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May 31, 2017

British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC
V6Z 2N3

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

Dear Mr. Wruck:

Re: FortisBC Inc. (FBC)

Proceeding No. 3698875

Application for Reconsideration and Variance of Order G-199-16 ~ Phase 2 (the Application) – FBC Evidence

On March 17, 2017, FBC filed the Application noted above. In accordance with the British Columbia Utilities Commission (the Commission) Order G-76-17 establishing the Regulatory Timetable for the Phase 2 of the reconsideration process, please find enclosed the FBC Evidence in the matter noted above.

FBC's Evidentiary filing is composed of three parts as follows:

Part 1: Information Request (IR) responses filed as part of the FortisBC Inc. 2016 Long Term Electric Resource Plan (LTERP) and Long Term Demand Side Management Plan (LTDSM Plan) proceeding. These IR responses are relevant to Net Excess Generation (NEG) compensation and kWh bank issues, and provide more information on Net Metering in the FBC context.

Part 2: Additional billing analysis, which illustrates the impact for Net Metering customers of the Net Metering Program billing changes sought as part of the current Application.

Part 3: A generic billing comparison model, including a working spreadsheet in Excel format that can be used to demonstrate the impact of Net Metering Program billing changes sought as part of the current Application over a range of possible consumption and generation profiles.

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

Sincerely,

FORTISBC INC.

Original signed:

Diane Roy

Attachments

cc (email only): Registered Parties

Part One

Excerpts from Responses to Information Requests in the FortisBC Inc. Long Term Electric Resource Plan and Long Term Demand Side Management Plan Proceeding

11.0 Reference: DISTRIBUTED GENERATION

Exhibit B-1, Volume 1, pp. 26, 27, 28, 90, 113; FBC 2016 Self Generation Policy (FBC 2016 SGP), Stage I, Decision dated March 4, 2016, p. 17 (FBC 2016 SGP Stage I Decision), and Order G-27-16; 2016 NW PP, p. 1-12; FBC 2016 NM, Exhibit B-12, BCUC IR 13.4

Costs and benefits

On pages 26 and 27 of the FBC 2016 LTERP Application, FBC states that small-scale DG presents some challenges to FBC, including safety, grid stability and cost. FBC also states on page 90: “Intermittent renewable generation creates many new challenges not experienced with conventional distributed generation.… Depending on its location, the integration of DG can reduce power losses on the transmission and distribution network, but as the penetration level increases, the power losses may begin to increase.”

FBC states on p. 113 of the 2016 LTERP Application that self-generation supply from larger industrial customers can have the following benefits: self-sufficiency and less reliance on market supply; reduction of transmission losses depending on location on the FBC system; improved reliability depending on location; and complement traditional power generation. FBC also states on pages 27 and 28 of the 2016 LTERP Application that it is considering filing an application for a pilot community solar program.

The FBC 2016 SGP Stage I Decision includes on page 17 a list of potential benefits of self-generation as identified by FBC. The 2016 NW PP states on page 1-12: “… decreasing costs for utility-scale and distributed-scale photovoltaic systems have made them cost-competitive sources of energy supply.” FBC stated in the FBC 2016 NM proceeding (Exhibit B-12, BCUC IR 13.4): “The Company does not currently have technical or safety concerns regarding customer investment in small hydro-electric installations that meet the interconnection guidelines.”

11.4 Please expand on FBC’s DG cost related concern. Specifically: (i) if the concern relates to contribution towards sunk network costs, why is it a problem if an electric heating customer with roof-top solar makes the same or similar contribution, as a customer who is low-use because they have gas space and/or water heating; and (ii) if the concern relates to incremental network costs, can this be addressed in the connection policy?

Response:

On pages 26-27 of the LTERP, the Company lists cost (which should be interpreted as cost recovery) as a challenge, stating that the fixed charges in the current rate structures do not adequately recover the cost of connection to the distribution system.

Currently, for Residential customers, the fixed Customer Charge collects less than 50 percent of the costs allocated to this function in the Company's most recent cost of service analysis (COSA). The balance of these costs is collected through the variable charge portion of the rate.

