is above the long run marginal cost, would FBC be open to a solution that reduces the Tier 2 Rate to an appropriate level, and thereby reduces the burden on high consuming customers? If not, why not?

Response:

As discussed in the response to BCUC IR 1.38.12, FBC views any combination of rates contained in an RCR can be considered arbitrary when viewed from a cost-causation perspective. There is no particular reason to maintain an inclining block rate with Tier 2 rates above the utility's marginal cost. Beyond the initial years of the phase-out of the RCR, FBC favours a return to a flat rate for all residential customers unless they select the proposed TOU option.

8.0 Topic: LRMC

Reference: Exhibit B-12, BCSEA IR 12.2, pdf page 20-21

Preamble:

The response makes reference to the analysis of FBC's LRMC in Section 9 and Appendix K of its 2016 LTERP, and indicates that the analysis found in section 4.2 of 2012 RIB Report, found in Attachment 1.2, is still relevant. (The Report is dated Nov. 28, 2014.)

On page 23 of that report (section 4.2; pdf pages 104-105 of Exhibit B-12), FBC indicates that, pending a more fulsome analysis in the then forthcoming LTERP, "FBC considers the value discussed below to be the appropriate comparator for the Tier 2 rate for information purposes".

On page 24 (Exhibit B-12, pdf page 105), FBC provides a justification for its LRMC estimate of $112/MWh, stating that it was developed from the BC Hydro Standing Offer Program average price in 2011. It indicates that "It is a nominal dollar levelized price. It has not been adjusted for transmission or distribution losses."

8.1 Please confirm that the LRMC used as a comparator for Tier 2 residential rates is a nominal dollar levelized price that has not been adjusted for transmission or distribution losses.

Response:

FBC's previous LRMC estimate of $112 per MWh[1], as referenced in the RCR report dated November 28, 2014 and referred to in the preamble, is a levelized nominal dollar value not adjusted for transmission or distribution losses.

Preamble:

In Appendix K of the LTERP, FBC states:

> FBC has adopted a portfolio analysis approach to assessing resource options. FBC investigated a series of scenarios and therefore a series of potential resource portfolios with different characteristics. The LRMC is calculated as a by product of a given portfolio scenario. Correspondingly, FBC has stated multiple LRMC values with each LRMC being reflective of

[1] FBC 2016 LTERP. Appendix K – Long Run Marginal Cost. Section 2: FBC's Previous LRMC Value. Filed as Ex. B-1, November 30, 2016.

the optimal combination of resources used to meet the forecast load requirements and PRM requirements of the specific portfolio scenario.[2]

8.2 Please indicate which portfolio FBC considers most appropriate for determining the LRMC to be used as a comparator for the Tier 2 residential rate, and explain the reasons for this choice.

Response:

FBC notes the Tier 2 rate was determined by targeting a customer bill impact and the LRMC is not used in any way to determine the level of either the Tier 1 or Tier 2 rate. Therefore, any reference to LRMC as a "comparator" for the Tier 2 rate is of limited significance and has no practical application.

FBC considers the LRMC associated with its preferred Portfolio to be the most appropriate LRMC comparator for the Tier 2 residential rate. Within the 2016 LTERP, FBC concluded portfolio A4 best met the LTERP objectives in terms of balancing cost, reliability, socio-economic benefits, geographic resource diversity, as well as BC's energy objectives and so was selected as the preferred resource portfolio for the LTERP. In the LTERP decision published on June 28th 2018, the Commission did not accept FBC's proposed preferred portfolio in its entirety, specifically accepting up to the year 2024 and rejecting the years 2025 to the end of the planning horizon (G-117-18, Directive 1).

Citation (BCUC Order G-3-12, Reasons for Decision, page 41):

> The Block 2 rate is a delivered rate, while the LRMC is a cost of acquisition – it only relates to the cost of procuring energy but does not include the LRMC of transporting that energy to customers through transmission and distribution networks.

8.3 Please provide FBC's estimate of the LRMC of transporting energy to customers through transmission and distribution networks, with supporting analysis. The analysis should include both short-term (losses) and long-term (system expansion) factors.

Response:

Please refer to the response to BCOAPO IR 2.76.1.

[2] 2016 LTERP, Appendix K, page 5.

