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October 3, 2017

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. 1598920

Multi-Year Performance Based Ratemaking Plan for 2014 through 2019 approved by British Columbia Utilities Commission (Commission) Order G-139-14 – Annual Review for 2018 Rates (the Application)

Response to the B.C. Sustainable Energy Association and Sierra Club of British Columbia (BCSEA) Information Request (IR) No. 1

On August 10, 2017, FBC filed the Application referenced above. In accordance with the Commission Order G-116-17 setting out the Regulatory Timetable for the review of the Application, FBC respectfully submits the attached response to BCSEA IR No. 1.

If further information is required, please contact the Joyce Martin at 250-368-0319.

Sincerely,

FORTISBC INC.

Original signed:

Diane Roy

Attachments

cc (email only): Commission Secretary
Registered Parties

1.0 Topic: Rate increase

Reference: Exhibit B-2, Application, p.1

FBC seeks Commission approval of an increase of 0.11 percent in rates in 2018. On September 28, 2016, FBC provided the following table of historical rate increases:

Year	Rate Increase
Jan 2007	1.2%
Apr 2007	2.1%
Jan 2008	2.9%
May 2008	0.8%
Jan 2009	4.6%
Sep 2009	2.2%
Jan 2010	6.0%
Sep 2010	2.9%
Jan 2011	6.6%
Jun 2011	1.4%
Jan 2012	1.5%
Jan 2013	4.2%
Jan 2014	3.3%
Jan 2015	3.5%
Aug 2015	1.6%
Jan 2016	2.96%
Jan 2017 (Proposed)	3.60%

1.1 Please provide an updated version of the historical table shown above, indicating the proposed January 2018 increase.

Response:

The requested table is provided below. The 2018 proposed rate increase has been updated to reflect the Evidentiary Update filed on October 3, 2017.

Year	Rate Increase
Jan 2007	1.2%
Apr 2007	2.1%
Jan 2008	2.9%

Year	Rate Increase
May 2008	0.8%
Jan 2009	4.6%
Sep 2009	2.2%
Jan 2010	6.0%
Sep 2010	2.9%
Jan 2011	6.6%
Jun 2011	1.4%
Jan 2012	1.5%
Jan 2013	4.2%
Jan 2014	3.3%
Jan 2015	3.5%
Aug 2015	1.6%
Jan 2016	2.96%
Jan 2017	2.76%
Jan 2018 (Proposed)	0.17%

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2.0 Topic: Celgar

Reference: Exhibit B-2, p.15

FBC says on page 15 of the Application that the Celgar Interim Period Billing Adjustment deferral account was fully amortized in 2017.

2.1 Are there any additional outstanding billing disputes between Celgar and FBC? If yes, please describe the dispute(s) and provide a rough estimate(s) of the dollar amount in dispute.

Response:

There are no outstanding billing disputes between Celgar and FBC.

3.0 Topic: Cyber security

Reference: Exhibit B-2

FBC says the cyber security landscape is changing rapidly and putting upward pressure on costs. O&M and capital spending on cyber security is expected to increase in 2018. "There are annual cyber security audits and assessments on the overall system architecture, user awareness, as well as project specific vulnerability testing." [pp.4-5]

3.1 What cyber security metrics does FBC use to evaluate security performance over time?

Response:

FBC uses a standard heat map that considers likelihood and impact to determine the areas of cyber security risk requiring the most attention. Third parties, such as Gartner, are consulted to help ensure FBC is considering the appropriate areas in regards to its cyber security risks, as well as appropriate ratings of likelihood and impact.

To ensure the risk levels determined by FBC are reasonable, both internal and external audits and assessments are completed. FBC is currently using the Cybersecurity Capability Maturity Model (C2M2) program, which incorporates National Institute of Standards and Technology (NIST), SysAdmin Audit Network and Security (SANS) 20, NERC Critical Infrastructure Protection (CIP) and International Organization for Standards (ISO) into its assessment design, which helps ensure an organization's cyber security is appropriately designed and operated. The C2M2 program also tests organizational design, cyber security protection device design, third-party support and other components considered required for appropriate overall cybersecurity.