That means that customers with DG, including net metered customers, pay lower variable consumption charges, and, since some of the Company's fixed costs are collected through the variable (energy and demand) charges, fixed charges are under-recovered. In the case of net metered customers, the compensation for net excess generation during a billing period may reduce the contribution toward fixed costs to zero or negative. While the avoidance of energy charges is fair because the customers did not use the power, it is problematic that they also avoid paying for all of the fixed costs of the grid that delivers power when they need it and/or takes the excess power they sell back to the utility. The costs are ultimately borne by other customers through higher rates.

Customers with low use due to reasons other than customer-owned generation cannot avoid paying fixed charges, although by virtue of low energy charges will contribute less to fixed charges than a customer with higher consumption.

70.0 Reference: INFORMING RATE DESIGN FILINGS

Exhibit B-8, Scarlett IR 1; British Columbia Utilities Commission, Report to The Government of British Columbia on the Impact of BC Hydro and FortisBC's Residential Inclining Block Rates (2017) (RIB Rate Report), p. 6; FBC 2014 Stepped and Standby Rates for Transmission Voltage Customers Decision dated May 26, 2014 and Order G-67-14 (FBC 2014 Stepped and Standby Decision), p. 54

DG subsidy

FBC states in Scarlett IR 1 (d): "… customers with low consumption, whether as a result of consumption habits or participation in DSM, still make a standard contribution towards the fixed costs of the system through the Customer Charge. Only customers with DG that have the ability to reduce bills to zero (or negative) can avoid this contribution completely. This means that DG customers, who still rely on and benefit from connection to the electric grid, are being subsidized by other non-DG customers."

The Commission's 2017 RIB Rate Report states on page 6:

> The Commission also notes that it is important to consider the reasons for differences in R/C ratios before determining whether or not a subsidy exists. In Prince George Gas Co. v Inland Natural Gas Co.13 (Prince George decision), a decision of the BC Court of Appeal cited by BC Hydro in its 2015 Rate Design Application, the court observed that payments from one group of consumers that reduce the rates of other consumers do not constitute a subsidy, as long as the reduction in rates is an "incidental result flowing from a proper rate based upon the cost of service." … Since it is not the purpose of the RIB rates to benefit any customers at the expense of other customers, this supports the Commission's view based on the R/C ratios that there is no undue discrimination in the RIB rate.

The FBC 2014 Stepped and Standby Decision states on page 54:

> The Panel considers that stand-by wires charges should be set such that they do not inadvertently either restrict the growth of cost-effective distributed generation, or promote uneconomic bypass. Wires charges should also result in a fair contribution to the sunk costs of the utility's network, although the Panel notes the difficulty in determining the fairness of a Wires Demand Charge from a cost causation perspective.

70.1 Please explain FBC's statement that DG customers are being subsidized by other non-DG customers. In your response, please specifically address whether

FBC's response is consistent with the extracts from (i) the 2017 RIB Rate Report above on what constitutes a subsidy and (ii) the FBC 2014 Stepped and Standby Decision on the difficulty of determining what is a fair contribution to sunk network costs from a cost causation perspective.

Response:

The situation described in the referenced IR response is not analogous with that examined during the Commission's RIB Report process. Rates are designed such that all customers within a given rate class make a similar contribution to the fixed costs of the utility. For residential customers, this contribution is collected through the Customer Charge and is the same for all customers charged under a given rate. Although the Customer Charge does not collect 100 percent of the costs as determined during the Cost of Service Analysis (COSA), it is set at the same level for all customers.

Regardless of the relative impact of the RIB rate on individual customers, which is driven by the consumption habits of the customer and the variable portions of the rate, all customers make, at a minimum, the standard contribution to the fixed charges.

The situation with DG customers is different. While the RIB rate is, as described in the reference, capable of producing an, "…incidental result flowing from a proper rate based upon the cost of service", the current application of the NEG provisions in the NM tariff has no relationship to a cost-based rate designed for that purpose. Rather, the compensation for NEG each billing period at the retail rate instead of the use of a kWh Bank enables customers with small-scale generation, such as those in the NM Program, to avoid even the minimum contribution to fixed charges if their bill is less than the Customer Charge. A customer that reduces their bill to zero, or less, is still using the FBC system, and still driving a system cost, which in the absence of a sufficient bill amount will fall to the account of the remaining customers. FBC is seeking the use of a kWh Bank and an appropriate compensation rate through its Application for Reconsideration of Order G-199-16, in part, to mitigate this situation.