9.0 Topic: Avoided Transmission and Distribution Costs

Reference: 1. Exhibit B-12, BCSEA IR 28.1, pdf page 50

Reference: 2. Exhibit B-12, BCSEA IR 41.1, pdf page 72

Citation 1 (Ref. 1):

> Generally speaking, FBC agrees that increased usage during peak periods tends to accelerate the need for additional capacity projects in transmission and distribution. However, consideration needs to be given to the specific nature of the utility and the capacity that exists in making an assessment of whether increased usage during peak periods will necessitate additional equipment during the planning horizon that must be considered during the development of rates.

Citation 2 (Ref. 2):

> The costs for transmission are driven by the system peak load but in most cases the costs are fixed and cannot be reduced in response to a reduction in the system peak load. Over the long term, there may be transmission savings related to reduced peak loads, but only to the extent existing transmission facilities are constrained.
>
> For distribution, facilities are installed at the time customers connect to the system based on their expected peak load, regardless of when it occurs. Once those facilities are installed, there are no savings if customers reduce their peak demand, particularly if they just shift their load to another time period. Over the long term, distribution costs for new customers could be reduced if there is an overall trend in reduced peak demand per customer. This would apply only to new costs and not the cost of facilities already in place. [underline added]

9.1 In the case of FBC, is increased usage during peak periods expected to necessitate a) additional transmission and/or b) additional distribution equipment during the planning horizon? If so, please provide indications as to the extent and timing of the expected additions, and the methodology proposed by FBC for integrating the costs thereof into its long-term marginal costs.

Response:

The following projects which are driven by ongoing peak load growth in the Kelowna area are proposed within the planning horizon:

Name	Estimated Cost (million)	Classification	In-service Date
Kelowna Bulk Transformer Addition	$ 17.0 million	Transmission	December 2022
Sexsmith Substation - Second Transformer Addition	$5.0 million	Distribution	December 2020
DG Bell Terminal - Second Transformer Addition	$5.0 million	Distribution	December 2025

1
2 FBC does not have an established methodology for integrating marginal Transmission and
3 Distribution costs with marginal system Power Supply Costs. Please refer to the response to
4 BCOAPO IR 2.76.1 for further discussion.

5

10.0 Topic: Fixed Cost Recovery

Reference: Exhibit B-12, BCSEA IR 13.2, pdf page 23

Citation:

> While the matter of fixed cost recovery through fixed charges, like customer or demand charges, is considered regularly in rate design proceedings, FBC is not aware of a situation where the Commission has directly endorsed a specific percentage of fixed cost recovery, either of the customer-related or of the demand-related fixed costs, to be applicable across a range of customer classes. [underline added]

10.1 Please confirm that, in its analysis of the degree of recovery of fixed cost through fixed charges, FBC considers both demand charges and customer charges as "fixed charges."

Response:

Confirmed. Both customer charges and demand charges are considered fixed charges, although for demand charges this depends on their design. While monthly customer charges are fixed in their nature (the amount paid by the customer does not change from one month to the other), demand charges can be considered as fixed charges depending on the application and design of their components. As explained in footnote 20 of the Application, under the demand ratchet mechanism rates are billed based on either the peak demand by a customer in the current month, or some percentage of the peak demand during the previous months even if the actual demand in that month is lower. For example, if a 100 percent demand ratchet was imposed, a customer would be billed on the basis of the maximum peak KW demand for the year (a fixed charge), no matter how low the actual demand for the current month might be. As long as the customer stays below its annual peak, the day-to-day consumption decisions will not have an effect upon the demand portion of the customer's bill.

10.2 Does FBC agree that there is an important distinction to be made between demand charges, which a customer can control, and customer charges, which it cannot control? If so, please explain how this distinction is reflected in FBC's proposal with respect to recovery of fixed charges.

Response:

As explained in the response to BCSEA IR 2.10.1, depending on the design of a demand charge a customer may not have total control over the demand portion of its bill. That is, the customer may not be able to reduce the demand portion of its bill below a certain level and can only strive to manage its peak demand so that the demand charges are not increased.

It is true that a customer may have "more" control over Demand charges since Customer Charges are fully fixed from a billing perspective.

10.3 Is FBC aware of any other regulator that has endorsed a specific percentage of fixed cost recovery? If so, please provide references.

Response:

FBC is not aware of any other regulator that has explicitly endorsed or denied a specific percentage of fixed cost recovery. FBC is aware that in some jurisdictions there are requirements for strict cost-based rate making where all or some components of the rates are based on 100 percent of their unit cost (such as some municipalities in California or in Alaska or the Basic charge in Ontario). Nevertheless, FBC notes that approving a specific fixed charge requires an implied endorsement of a specific percentage of fixed cost recovery. Therefore all regulators at least implicitly endorse a specific percentage of fixed cost recovery for their approved fixed charges.