Annual assessments and tests are completed internally and by third parties to determine if appropriate levels of cyber security are being maintained based on industry standards. The assessments and tests also include FBC's risk registry in regards to cyber security to help ensure the registry is reasonable and the appropriate amount of effort is being applied to the right areas in regards to cybersecurity. These efforts help ensure reasonable expenditures for cyber security by focusing systems on areas of greatest importance, such as private information and sensitive data.

3.2 Without questioning the obvious importance of cyber security, how is the Company able to monitor and evaluate the cost-effectiveness of its O&M and capital expenditures on cyber security?

Response:

Please refer to the response to BCSEA IR 1.3.1.

4.0 Topic: SAP Integration

Reference: Exhibit B-2, pp.5-6

4.1 Please discuss how the SAP Integration initiative with FortisBC Energy Inc. (FEI) deals with Code of Conduct/Transfer Pricing Policy matters between the two regulated utilities.

Response:

Please refer to the response to BCUC IR 1.6.5.

5.0 Topic: Advanced Distribution Management System

Reference: Exhibit B-2, p.6

5.1 Please clarify the terms "Advanced Distribution Management System" and "Outage Management System." Are they the same thing?

Response:

The FBC Advanced Distribution Management System is a more general term that includes both the Outage Management System (OMS) and the Mobile Workforce Management (MWM) System.

5.2 Does FBC expect that the new Outage Management System will result in shorter duration of outages? If so, is this expected to be visible in future SAIDI results?

Response:

FBC expects that AMI will reduce restoration time for customers, but any improvement will be difficult to measure. The difficulty in measuring improvements arises from the fact that AMI will provide more accurate and complete outage statistics than are available today making the cause of changes in outage statistics difficult to determine. In some circumstances, it has been found that the additional outage information provided by automated reporting systems such as AMI and OMS may result in numerically worse SAIDI and SAIFI statistics (even when there is no actual change in system performance)[1]. It is anticipated, however, that the more accurate and complete data available with AMI will allow FBC to conduct an improved post outage analysis of time off/time on, duration (SAIDI), and frequency (SAIFI), which may prove useful in addressing and resolving customer complaints.

[1] M. McGranaghan, A. Maitra, C. Perry, A. Gaikwad, "Effect of Outage Management System Implementation on Reliability Indices," in Proc. 2006 IEEE PES Transmission and Distribution Conference and Exhibition, pp. 1208-1211

6.0 Topic: Radio-Off Shortfall Deferral Account

Reference: Exhibit B-2, p.121; Appendix E, September 30, 2016 Radio-Off AMI Meter Option Participation and Costs Report

The September 30, 2016 Radio-Off Participation and Costs report concluded that over the June to August 2016 time period the costs of the Radio-Off Option averaged $18.26 per read, and that FBC considers the June to August 2016 time period to be stable and representative. FBC proposed no change to the Radio-Off manual meter read fee of $18.00 per read under RS 81 at that time.

FBC states on p.121: "Since the completion of the Radio-Off Report, however, the shortfall has grown to an estimated $0.120 million on an annual basis. FBC therefore intends to address RS 81 and to propose the disposition of the deferral account in its upcoming Rate Design Application."

6.1 When will FBC's upcoming Rate Design Application be filed?

Response:

FBC currently plans to file its Rate Design Application before the end of 2017.

7.0 Topic: DSM savings

Reference: Exhibit B-2, Table 3-1, Forecast 2018 DSM and Other Savings; 2017 Rates Proceeding, Exhibit B-2, Table 3-1, Forecast 2017 DSM and Other Savings

The Forecast of 2017 DSM and Other Savings is:

Table 3-1: Forecast 2017 DSM and Other Savings (GWh)

Line No.	Description	DSM	AMI	CIP	RCR	Rate-Driven	Total
1	Residential	(10)	12	(2)	(10)	(1)	(11)
2	Commercial	(15)				(1)	(16)
3	Wholesale	(2)				(1)	(3)
4	Industrial	(4)					(4)
5	Lighting	(1)					(1)
6	Irrigation						
7	Net	(32)	12	(2)	(10)	(3)	(35)
8	Losses	(3)	(6)				(9)
9	Gross Load	(34)	6	(2)	(10)	(3)	(43)

7.1 Please provide 2017 year to date and projected DSM and Other Savings in relation to the Forecast 2017 figures.

Response:

The 2017 year-to-date DSM savings are 19.1 GWh, or 74 percent of the approved 2017 DSM Plan target of 25.7 GWh. The 2017 year-to-date DSM numbers are not directly comparable to the Forecast 2017 figures. Please refer to the response to BCUC IR 1.17.3 for a discussion of how these differ.