With respect to part (ii) of the question, FBC is of the opinion that the contribution to the sunk costs of the network has been established during the COSA and rate design process, and although it is insufficient to collect all of the associated costs, is represented by the Customer Charge and Demand Charges (where appropriate) as previously approved by the Commission.

3. Please explain any differences in FBC's costs incurred to set up a Net Metering customer—and for billing and management of that customer enrolled in the Net Metering program—compared to those costs for a Net Metering customer that produces Net Excess Generation.

Response:

Please refer to the response to Shadrack IR 1.1i.

NM customers that produce Net Excess Generation (NEG) during a billing period do not impose additional costs over those that do not. If a NM customer produces unused annual excess generation and requires that FBC provide a refund of a credit balance on the customer's account, there are additional costs related to processing the transaction. FBC estimates this cost to be approximately $30 per occurrence, which is over and above the approximately $24 required to produce each manual bill.

2. In response to Scarlett IR1.2.a, FBC stated:

"Expected peak load for a new subdivision is calculated based on the number and type of planned dwellings. This calculation of expected peak load typically incorporates a diversity factor, which captures the differences in timing of customers' individual peak loads referenced in the question."

a) In its use for calculation of peak load is "diversity factor" a well enough understood and reliable phenomenon to justify planning and sizing of FBC distribution infrastructure?

Response:

The use of a diversity factor is a commonly-applied utility methodology that allows for calculation of expected peak load for new subdivision development. However, FBC's distribution infrastructure is planned and sized such that it will be able to safely and reliably supply more than the expected peak load as discussed in Section 6.2.1 of the LTERP.

b) Why is a similar diversity factor calculation not used to evaluate the capacity benefit to the utility from large numbers of NM customers who use different sizes and types of generation?

Response:

At this time, more than 95 percent of FBC's NM customers have PV generation installed. The FBC system peak occurs in the winter, and it typically occurs before sunrise or after sunset. As such, the capacity benefit at times of peak demand on the FBC system is minimal.

1. FortisBC (FBC) stated in its application at 2.3.3 "Small Scale Distributed Generation" that:

"...the fixed charges in current rate structures do not adequately recover the cost of connection to the distribution system".

i. Please compare the average cost to FBC, by rate class if available, of connecting Net Metering (NM) customers with the average cost to FBC for connecting regular customers.

Response:

The majority of NM customers are already connected when they enroll in the net metering program. The physical requirements for interconnection are comparable to customers in general (although the ability of the utility to recover these common costs from the NM customer may be lessened as discussed in the response to BCUC IR 1.11.4).

There are, however, incremental costs associated with connecting a NM customer and with the ongoing administration of the program. FBC does not recover these costs from program participants and does not therefore separate them in a manner that can provide reporting. Costs prior to interconnection include any required site visit, review of the NM design and documentation by FBC staff, administering the Net Metering Application and Agreement and billing review to ensure eligibility. Post-connection, NM metering customers require manual billing and account reconciliation each billing period. Currently all of these costs are recovered from customers in general.

5 FBC expresses specific concern about NM customers "*with greatly reduced, zero, or periodic load" as "problematic for the current regulatory model where the costs of providing all aspects of service are recovered primarily through volumetric rates*".

i. What percentage of FBC's seasonal, occasional and conservation minded residential customers have a volumetric consumption level that would give rise to a similar concern as that of NM customers, or is FBC's focus just on NM customers?

Response:

FBC does not categorize its customers on the basis requested. However, it is only the net metering customers that, under the current rate structure, have the ability to reduce their contribution to fixed costs to zero, or negative, despite remaining connected to, and using the FBC system.

7. In FBC's response (Exh. B-2) to BCUC IR#1.10.4, FBC stated:

"*FBC has a net metering program that is generally consistent with that of BC Hydro*"

On its website, BC Hydro currently describes its NM program as follows: *"Generation options for homes, businesses*

Our net metering program is designed for those who generate electricity for their own use. When you generate more than you need, you sell it to us. When you don't generate enough to meet your needs, you buy it from us.