11.0 Topic: Fixed Cost Recovery

Reference: Exhibit B-8, BCUC 9.2, pdf page 34-35

Citation:

> While there is no standard or "correct" level at which to set the recovery percentages, FBC believes that a more consistent level of recovery across the rate classes is desirable from an equity standpoint, would better reflect the costs derived in the COSA and would begin to address the challenges that may emerge as customers gain the ability to reduce their contribution to the fixed costs of the utility system.

11.1 Please explain in what way a more consistent level of recovery of fixed costs through fixed charges across the rate classes would be desirable from an equity standpoint, assuming that, under the current approach, the revenue:cost ratios for these rate classes are the same.

Response:

FBC views a situation where all customer classes have rates that collect approximately the same percentage of fixed cost as indicated by the COSA through the fixed charge portion of their respective rates to be more equitable that a situation where this is not the case. Also, there are no compelling inter-class issues that a varying level of fixed cost recovery would help to solve. It is unclear to FBC how it can express this in a different or clearer way.

12.0 Topic: Estimating Bill Impacts

Reference: Exhibit B-12, BCSEA IR 14.5, pdf page 26

Citation:

> The point of the statement is that if one is examining bill impact as an outcome, there will be some combination of changing the billing components that would achieve a similar outcome as a higher winter threshold without the implementation challenges that doing so would create. [underline added]

12.1 Please indicate a specific combination of changes to the billing components that would have the same effect as increasing the Tier 2 threshold in winter for electric space heating customers only.

Response:

The reference does not presuppose any specific set of changes. The point of the response is that since there are a number of moving parts within the rate, any annual bill outcome that can be achieved through a seasonal rate can also be achieved by changing the combination of the other elements. This was not with respect to electric heat customers only, which FBC has not suggested should be proposed.

For example, in the hypothetical situation where the Commission directs FBC to raise the threshold in the winter months (say, November to February), such that only 1 percent of customers have annual bill impacts greater than 10 percent, some combination of the thresholds in the other months, and the Tier 1 and Tier 2 rates would have to change in order to maintain revenue neutrality with current rates.

These changes would result in some set of bill impacts across the customer base depending on consumption.

This set of bill impacts could be replicated fairly closely by having a uniform threshold across the year and changing the remaining billing parameters.

FBC also notes the potentially costly billing system changes required in order to accommodate seasonal rates.

13.0 Topic: Long-Term Avoided Costs

Reference: Exhibit B-12, BCSEA IR 28.2, pdf page 50

Preamble:

The response provided to BCSEA 1.28.2 does not appear to respond to the question asked.

13.1 Based on its jurisdictional study, please identify jurisdictions that take future transmission and distribution investments into account in setting long-term avoided costs.

Response:

The Company consulted with EES to provide the following response.

As FBC did not look at these issues as part of the Application, it does not have the requested information.

14.0 Topic: TOU Pricing

References: Exhibit B-12, BCSEA IR 31.1, pdf page 58

Citation:

> The pricing differentials are based on differences in the underlying cost of power supply by TOU period, which does not differ by customer class.

14.1 Does power supply represent the same proportion of the total cost of service for all customer classes? If not, please explain why the pricing differentials between TOU periods should be identical for customer classes in which the proportion of the cost of service made up by power supply is different.

Response:

The Company consulted with EES to provide the following response.

No, power supply makes up different proportions for each customer class. In setting TOU rates, it is only the differential between the periods, and not the rate level itself, that is the same for all rate classes. It is appropriate that the price differentials are the same for each class so that each customer sees the price signals facing the utility as a whole when choosing to consume power in the on-peak or mid-peak periods as opposed to the off-peak period. The differentials are not calculated as part of the COSA and are not intended to reflect the cost causation for each particular class. As the TOU rates are set to be revenue neutral with the default rate schedules, each class will see cost-based rates on an overall basis for the class.

15.0 Topic: Heat Pumps

Reference: Exhibit B-12, RCR Report (July 1, 2012 to June 3, 2014) (the "2014 RCR Report"), page 18 (page 99 of pdf)

Citation:

> The analysis shows that, as a group, customers that use a heat pump as a primary heat source are impacted to a greater degree than customers in general. This result is not unexpected given the higher than average usage of these customers.

