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August 15, 2016

Laurel Ross
Acting Commission Secretary
BC Utilities Commission
6th Floor 900 Howe Street
Vancouver, BC V6Z 2N3

Re: FortisBC Net Metering Tariff Update Application

Enclosed, please find Information Request #2 submitted by Resolution Electric Ltd.

Regards,

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During the first round of information requests –

Resolution IR1 - IR#9 We posed the question;

“In regard to larger systems. Ground mounted solutions could offer larger systems to accommodate larger demands and provide NEG; however the cost associated with payback is now calculated at a much lower rate of Block 1. It appears RCR mechanisms that are currently in place are performing as designed.”

“To what extent does FortisBC perceive the future problem of NEG to be?”

FBC Response;

FBC Response:

“With respect to the first portion of the question, it is unclear what aspect of NEG is being referred to. FBC notes that NEG that occurs within a billing period is currently credited at either the Tier 1 or Tier 2 rate depending on the relative level of net-consumption and net-generation, and under the preferred billing interpretation would continue to attract these retail rates.”

Resolution IR2

To rephrase the question of the extent of the NEG problem - we are trying to gain the scale of the problem FBC claims currently exists. To effectively scrutinize the program rate issue and to find an appropriate solution / control measure, we require system data and kWh values for each system which is in or having a high probability of annual account NEG. *With respect to the Block 1 reference in IR#9 we were alluding to the longer payback term for a larger system which would not only offset the Block 2 rate (15c/kWh) but also the Block 1 rate (10c /kWh), as opposed to a system sized mainly offsetting the Block 2.*

IR2 – 1 which technologies are causing the greatest concern for FBC?

IR2 – 2 given the relatively small sample of Net Metering customers (112+ to date), do FBC think this is fair representation for the trend of future installations? Is it logical to use such a small sample for purposes of extrapolation?

With respect to Solar PV installation it is our experience that it is difficult to gain enough roof space to locate solar modules so as to remove all the customer dependency on the FBC grid. Ground mounting is an option for potentially large systems.

IR2 – 3 Do FBC collect information with regard to whether a solar array is ground mount or roof mount? If so please provide information in table provided in IR2-5.



Note: the focus on customer owned Solar PV is because this is likely to be the bulk of installation under the Net Metering program going forward for Distributed Generation. Wind and Hydro are limited in effective deployment due to system design / technology requirements, we feel this factor should be appreciated.

Information provided in G-59-16_Customer_Letters_FF.pdf dated June 8 - provides details of the 88 Net Metered customers who had billing history for FBC to analyze for rate change impact.

FBC provided the following table;

June 8, 2016
 British Columbia Utilities Commission
 FBC Net Metering Program Tariff Update Application
 Order G-59-16, Directives 2 and 3
 Page 3



Rate Code	Description	Number of Accounts	Had NEG During Any Billing Period	Had NEG Eligible for Monetary Compensation	Accounts Better Off	Accounts Worse Off	Accounts No Impact
RS01	Residential RCR	67	24	7	40	12	15
GS20	Small Commercial	15	6	1		1	14
RS03	Residential Exempt	2	0	0			2
GS21	Commercial	2	0	0		2	
T2ARB	Residential TOU	1	1	1		1	
IR60	Irrigation	1	0	0			1
	Total	88	31	9	40	16	32

In response to BCSEA IR-1 dated July 6 2016 , FBC provided the following:

- 1 **2.0 Topic:**
- 2 **Reference: Exhibit B-1, Application, p.4**
- 3 “As of March 31, 2016, FBC had 86 customers enrolled in the Program, 22 of which are
- 4 served on Commercial rate schedules with the balance served on a Residential Rate. As
- 5 not all customers have been on the program for a full year, the Company cannot
- 6 determine with certainty the number of customers that will have a positive NEG balance
- 7 after a 12 month period however a review of the accounts suggests that 6-8 Program
- 8 participants may be in this position.” [underline added]
- 9 2.1 What is the nameplate capacity of the generation facilities operated by the 6-8
- 10 program participants who will have a positive NEG balance after a 12 month
- 11 period?



12

13 **Response:**

14 Please find below the nameplate capacities for the 8 installations with the highest likelihood of
 15 having unused annual net excess generation.

Capacity (kW)	
1	12
2	10
3	8
4	1
5	20.5
6	12
7	9
8	6

16

17

18

19 2.2 What is the estimated amount of positive NEG (i.e., in kWh) for the 6-8 program
 20 participants who will have a positive NEG balance after a 12 month period? What
 21 is the dollar amount? What is the effective average price?