When you sell to us, you get a bill credit towards your future electricity use. If you still have an excess credit at your anniversary date of joining the program, we'll pay you for the electricity at the rate of 9.99 cents per kilowatt hour (kWh). It's that simple.

By the numbers

- *Since 2004, over 900 customers have been participating in our net metering program.*
- *Over 95% of customers chose to install a solar photovoltaic system.*
- *A typical home generally consumes 11,000 kWh/year. A typical solar installation on a residential roof is 4 kilowatt (kW) in size with 16 solar panels, which in B.C., generates 4,400 kWh of electricity over a year.*
- *On average, solar systems of this size can cost about $14,500. Based on BC Hydro's step 2 of its Residential Conservation Rate, payback on your investment is about 23 years (including savings from the Rate Rider and GST (https://www.bchydro.com/energy-in-bc/acquiring_power/current_offerings/net_metering.html)*

Please explain how FBC's application and reconsideration application to lower its NM NEG RS 95 tariff price from retail rates to PPA Tranche 1 BC Hydro RS 3808 wholesale rate of between $47 to $56 per MWh, when BC Hydro has a NEG RS1289 tariff rate of $99.90 per MWh above its Tier 1 retail rate of 85.80 per MWh, is consistent with that of BC Hydro, who have raised their NEG price twice since inception of their NM program in 2004?

Response:

Please refer to the response to Shadrack IR 2.6ii for a discussion of the general alignment between the NM programs of FBC and BC Hydro.

BC Hydro noted at page 15 of its 2013 Net Metering Evaluation Report #3 that, "Generally speaking, the economic value of customer self-generation to BC Hydro and non-participating customers is measured in terms of avoided costs because customers supply part or all of their own electricity." Thus, FBC concludes that BC Hydro has determined $99.90 per MWh is the avoided cost for power on its system for this purpose, whereas FBC considers that the most reasonable proxy for its avoided cost of power is the rate at which it is able to purchase power under its PPA with BC Hydro.

FBC notes that the Commission has previously provided context for the comparison of rates and programs of different utilities, stating:

> FortisBC operates with a different set of supply resources and with a different customer base in terms of geography, population density and the residential/commercial/industrial mix it faces. The Commission Panel has no mandate, nor does it find it appropriate, to require FortisBC to manage its utility business to produce rates or programs identical to those of BC Hydro. The Commission Panel believes that FortisBC's responsibility is to provide safe and reliable service in a cost-effective manner consistent with British Columbia's energy objectives. To do so, FortisBC must design and manage its system based on the resources available to it and the needs of its customers. This, at times, may result in rates that are greater than those of BC Hydro and potentially times when they are less.[1]

24 i. With reference to FBC's response to Shadrack IR#1.10.iii. in Exh. B-9, to clarify my previous question, given that electricity transferred from NM customers to the Company is given a dollar ($) value, please create a table indicating the average MWh dollar ($) value for electrical power transferred during the past five years from NM customers, both overall and for NEG specifically.

Response:

In responding to this round of information requests FBC has previously compiled information on a group of residential net metering customers with at least a full year of net metering participation. This group of 86 customers represents a sizeable percentage of the total number of program participants. In order to avoid duplicate effort, FBC is responding to this question

[1] BCUC Decision on FBC's 2012-13 Revenue Requirements application, Page 20

using data from these customers which it believes will present a representative average as requested.

For the years in question, and prior to the change in billing methodology recently adopted by the Company (whereby the threshold in a stepped rate is applied only after the calculation of net-consumption has been performed), there is no distinction between the credits provided for overall versus NEG delivered to the FBC system. All energy delivered to the FBC system was valued at either the Tier 1 or Tier 2 Rate, depending on the amount, and regardless of the overall net load of the customer.

The average rate at which accounts were credited for energy delivered to the FBC system during the years 2012-2016 is found in the table below.