The other savings in Table 3-1 are estimates and cannot be verified once embedded in the actual load. The estimates for each savings class are established by different means and are further explained in response to BCOAPO IR 1.8.4.

8.0 Topic: Residential UPC

Reference: Exhibit B-2, Figure 3-2, Normalized After-Savings Residential UPC

In the proceeding regarding FBC's 2017 Rates, FBC explained that the Normalized After-Savings Residential UPC is affected by FBC's acquisition of the City of Kelowna distribution utility as follows:

"The acquisition of the City of Kelowna decreased the 2013 residential UPC. The City of Kelowna is more urban in nature than the rest of the FBC service area, with a higher share of apartments and other multiple family dwellings which typically have smaller square footage, more energy efficient appliances and lower annual energy consumption. The City of Kelowna also has more access to gas as an alternative energy source than other parts of the FBC service area. All of these factors would be expected to lower the overall UPC."

8.1 Please provide any material updates to the explanation above regarding the effect of FBC's acquisition of the City of Kelowna accounts on Normalized After-Savings Residential UPC.

Response:

The factors identified above describe a number of differences between the more urban nature of the City of Kelowna and other parts of FBC's service territory and are unchanged since the Annual Review for 2017 Rates. FBC does not separately identify customers who were previously served by the City of Kelowna and is therefore unable to quantify the difference in UPC between these customers and the remainder of FBC's customer base.

8.2 Is there a statistically significant trend (downward) in Normalized After-Savings Residential UPC from 2014 onward? If so, what factors would account for it?

Response:

Yes. Please refer to the responses to BCOAPO IRs 1.14.1 and BCMEU 1.4.1.

9.0 Topic: Lighting Load

Reference: Exhibit B-2, Figure 3-7, After-Savings Lighting Load

FBC says there is a statistically significant trend (upward) in After-Savings Lighting Load for the most recent five-year period, which is used to forecast load in this class.

In 2015, FBC applied for approval of modification of RS 50 to accommodate the billing of LED street lights. The application was approved by Order G179-15.

9.1 What is the current status of the penetration of LED technology in the Lighting Load rate class? Does FBC have a DSM program that encourages the use of LED street lighting? If so, will this have an effect on the Lighting Load forecast?

Response:

As of September 1, 2017, approximately 10 percent of all street lights in FBC's service area have been converted to LED lighting. FBC has a DSM program to incent the adoption of LED street lighting.

FBC expects the penetration to increase as its lighting customers undertake more conversions to LED lighting. To date, FBC has provided incentives for street light upgrades in Trail, Castlegar, Penticton and a number of rural regional district areas. FBC accounts for DSM in the lighting load forecast and forecasts incremental savings of 1 GWh in 2018 as shown in Table 3-1 of the Application.

10.0 Topic: AMI Savings

Reference: Exhibit B-2, s.3.5.7.1, AMI Impact on Losses

FBC provides estimates of the impact of AMI on losses through theft deterrence as directed by Order G-107-15.

10.1 Please explain how AMI on losses through theft deterrence are estimated and discuss if there has been any change since the AMI decision.

Response:

The annual impact to losses as a result of AMI-enabled theft deterrence are calculated based on the annual change in the number of estimated high-load theft sites using input data as originally provided as part of the AMI CPCN application. As noted in Section 3.5.7.1 of the Application, current forecast loss reductions remain consistent with those provided as part of the AMI CPCN application, as modified by the determinations in Order C-7-13.

11.0 Topic: Peak Demand Forecast

Reference: Exhibit B-2, s.1.3; s.3.5.8

The method of forecasting peak demand is explained in section 1.3 and section 3.5.8. It is understood that the forecasting procedure accounts for increases (or decreases) in energy load over the historical period as well as the contribution of self-generating customers to peak. "Normalized after-savings winter and summer peaks for 2007-2016" are referred to on p.33.

11.1 Please explain in more detail the methodology for forecasting the peak demand in the test year.

Response:

The following explanation demonstrates the calculation of the 2018F summer peak after savings, shown at Line 13 of Table 3-3.