15.1 Please confirm that heating a given space with a heat pump uses less electricity that heating the same space with electrical resistance heating.

Response:

Confirmed.

15.2 Please provide an indication of the extent to which heating a given space with an a) air-source and b) ground-source heat pump uses less electricity that heating the same space with electrical resistance heating.

Response:

The following table provides an indication of the seasonal heating efficiency of heat pumps compared to electric resistance heating in central (ducted) and zoned systems. The performance of the heat pump will vary with source temperature, while electric resistance would not.

For example, if a home is heated with a ductless air source heat pump they could expect to use approximately 60 percent less electricity for heating than with electric baseboards.

System	Heating Type	Seasonal Heating Efficiency	Energy Savings[3]
Central Systems			
Heat Pump	Ground Source Heat Pump	375%	75%
Heat Pump	Central Air Source Heat Pump	200%	50%
Electric	Electric Forced Air Furnace	100%	Base
Zoned Systems			
Heat Pump	Ductless Air Source Heat Pump	250%	60%
Electric	Electric Baseboard heaters	100%	Base

1

2

[3] Subject to appropriate heat pump sizing, installation and operation. These savings assume a full system replacement in the Southern Interior of BC.

16.0 Topic: Effect of Flat Rate

References: Exhibit B-12, 2014 RCR Report, page 20 (pdf page 101)

Preamble:

Table 3-2 of the 2014 RCR Report provided an estimate of the percent and GWh savings resulting from implementing the RCR rate.

Citation:

Table 3-2: Updated estimate of RCR Savings*

	Measured Amount	Upper End
Tier 2 Elasticity	-0.16	-0.20
% Price Differential	28%	28%
Resulting % Savings on Tier 2	4.4%	5.7%
2011-2012 GWh in Tier 2	818.3	818.3
Estimated GWh Savings	36.2	46.3

* Reproduced from Table A-5 of the EES Report

These results show a range of savings from 36 to 46 GWh. The measured savings is within the range of the original estimate, but on the low side as compared to the upper end estimate of 57 GWh in the original Application. With the updated estimates, the values fall within the original range of savings but the range is smaller than originally thought. This is an expected result as the impact of calculating elasticity values is to provide a greater level of certainty, which results in a narrower range.

When compared to the overall system rather than just the residential Tier 2 GWh, the estimated savings are in the range of 2.6% to 3.3% of total system energy. For comparison purposes, the system-wide savings expected from FBC's DSM programs are 14 GWh (1.0%) for 2014 and 22 GWh (1.6%) for 2015. [underline added]

16.1 Please update Table 3-2, using the most recent values available.

Response:

The Company consulted with EES to provide the following response.

FBC has not measured the elasticity factors since the 2014 RCR report and cannot provide an update to the table.

16.2 Please provide an estimate of a) the total RCR savings since 2014, and b) the system-wide savings, from FBC's DSM programs since 2014.

Response:

The Company consulted with EES to provide the following response.

FBC has not estimated the savings associated with the RCR since 2014, but would not expect to see a large increase beyond the amount measured in 2014. Note that the estimated amount is the total in a one-year period after several years of the RCR, not an incremental amount of growth in savings each year. As such, once the savings are achieved, they will not continue to grow. As discussed in the responses to BCSEA IRs 2.17.1 through 2.17.12, much of the conservation expected from the RCR has already occurred and often it is a result of changes in appliances/fixtures that will not be removed as FBC phases in to a flat rate. FBC does not expect the estimated savings to be reversed as a result of phasing out the RCR rate.

DSM savings of 77.8 GWh have been reported for the years 2014 through 2017. This reflects an average of 19.5 GWh per year.

16.3 Please estimate the increase in consumption in percent and in GWh expected to result over the next five (5) years from returning to a flat rate.

Response:

The Company consulted with EES to provide the following response.

FBC has not estimated the percent or GWh increase in consumption as a result of returning to flat rates. However, because the RCR is being phased out, because customers are less likely to respond to a price decrease (for block 2), because any increased usage from customers in block 2 will be offset by decreased usage from customers with block 1 use, and because the majority of savings associated with the RCR are related to persistent DSM measures that have already been installed, FBC does not expect to see a large, if any, increase in usage as a result of the proposal.