Year	Average $/MWh
2012	10.8
2013	11.8
2014	12.3
2015	12.6
2016	12.4

Part Two

Additional Billing Analysis

PART 2 – ADDITIONAL BILLING ANALYSIS

FortisBC Inc. (FBC) has prepared the table below to be submitted as new evidence, pursuant to Commission Order G-76-17, in Phase 2 of the Reconsideration Application, filed March 17, 2017 (Exhibit B-1). The table shows a summary of billing data for the 35 residential customers that were active participants in the Net Metering (NM) Program for the period from April 1, 2015 to March 31, 2016, and also had 6 billing periods in which they either received power from FBC, delivered power to FBC, or both. This ensures that the analysis only captures customers with a full year of data and presents a fair comparison that reflects the actual annual impact.

This April to March period was selected on the assumption that any kWh bank balance would have been zeroed at the end of March 2015. All calculations reflected in the table were done using FBC's current 2017 rates. The title "Billing Under Current Rates" in the table refers to the billing methodology approved by Order G-199-16. The title "Billing Under Proposed Methodology" refers to the use of a kWh bank to carry forward a customer's unused excess generation for use in a future billing period. For the purposes of the "Customer Impact" columns in the table, KWhs remaining in the kWh Bank at the end of March 2016 are assumed to be purchased at the current BC Hydro Rate Schedule 3808 rate.

Of note:

- 26 of the 35 customers included in the analysis are unaffected by the change to a kWh bank and the adoption of the RS 3808 price to purchase annual unused net excess generation (NEG).
    - 20 of these customers did not produce NEG in any billing periods sampled and are therefore indifferent to the billing treatment of NEG or its compensation rate.
    - An additional four customers had NEG during the year but did not consume energy at the Tier 2 rate during the period sampled and are likewise indifferent to the billing treatment.
    - Two of these customers had NEG during the year but in withdrawing energy from the kWh bank only offset future Tier 1 consumption, so they are also indifferent to the billing treatment.
- Five customers are placed in a better position and receive monetary benefits by using the kWh bank to shift consumption from the Tier 2 to Tier 1 rates.
- There are four customers that are worse off under the proposed methodology; those that have annual unused NEG. The production of annual unused NEG by these customers is contrary to the intent of the NM program.
- Over the time period sampled, there were 16 instances where a customer would be credited for NEG at the Tier 2 rate when net energy delivered to the customer by FBC did not exceed 1600 kWh (and therefore the Tier 2 rate would not apply but for the NM program).