In this example, cells are identified based on their row and column. For example, the value "569" in row 2, column 3 will be identified by the following notation: (2,3).

In this example actual monthly peak values are known up to and including 2016.

All values are MW.

Figure 1 – July Peaks

	1	2	3	4	5	6	7	8	9	10	11	12
1	Year	Gross Load Growth	Jul-07	Jul-08	Jul-09	Jul-10	Jul-11	Jul-12	Jul-13	Jul-14	Jul-15	Jul-16
2	2007		569									
3	2008	-0.3%	567	533								
4	2009	2.3%	580	545	570							
5	2010	-4.4%	555	521	545	560						
6	2011	3.8%	576	541	566	582	503					
7	2012	-1.1%	570	535	559	575	497	510				
8	2013	2.2%	582	547	572	588	508	521	579			
9	2014	-1.1%	576	541	565	581	503	515	573	596		
10	2015	-1.9%	565	530	555	570	493	506	562	585	597	
11	2016	0.1%	565	531	555	571	494	506	562	585	598	579
12	2017	0.9%	570	535	560	575	498	510	567	590	603	584
13	2018	0.8%	575	540	564	580	502	514	572	595	607	589

1. The value 569 in cell (2,3) in Figure 1 is the actual peak recorded in July 2007.
2. The peak in July 2007 cannot be used directly for forecasting in 2017 because of growth during the 10 years between 2007 and 2017.
3. The 2007 peak must be escalated to reflect the growth.

4. The gross load growth rates (column 2) are used to escalate the recorded peak values.

5. For example, in cell (3,3) the value 567 is

$$567 = 569 \times (100\% - 0.3\%)$$

6. The value in cell (4,3) is 580 and is calculated as follows:

$$580 = 567 \times (100\% + 2.3\%)$$

7. The value in cell (5,3) is 555 and is calculated as follows:

$$555 = 580 \times (100\% - 4.4\%)$$

8. Finally, in cell (13,3) the escalated value of 575 is calculated.

9. Steps 5-8 are repeated for columns 4-12 to generate the remaining values of row 13 (green) above.

10. Steps 4-9 are repeated for August to produce the following table:

Figure 2 – August Peaks

	1	2	3	4	5	6	7	8	9	10	11	12
1	Year	Gross Load Growth	Aug-07	Aug-08	Aug-09	Aug-10	Aug-11	Aug-12	Aug-13	Aug-14	Aug-15	Aug-16
2	2007		529									
3	2008	-0.3%	528	542								
4	2009	2.3%	540	554	535							
5	2010	-4.4%	516	530	511	545						
6	2011	3.8%	536	550	531	566	519					
7	2012	-1.1%	530	544	525	560	513	540				
8	2013	2.2%	541	556	537	572	524	552	556			
9	2014	-1.1%	535	550	531	566	519	546	550	580		
10	2015	-1.9%	525	539	521	555	509	535	539	569	581	
11	2016	0.1%	526	540	521	555	509	536	540	570	582	590
12	2017	0.9%	530	545	526	560	514	540	545	574	587	595
13	2018	0.8%	534	549	530	564	518	545	549	579	591	600

11. The design peak is computed by taking the maximum value from July-August for each year.

12. For example, the 2007 peak in July is 575 and is in cell (13,3) in Figure 1. The 2007 August peak is 534 and is in cell (13,3) in Figure 2. As a result, the 2007 July peak is used because it is larger than the August peak.

13. The process of choosing the maximum value from July and August (the summer peak) is repeated for all years, resulting in the following table:

Figure 3 – Summer Peaks

	1	2	3	4	5	6	7	8	9	10	11	12
1	Year	Gross Load Growth	Summer 2007	Summer 2008	Summer 2009	Summer 2010	Summer 2011	Summer 2012	Summer 2013	Summer 2014	Summer 2015	Summer 2016
2	2018	0.8%	575	549	564	580	518	545	572	595	607	600

14. The green and blue cells in row 2 of Figure 3 indicate the month (green=July; blue=August) that the peak was taken from. In six years out of ten the peak summer consumption occurred in July.