17.0 Topic: Residential Conservation Rate

References: 1. Exhibit B-12, BCSEA IR 20.1, 20.2, pdf page 37

2. Exhibit B-8, BCUC IR 48.2, pdf page 145

Citation (Ref.2):

> FBC believes that it is a reasonable assumption that much of the "low hanging fruit" has been picked over the last five years and this is supported by the comments of at least some residential customers. Though the Company does not have specific further references, it notes that for the residential sector the Conservation Potential Reviews conducted by the FBC on a periodic basis have show a decrease in potential conservation from 299 GWh in 2013 to 222 GWh in 2016.

17.1 Please provide a full explanation of the assertion that the Conservation Potential Reviews show a decrease in residential potential conservation from 299 GWh in 2013 to 222 GWh in 2016, with page references to the CPRs.

Response:

The residential achievable potential under Scenario 2 of the 2013 CPR Update dated Sept. 19, 2013 was 294.1 GWh, consisting of 259 GWh (Table 10, p. 40) plus 35.1 GWh (Table 43, p.70). The response to BCUC IR 1.48.2 has been corrected in the Errata filed concurrently with these IR responses.

The BC CPR Section 5 market potential (Table B-4, p.B-4) shows residential potential of 222 GWh. FBC intends to file the latter report with its 2019-22 DSM Plan filing.

FBC notes the two studies are not completely comparable as two different consultants, using separate approaches and different marginal costs, prepared them.

17.2 Please provide copies of or references to any other documents that FBC considers relevant in support of its "reasonable assumption" that much of the "low hanging fruit" with respect to energy conservation has been picked over the last five years.

Response:

The response to the referenced information request BCUC IR 1.48.2 notes, including the underlined portion below:

FBC believes that it is a reasonable assumption that much of the "low hanging fruit" has been picked over the last five years and this is supported by the comments of at least some residential customers.

Though the Company does not have specific further references, it notes that for the residential sector the Conservation Potential Reviews conducted by the FBC on a periodic basis have show (sic) a decrease in potential conservation from 299 GWh in 2013 to 222 GWh in 2016.

FBC does not have references to any other documents to be provided.

17.3 Is it FBC's position that most of the low-hanging fruit has been picked over the last five years? If so, please provide quantitative support for this assertion.

Response:

While the customers that express that they have undertaken the conservation measures that are available to them would likely agree with the characterization that "most" of the low hanging fruit has been picked, this is anecdotal and FBC states only that it believes it to be a reasonable that much of these measures have been undertaken. This is consistent with the assumption made in the original RIB Application that conservation would be fully realized after 5 years. In the opinion of FBC, the distinction between "most" and "much" is of limited importance given that the primary driver for the removal of the RCR is the lack of a cost causation justification, with other factors such as customer impact and conservation potential playing supporting roles.

17.4 What percent of FBC's economic potential for the residential sector would FBC characterize as "low-hanging fruit"? Please confirm that, even if all of the "low-hanging fruit" had been picked, there would remain economic potential for the residential sector.

Response:

FBC is unable to quantify the economic potential for the residential sector that could be characterized as "low-hanging fruit". FBC's intent was to indicate diminishing returns; that as technology, codes, and standards advance, and the achievements of previously-undertaken DSM measures persist into the future, the incremental energy savings decline.

FBC confirms that even if all of the "low-hanging fruit" has been picked, there would remain economic potential for the residential sector.

17.5 Please compare the extent to which the remaining economic potential for the residential sector is likely to be achieved under a) a flat rate and b) a RIB rate.

Response:

FBC does not have the analytical tools to answer this definitively. There are various considerations that weigh into a customer's decision to proceed with a DSM measure, of which payback is one.

Payback acceptance curves indicate that a shorter payback period, assuming the customer acts rationally and the measure savings are Tier 2, will result in a faster uptake of the economic potential. This is not to say that all of the potential won't be achieved with a flat rate over time, just that it may take longer to do so. FBC notes also that to the extent that potential conservation exists among the lower use customers that the price signal for conservation below the current RCR threshold will become stronger as the flat rate is phased in.

17.6 Please explain how a decrease in residential conservation potential (technical or economic) between 2013 and 2016 supports a conclusion that conservation and efficiency opportunities for existing residential customers, either in the top 20% of consumption or generally, have been exhausted or reduced.

Response:

Please refer to the response to BCSEA IR 2.17.1 as the residential conservation potential has not been exhausted.

17.7 Insofar as some RCR residential customers with high annual consumption believe that they have already 'picked the low-hanging fruit' of conservation and

efficiency opportunities, can one conclude that these customers did in fact respond to the conservation objective of the RCR? If not, why not?