Consumption Characteristics					Billing Under Current Rates			Billing Under Proposed Methodology					Customer Impact	
Customer	Number of Billing Periods Receiving Power from FBC	Number of Billing Periods Delivering Power To FBC	Number of Billing Periods With Net Excess Generation	Annual Net Consumption (kWh)	Annual Net kWh Billed at Tier 1 Rates	Annual Net kWh Billed at Tier 2 Rates	Total Annual Energy Cost (Credit) including Customer Charges	Annual Net kWh Billed at Tier 1 Rates	Annual Net kWh Billed at Tier 2 Rates	kWh Remaining in Bank at March 31, 2016	Value of kWh Purchased from kWh Bank	Total Annual Energy Cost (Credit) including Customer Charges & kWh Bank	Bill Impact	Customer Outcome
1	6	6	6	-114,386	-9,600	-104,786	-$17,143	0	0	114,386	$5,563	-$5,371	$11,772	Worse Off
2	6	6	0	14,832	9,600	5,232	$1,981	9,600	5,232	0	$0	$1,981	$0	No Change
3	6	6	0	8,815	8,184	631	$1,119	8,184	631	0	$0	$1,119	$0	No Change
4	6	6	3	881	881	0	$282	881	0	0	$0	$282	$0	No Change
5	6	6	0	14,498	7,901	6,597	$2,022	7,901	6,597	0	$0	$2,022	$0	No Change
6	6	6	0	8,435	5,964	2,471	$1,182	5,964	2,471	0	$0	$1,182	$0	No Change
7	6	6	3	626	626	0	$256	626	0	0	$0	$256	$0	No Change
8	6	6	4	-1,461	-1,367	-94	$40	0	0	1,461	$71	$121	$82	Worse Off
9	6	6	0	8,921	8,815	106	$1,101	8,815	106	0	$0	$1,101	$0	No Change
10	6	6	1	9,224	5,431	3,793	$1,334	5,431	3,793	0	$0	$1,334	$0	No Change
11	6	6	0	19,584	9,600	9,984	$2,723	9,600	9,984	0	$0	$2,723	$0	No Change
12	6	6	0	27,632	9,680	17,952	$3,977	9,680	17,952	0	$0	$3,977	$0	No Change
13	6	6	3	5,541	2,061	3,480	$945	3,200	2,341	0	$0	$882	-$63	Better Off
14	6	6	0	6,838	6,545	293	$900	6,545	293	0	$0	$900	$0	No Change
15	6	6	0	18,679	9,600	9,079	$2,582	9,600	9,079	0	$0	$2,582	$0	No Change
16	6	6	1	35,520	7,448	28,072	$5,330	8,000	27,520	0	$0	$5,300	-$30	Better Off
17	6	6	1	2,033	2,033	0	$398	2,033	0	0	$0	$398	$0	No Change
18	6	6	2	857	702	155	$288	857	0	0	$0	$279	-$9	Better Off
19	6	6	2	10,200	4,472	5,728	$1,540	4,800	5,400	0	$0	$1,521	-$18	Better Off
20	6	6	0	11,114	7,462	3,652	$1,518	7,462	3,652	0	$0	$1,518	$0	No Change
21	6	6	4	-1,584	-1,584	0	$32	0	0	1,584	$77	$116	$83	Worse Off
22	6	6	0	6,852	4,630	2,222	$1,008	4,630	2,222	0	$0	$1,008	$0	No Change
23	6	6	0	31,003	8,952	22,051	$4,542	8,952	22,051	0	$0	$4,542	$0	No Change
24	6	6	0	35,280	9,600	25,680	$5,174	9,600	25,680	0	$0	$5,174	$0	No Change
25	6	6	0	6,029	4,462	1,567	$889	4,462	1,567	0	$0	$889	$0	No Change
26	6	5	0	21,978	9,600	12,378	$3,097	9,600	12,378	0	$0	$3,097	$0	No Change
27	6	5	0	7,020	6,333	687	$941	6,333	687	0	$0	$941	$0	No Change
28	6	5	4	859	859	0	$279	859	0	0	$0	$279	$0	No Change
29	6	4	1	14,048	6,795	7,253	$2,014	6,795	7,253	0	$0	$2,014	$0	No Change
30	6	4	0	34,160	7,413	26,747	$5,129	7,413	26,747	0	$0	$5,129	$0	No Change
31	6	3	0	11,743	4,893	6,850	$1,757	4,893	6,850	0	$0	$1,757	$0	No Change
32	6	0	0	23,880	9,600	14,280	$3,394	9,600	14,280	0	$0	$3,394	$0	No Change
33	6	0	0	65,744	9,493	56,251	$9,936	9,493	56,251	0	$0	$9,936	$0	No Change
34	5	6	1	17,716	7,514	10,202	$2,546	7,897	9,819	0	$0	$2,525	-$21	Better Off
35	6	6	6	-30,610	-8,708	-21,902	-$4,109	0	0	30,610	$1,489	-$1,296	$2,813	Worse Off

Part Three

Generic Billing Comparison Model

ALSO REFER TO LIVE SPREADSHEET MODEL

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)

PART 3 – GENERIC BILLING COMPARISON MODEL

In order to demonstrate how the use of a KWh bank, coupled with compensation for annual unused NEG at the BC Hydro 3808 Tranche 1 rate would impact billing, FBC has prepared the embedded Excel model.

Upon opening, the spreadsheet will appear as follows. Please see the descriptions following the graphic below. The Excel spreadsheet is attached as Appendix A.