15. The summer peak forecast is the simple average of row 2 from Figure 3. The forecast is 570 MW in cell (2,13) the table below.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Year	Gross Load Growth	Summer 2007	Summer 2008	Summer 2009	Summer 2010	Summer 2011	Summer 2012	Summer 2013	Summer 2014	Summer 2015	Summer 2016	Average
2	2018	0.8%	575	549	564	580	518	545	572	595	607	600	570

16. Finally, 16 MW is added to the forecast to account for a self-generating customer, bringing the Summer 2018 before-savings peak forecast to **586 MW**. Savings of 5 MW are deducted from this, resulting in an after-savings 2018 peak forecast of **581 MW** (as are shown in Line 13 of Table 3-3).

17. The winter peak is calculated by following the same procedure as shown above.

11.2 Are the numbers in Figure 3-10 normalized for weather or for energy load?

Response:

The numbers in Figure 3-10 are normalized for weather.

"The after DSM peak forecast was calculated by subtracting DSM capacity savings forecast from the before DSM peak forecast for each month in each year." [pdf p.173]

11.3 How are the DSM capacity savings estimated? If they are based on DSM energy savings please provide the estimated ratio.

Response:

The capacity savings are estimated using a ratio of capacity to energy savings for each month. These ratios are shown below.

Month	Capacity factor
Jan	0.83
Feb	0.85
Mar	0.85
Apr	0.82
May	0.82
Jun	0.80
Jul	0.79
Aug	0.78
Sep	0.81
Oct	0.81
Nov	0.83
Dec	0.82

12.0 Topic: Capital Spending

Reference: Exhibit B-2, pp.6-13

"FBC has evaluated its alternatives and believes that it is in the best long-term interest of customers to pursue the capital spending program it has planned that will result in the dead band being exceeded, not only in 2017, but in the remaining years of the PBR term. It is clear that the capital spending is required and it is the right thing to do to limit increasing risk exposure in the system, and avoid unplanned and urgent capital work that reduces productivity and drives up project costs by reducing FBC's ability to plan and execute the work." [p.13]

12.1 Please comment on how FBC's experience with capital spending during the course of the PBR period including the proposed treatment of capital spending outside the two-year deadband in 2017 reflects on the treatment of capital spending within the PBR framework.

Response:

Please refer to the response to BCUC IR 1.12.1 which explains that the PBR framework contemplated the possibility that capital expenditures may fall outside of the dead band and that the proposed treatment of the amount outside of the dead band is consistent with the PBR framework.

12.2 Can it be said that the proposed treatment of PBR capital spending outside the two-year deadband is equivalent to PBR capital spending not being included in the PBR framework, (a) for 2017 and (b) for the rest of the PBR period?

Response:

No, this statement is not accurate. Please refer to the response to BCUC IR 1.12.1 which explains that the proposed treatment is consistent with the approved PBR framework.

12.3 Please confirm, or otherwise explain, that the effect of the PBR-eligible capital spending being within the PBR framework from the beginning of the PBR period

up to and including 2016 has been to induce FBC to attempt to reduce such capital spending both by finding efficiencies and by postponement.

Response:

The PBR Plan provides incentives to find efficiencies in capital spending through savings achieved. These incentives apply to the amount of capital spending within the dead band, for which there is a sharing of savings with customers. Amounts outside of the dead band have no sharing and are instead added to or deducted from rate base the following year, which provides an incentive to FBC to minimize this amount due to the lag from the time of spending to the time of rate base (and rate recovery) inclusion.

FBC relies on prudent capital management practices, and adheres to consistent policies and procedures, to execute on the required capital expenditures both to support growth in customers and to maintain the safety and integrity of the electrical system.

12.3.1 Please provide, if FBC is able, a quantitative or qualitative estimate of the amount by which the inclusion of capital spending in the PBR framework has reduced capital spending from what it would have been in the absence of the PBR framework?

Response:

Given the unknowns associated with the hypothetical scenario of a non-PBR framework and any related Commission directives, FBC is unable to speculate on what its capital spending would have been in this circumstance.

12.3.2 Please provide, if FBC is able, a quantitative or qualitative estimate of the proportion of any PBR-induced reduction in capital spending that is attributable to (a) efficiencies and (b) postponement.

Response:

FBC has provided a discussion of some of the efficiency initiatives it has undertaken during the PBR term on page 8 of the Application. Please also refer to the response to BCUC IR 1.10.2

for a description and quantification of efficiency activities undertaken in 2016 and CEC IR 1.8.1 for a quantification of projects reprioritized from previous years of the PBR term into 2017.