Response:

Although the RCR reports quantify the elasticity response to the RCR, one cannot conclude that the sole response was to the conservation objective. FBC does agree that it is likely that customers responded to the price signal contained in the rate that was intended to drive conservation. Other responses may well have included fuel switching to avoid paying the Tier 2 rate.

17.8 For RCR residential customers with high annual consumption that have made energy efficiency investments in response to the RCR price signal, please confirm that they have benefited from bill savings under the Tier 2 rate, and that they will continue to so benefit for the remainder of the useful life of these conservation and efficiency measures, as long as the RCR remains in place.

Response:

Confirmed, assuming all of the DSM measure savings occurred under the Tier 2 rate. Similarly, the customers would benefit from bill savings under a flat rate for the duration of the DSM measures.

17.9 For RCR residential customers with high annual consumption that have made energy efficiency investments in response to the RCR price signal, is there reason to believe that that they would have made the same investment under a flat rate? Please elaborate upon your response.

Response:

FBC believes customers make energy efficiency investments for both economic reasons i.e. bill savings and payback, and non-energy benefits e.g. comfort, environmental etc. Thus, there is reason to believe they would still make the same investments assuming the overall mix of benefits remains satisfactory, albeit the payback for higher use customers is somewhat longer on a flat rate.

17.10 For RCR residential customers with high annual consumption that have not yet made energy efficiency investments in response to the RCR price signal, is there reason to believe that that they are likely to do so under a flat rate? Please elaborate upon your response.

Response:

It is likely that customers who are unresponsive to the RCR in terms of energy efficiency investments, will also be unresponsive to a flat rate.

There is always a customer segment that won't[4] make energy efficiency investments, which economists call the "energy paradox" or the "energy efficiency gap".

17.11 Please confirm, or otherwise explain, that the premise that some high-consuming residential customers have picked the low-hanging fruit of conservation and efficiency opportunities does not imply that all such customers have done so and does not imply that there is no remaining low-hanging fruit.

Response:

Confirmed. FBC is not contending that *all* low hanging fruit has been picked.

17.12 Does the fact that some high-consuming residential customers have picked the low-hanging fruit of conservation and efficiency opportunities, necessarily imply that there is no more such low-hanging fruit remaining? Please elaborate upon your response.

[4] https://blogs.wsj.com/experts/2015/09/15/why-wont-people-invest-in-energy-efficiency-even-when-it-saves-them-money

Response:

Please refer to the response to BCSEA IR 2.17.11.

18.0 Topic: Proposed optional TOU Rates

References: 1. Exhibit B-12, BCSEA IR 34.3, pdf page 63

2. Exhibit B-12, BCSEA IR 34.5, pdf page 64

3. Exhibit B-8, BCUC 1.76.4.2, pdf page 231

4. Exhibit B-8, BCUC 95.1, pdf page 301

5. Exhibit B-8, BCUC 1.76.4.2.2, pdf page 236

Citation (Ref. 1):

> FBC does not believe that customers will opt for the TOU rate simply on the basis of being financially better off. The complexities of the TOU rate and having to change behaviour to avoid on-peak pricing may be a deterrent to many customers, even if they would save on their utility bills. While FBC does not believe that the scenario proposed in the question is realistic, based on the sample of residential customers examined by FBC, it was estimated that roughly 19 percent of customers would be better off financially with TOU rates with no changes in their consumption patterns. Based on the sample, if all of the customers with potential savings opted into the TOU rate, and assuming no other residential customers opted in for the TOU rate, the lost revenues would be $9.4 million out of $185 million in total. In terms of rate impact, this would result in an added cost of $0.007 per kWh for customers in the residential class (or $0.003/kWh if applied to all customer classes). [underline added]

Citation (Ref. 2):

> The reason that FBC is proposing to reopen the TOU to residential customers is accurately described on page 108 of the Application.
>
> "TOU rates are generally intended to incent customers to shift the time of consumption in a manner that allows a utility to reduce costs or generate incremental revenue such that a rate benefit will accrue to all customers."
>
> The Company believes that customer choice is enhanced by the TOU offering and that customer satisfaction may also be improved by the additional optional rate option for customers that would like to enroll on a conservation rate.
>
> However, as also noted in the Application on page 108, "Unless the changes in behaviour caused by the rate results in the desired financial benefit, the rate will not have achieved its objective."