	Rates										
	Tier 1	0.10117	Current Tier 1 RCR Rate								
A	Tier 2	0.15617	Current Tier 2 RCR Rate								
	NEG Purchase Rate	0.04864	Current BCH 3808 Rate including DARR								
	Customer Charge	16.045	Current Monthly Customer Charge								
	Threshold	800	Current Monthly Threshold								
B	Insert Annual Consumption	12000									
	Insert Annual Generation	12000									
		April		May		June		July		August	
C	Load Profile Factor	9%		8%		7%		6%		6%	
	Generation Profile Factor	11%		13%		12%		13%		12%	
D	Household Consumption	1,065		915		796		689		758	
	Solar Generation	1,341		1,537		1,498		1,609		1,488	
	Net Delivered Power	**-276**		**-622**		**-702**		**-920**		**-730**	
	kWh Bank										
	Opening Balance	0		276		898		1600		2520	
	kWh Withdrawl or Deposit	276		622		702		920		730	
	Closing Balance	276		898		1600		2520		3250	
Proposed Billing Methodology with kWh Bank	Billed kWh	0		0		0		0		0	
	Billed at Tier 1 Rate	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00
	Billed at Tier 2 Rate	-	-	-	-	-	-	-	-	-	-
	Total Energy Portion of Bill		0.00		0.00		0.00		0.00		0.00
	Customer Charge		16.05		16.05		16.05		16.05		16.05
	Total Bill		16.05		16.05		16.05		16.05		16.05
	kWh Bank Payout	$ -									
	Net Annual Bill	**$ 192.74**									
E	**Delivered Power**										
	Billed at Tier 1 Rate	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00
	Billed at Tier 2 Rate	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00
	Received Power										
	Credited at Tier 1 Rate	276	-27.92	622	-62.93	702	-71.02	800	-80.94	730	-73.85
Approved Methodology without kWh Bank	Credited at Tier 2 Rate	-	0.00	-	0.00	-	0.00	120	-18.74	-	0.00
	Total Energy Portion of Bill		-27.92		-62.93		-71.02		-99.68		-73.85
	Customer Charge		16.05		16.05		16.05		16.05		16.05
	Total Bill		-11.88		-46.88		-54.98		-83.63		-57.81
	Total Annual Bill	**$ 210.34**									
	Summary	**Proposed**	**As Approved**								
F	Total Annual Bill $	$ 193	$ 210								
	Billed at Tier 1 Rate	$ 0	$ 323								
	Billed at Tier 2 Rate	$ -	$ 69								
	Credited at Tier 1 Rate	n/a	-$ 356								
	Credited at Tier 2 Rate	n/a	-$ 19								
	Net kWh Billed at Tier 1 Rate	2	- 318								
	Net kWh Billed at Tier 2 Rate	-	320								
		2	2								

A. The rates used in the calculations are as described in the spreadsheet.

B. Section B is used to input the annual household energy consumption and expected generation output from the customer-owned NM system. Note that these values are for gross household consumption and generation, not the net amounts recorded by the registers at the FBC meter.

C. Section C contains the values used to apportion both the household consumption and generation to the months throughout the year. For the household consumption, the energy is allocated according to the residential class load profile used by FBC in its 2017 Revenue Requirement calculations. It may not be typical of all residences. For the generation profile, FBC has used the annual typical solar output percentages provided by the on-line calculator located at *http://pvwatts.nrel.gov/pvwatts.php* and using the town of Summerland as a proxy. These values can be changed within the spreadsheet but should each total 100 percent.

D. Section D will use the input values to determine the monthly and annual total bills utilizing the kWh bank and approved billing methodology. The value for Net Annual Bill includes any payout from the Balance in the kWh bank at the end of the period covered by the analysis.

E. Section E will use the input values to determine the monthly and annual total bills utilizing billing methodology as approved by Order G-199-16.

F. Part F provides a summary of the two scenarios from parts D and E.

DISCUSSION

Using the typical load and generation profiles contained in the model shows that where generation is equal to or lower than household consumption, the sample customer will be either better off or indifferent to the use of a kWh bank (please refer to the Part 2 Evidence for a discussion of circumstances in which NM customers would be indifferent to the kWh bank).

Where annual generation exceeds household consumption, the reduced compensation rate will disadvantage the customer.

It is possible to generate a variety of atypical results by manipulating the data in the model. For example, inputting a large amount of generation at the beginning of the period followed by relatively low generation for the balance of the year can produce a result where a customer has annual generation lower than annual consumption but is worse off with the proposed billing. However, these hypothetical results should not invalidate the typical customer outcomes – particularly in light of the Part 2 Evidence which shows that for actual customers, typical outcomes do result.