23 **Response:**

24 In the analysis completed for Order G-59-16, there were 9 customers who, over the 36 months,
 25 had NEG that would have been purchased by the Company. These customers had a total of
 26 approximately 518,000 kWh of NEG over that period. Under the current billing methodology, the
 27 value of NEG is derived from the net kWh that would have been credited at either the Tier 1 or
 28 Tier 2 rate. Over the 36 months, these net kWh would have a value of approximately \$68,000



FortisBC Inc. (FBC or the Company) Net Metering (NM) Program Tariff Update Application (the Application)	Submission Date: July 6, 2016
Response to the BC Sustainable Energy Association and Sierra Club of BC (BCSEA) Information Request (IR) No. 1	Page 3

1 for an average value of \$0.13/kWh. Under the proposed billing methodology, the value of NEG
 2 is derived from the net kWh that would have been used to offset consumption at either the Tier
 3 1 or Tier 2 rate plus the value of any kWh purchased at the end of the billing year. In this case,
 4 the value of the annual excess NEG purchased at the end of the billing year is approximately
 5 \$24,400 for an average value of approximately \$0.047 / kWh.



In FBC response the Resolution IR#6 FBC identify that the customer systems which yield the greatest amount of NEG were small hydro-electric installations.

8 **IR#6**

9 **Reference Exhibit B-1 Net Metering Program Update Application**

10 **Section Changes to the Treatment of NEG, page 10 Lines 10-16**

11 Identifies the intent of the program is to size generation to only meet the customers
12 appropriate load. It is Resolution Electric Ltd experience that it is difficult to completely
13 remove a home's electrical grid consumption due to the limited roof space and aspect of
14 homes, we typically try to shave off the Block 2 rate (which was the intent of the RCR).

15 Please provide the type of mounting system details for the customer systems identified
16 by FortisBC of having large annual NEG.

17

18 **Response:**

19 Customer systems with the greatest amounts of unused annual NEG are those with small
20 hydro-electric installations.

In the response above you also indicate that fact “*there were 9 customers who, over the 36 months, had NEG that would have been purchased by the company.*” And you follow on to state “*these customers had a total of approximately 518,000 kWh of NEG over that period.*”

Given the total installed capacity of the 8 systems identified totals 78.5 kWp and assuming a calculated output for a solar PV system of the same capacity would be likely yield a factor of 1,350 kWh per kWp installed (Okanagan estimated ratio). The total kWh for annual yield to be around 105,975 kWh and for the three year period this would equate to 317,925kWh for maximum generation. This value is also assuming that no electrical energy is being consumed by the customer and all generation is exported to the grid.

FBC indicate a value far in excess of our calculated kWh yield. A value of 518,000 kWh which indicates that the cause for such large NEG may or, may not rest with the contribution from the Solar PV generation and that the small hydro-electric facility could be the cause for such high NEG.



IR2 -4 please provide the following data for each system which FBC identify as having a high probability of being in NEG on an annual basis.

Customer	1 12kW	2 10kW	3 8kW	4 1kW	5 20.5kW	6 12kW	7 9kW	8 6kW	9 ? kW	10+ As required
Annual Delivered Block 1 kWh Pre system										
Annual Delivered Block 2 kWh Pre system										
1 st Annual Delivered Block 1 kWh										
1 st Annual Delivered Block 2 kWh										
1 st Annual Received Block 1 kWh										
1 st Annual Received Block 2 kWh										
2 nd Annual Delivered Block 1 kWh										
2 nd Annual Delivered Block 2 kWh										
2 nd Annual Received Block 1 kWh										
2 nd Annual Received Block 2 kWh										



3 rd Annual Delivered Block 1 kWh										
3 rd Annual Delivered Block 2 kWh										
3 rd Annual Received Block 1 kWh										
3 rd Annual Received Block 2 kWh										

IR2 – 5 please provide the following data for each system which FBC identify as having a high probability of being in NEG on an annual basis. Please provide a completed table for each system.

Customer System #	1
Installed Capacity kWp	12
Generator Specifics Type ¹	
Prime Mover ²	
PV Panel Manufacturer	
PV Panel Model Number	
PV Panel Mounting System ³	
Wind / Hydro Turbine Manufacturer	
Wind / Hydro Turbine Model Number	
Nominal Rating kW, KVA, Volts	
Single / Three Phase	
Geographical area of installation ⁴	

Type ¹ - Synchronous, Induction, Inverter

Prime Mover ² – Wind, Water, Solar

PV Panel Mounting ³ – Ground Mount (fixed), Ground Mount (tracker), Roof Mount (flat), Roof Mount (pitched)

Geographical area of installation ⁴ – Central Okanagan, South Okanagan, Boundary Area, Kootenay