Citation (Ref. 3):

> FBC has not surveyed its existing TOU customers to determine whether or not their experience with TOU has been as expected, and since a large number of them enrolled in TOU while customers of Princeton Light and Power prior to its

acquisition by FBC, their original motivation to join in TOU rates is not known. However, given the relatively low participation rates over the last 20 years it would appear that customers have a preference for a simple, stable rate structure. In the past decade, the general level of rates has risen, and the introduction of the RCR has raised the overall cost of energy for high consuming customers. This has raised interest in the availability of TOU rates, but it appears more as a bill mitigation opportunity than as a conservation measure. [underline added]

Citation (Ref. 4):

FBC says that upon approval of the proposed TOU rates it would increase customer communication including "Development of a tool that can be used in conjunction with the hourly account data currently available to aid in assessing the potential impact the rate can have."

Citation (Ref. 5):

As noted at page 115 of the Application, *"FBC is proposing to track and review the results of the TOU program and after a period of three years, to provide a recommendation to the Commission regarding the continuation of the rates."*

Part of the analysis that would inform the recommendation that FBC intends to provide to the Commission would be an assessment of the changes in customer behaviour that the TOU rates have prompted and whether or not any adjustments would be required to make the rate as effective as possible in shifting load and creating a benefit for ratepayers.

18.1 Please specify the number of residential customers (19%) who would be financially better off under the proposed optional TOU rates with no change in consumption pattern.

Response:

The Company consulted with EES to provide the following response.

The estimated number would be 22,421 customers.

18.2 Please specify the average lost revenues per customer, assuming that the $9.4 million of lost revenues are spread over the number of customers mentioned in response to the preceding question.

Response:

The Company consulted with EES to provide the following response.

The average lost revenue per customer would be $34.86 per month.

18.3 Would FBC agree that the estimated 19% of customers who would be financially better off under the proposed optional TOU rates with no change in consumption pattern will likely be able to identify themselves using the online tool?

Response:

FBC agrees that customers will be able to use the online tool to assess the impact of switching to TOU, but cannot comment on the likelihood that they will do so.

18.4 Please confirm, or otherwise explain, that FBC's proposed three-year TOU evaluation report would quantify the extent to which participants in the proposed optional TOU rate are financially better off without having changed their consumption behaviour.

Response:

The Company consulted with EES to provide the following response.

Confirmed; however, it may be difficult to determine whether changes in consumption are related to TOU response as opposed to a response in annual rate increases or differences related to changes in the weather between years.

18.5 Please confirm, or otherwise explain, that if all residential customers who would benefit financially adopted the proposed TOU rate and no others did, then, to be successful, the TOU rates would have to cause changes in behaviour that would reduce costs by more than approximately $9.4 million.

Response:

The Company consulted with EES to provide the following response.

Confirmed, if the measure of success is overall savings to the utility that can be passed along to customers. In addition to sending price signals to change consumption patterns, TOU rates are a way to better match the cost causation of customers within a rate class. Residential customers with greater loads in off-peak hours, relative to the average, are less costly to serve. Even if TOU rates do not achieve the desired shift in loads, they may be effective in terms of better reflecting cost causation.

18.6 Please elaborate on the comment in Citation 3 to the effect that interest in TOU rates appears to be more as a bill mitigation opportunity than as a conservation measure. How would FBC ensure that the proposed TOU rates are used as a conservation (or load shifting) measure rather than as a bill mitigation opportunity?

Response:

Please refer to the responses to BCUC IRs 2.138.8 and 2.138.9.

18.7 Please describe the methodology by which FBC would determine the extent to which participation in the proposed options TOU rates prompted changes in participating customers' consumption behaviour.

Response:

Please refer to the responses to the BCUC IR 2.136 series of questions for a discussion of the proposed TOU evaluation. The specific methodology required to collect and analyze the information has not been developed at this point in time.

19.0 Topic: Radio-Off Advanced Meter Option

Reference: Exhibit B-8, BCUC IR 97.1, pdf page 305

Preamble:

In its responses to the BCUC, FBC proposes to amend its proposed increase to the Radio-Off per read fee, to $19.50 instead of $25.00 (from the current fee of $18.00). The proposed $19.50 fee would include $1.50 (rounded) to recover the current balance in the Radio-Off Shortfall Deferral Account over five years beginning in 2019. FBC says the existing $18.00 per-read fee would recover meter reading costs going forward without adjustment.

19.1 Is FBC proposing that the Radio-Off per read fee would continue indefinitely after being set at $19.50 beginning in 2019, or that it would revert to $18.00 after five years (or after clearing the net balance in the Radio-Off Shortfall Deferral Account)?

Response:

FBC has proposed the increase in the per-read fee from $18.00 to $19.50 only to recover the balance of the Radio-Off Shortfall Deferral Account. Once the balance has been recovered the shortfall would no longer be a factor in setting the per-read fee and the fee would be reduced to $18.00.

19.2 Does FBC have any reason to anticipate a material change in the number of residential customers participating in the Radio-Off Advanced Meter Option in the coming years?

Response:

FBC believes that the number of residential customers participating in the radio-off option may continue to decline but is unable to forecast the extent to which participation may change.

In its response to BCUC IR 1.97.1b FBC explains that it has optimized its manual meter reading procedures since the completion of the AMI project, and that this is the primary reason that the meter read costs have stabilized. It is unlikely, given the already low number of radio-off participants and their geographic dispersion that further reductions in the number of participants would result in a material increase in manual meter read fees on a per-read basis.

20.0 Topic: General Terms and Conditions, Residential premises

Reference: Exhibit B-8, BCUC 101.1, pdf page 319

Citation:

> The Residential scenarios listed in Sections 4.3.1 and 4.3.2 were developed at a time when the Residential rate was lower on a kWh basis than the Small Commercial rate. Therefore, FBC's Electric Tariff was very specific about the types of premises that could qualify for Residential rates to ensure that Small Commercial customers were not inappropriately eligible for Residential rates. Since the relative rate levels are now reversed, FBC believes that the simplified Residential Premises scenarios in its proposed GT&Cs ensure that customers are taking service under the appropriate rate schedules.

20.1 Is there a need to reword the eligibility requirements for the Small Commercial rate to ensure that Residential customers are not inappropriately eligible for Small Commercial rates?

Response:

FBC believes that taken all together the proposed changes to its Commercial Service and Residential Service definitions and the proposed changes to Section 6.3.1 (Partial Commercial Use) ensure that Residential customers are not inappropriately eligible for Small Commercial rates. Those proposed changes are discussed in Section 10.3 of the Application. In particular, the definition for Commercial Service sets out that FBC may require documentation to support Commercial use of a Premises for the purpose of being billed at Commercial Service rates.

21.0 Topic: General Terms and Conditions, Security Deposit for Payment of Bills

Reference: Exhibit B-8, BCUC 103.1, pdf page 323

Citation:

> The use of "*may not exceed* an amount equal to the estimate of the total bill for the two highest consecutive Months" is a long standing provision which has been in place in the FEI Gas Tariff since at least 1992, and in most cases should result in a reduction in the value of a security deposit required by FBC as compared to FBC's current Electric Tariff which states "an amount equal to the Customer's bill for 3 months". The proposed wording provides a maximum on the value of a security deposit while allowing flexibility for FBC to work with the customer, giving consideration to their specific circumstances on a case-by-case basis, with the objective of providing or maintaining electric service to the customer. ...
>
> FBC does not expect the changes to the wording for security deposits to have a negative impact on customers nor create challenges for low-income customers. On the contrary, FBC expects the wording changes to benefit customers. The current FBC security deposit wording requires security deposits to be equal to a Customer's bill for 3 months, and does not provide FBC with the flexibility to work with customers, as discussed above, that the proposed wording provides.

21.1 Has FBC sought or received any feedback from customers or anti-poverty advocates regarding its proposed changes to the wording of the security deposit provision?

Response:

FBC has not received any feedback from customers or third parties regarding the proposed changes to the wording of the security deposit provision, nor has FBC sought out feedback regarding the proposed changes.

22.0 Topic: General Terms and Conditions, Security Deposit for Payment of Bills

Reference: Exhibit B-8, BCUC 103.1, pdf page 323

Citation:

> Section 11.2 (Access) has been updated to include conditions regarding the obstruction of radio-frequency technology for the purpose of interfering, attenuating or degrading the signal. This addition reflects FBC's move to remote meter reading through its AMI infrastructure. In addition, the conditions regarding the levying of the False Site Visit charge has been moved from Schedule 80 Standard Charges to Section 11.2 (Access).

Preamble:

> FBC proposes to increase the False Site Visit Charge from $182 to $246. [Exhibit B-1, pdf p.135]

22.1 How often has FBC imposed a False Site Visit Charge?

Response:

The table below shows how often FBC has imposed the False Site Visit Charge in the last five years:

Year	2013	2014	2015	2016	2017	2018 YTD
False Site Visit Charge	1	4	5	6	1	4