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May 8, 2018

Resolution Electric Ltd.  
600 Welke Road  
Kelowna, B.C.  
V1W 1A7

Attention: Mr. John Cawley, ASCT

Dear Mr. Cawley:

**Re: FortisBC Inc. (FBC)**  
**Project No. 3698875**  
**Application for the Net Metering Program Tariff Update (the Application)**  
**Response to Resolution Electric Ltd. (Resolution) Information Request (IR) No. 1**

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On December 22, 2017, FBC filed the Application referenced above. In accordance with British Columbia Utilities Commission Exhibit A-6 amending the Regulatory Timetable for the review of the Application, FBC respectfully submits the attached response to Resolution IR No. 1.

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

Sincerely,

**FORTISBC INC.**

***Original signed:***

Diane Roy

Attachment

cc (email only): Commission Secretary  
Registered Parties

FortisBC Inc. (FBC or the Company) 2017 Cost of Service Analysis and Rate Design Application (the Application)	Submission Date: May 8, 2018
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1 IR#1

2 Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design

3 Section 3.4 The Challenge of Fixed Cost Recovery, Page 38/715 Line 30

4 *“The adoption of these technologies tends to reduce consumption or change*  
5 *consumption patterns for customers, and requires utilities to acquire new technologies or*  
6 *information systems capacity to manage their systems. These trends can simultaneously*  
7 *increase costs and/or reduce customer consumption.”*

8 With reference to the new technologies or information systems capacity that utilities are  
9 required to adopt because of emerging technologies, please expand and describe what  
10 these new technologies or information systems capacity are, and the additional costs  
11 these emerging technologies add to FBC.

12

13 **Response:**

14 The emerging technologies noted in the Application have the potential to change the manner in  
15 which the Company interacts with its customers. By extension, this may impact how the rates  
16 FBC has in place are able to reflect changes in how customers use power and may impose  
17 additional costs.

18 This discussion is at the early stages, and costs have not been determined. However, FBC  
19 acknowledges that as distributed generation technologies continue to evolve, and technologies  
20 such as micro-hydro and solar photovoltaic make residential-scale generation more feasible and  
21 reduce customer demand from the utility, different burdens are placed on the distribution  
22 system. Small-scale distributed generation technologies present some challenges for FBC that  
23 may cause additional cost. These include the following:

- 24
- Safety – potential for back-feeding onto the distribution grid must be properly addressed.
  - Grid stability – the distribution grid must be able to handle unpredictable distributed  
25 generation output without causing power quality problems for other customers.
  - With respect to information systems capacity, the Company expects that different rate  
26 structures and capturing data at a more granular level is expected to introduce IT costs  
27 and that as the uptake by customers of these programs increases, it will no longer be  
28 feasible to manually produce bills, as FBC does today for Net Metering program  
29 participants. These changes will require that some degree of additional automation be  
30 added to the billing system.
- 31  
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2 **IR#2**

3 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

4 **Section 3.4 The Challenge of Fixed Cost Recovery, Page 39/715 Line 21**

5 With respect to FBC concerns around the cost recovery, reduced revenues due to  
6 customers adopting energy management technologies, please explain why a residential  
7 customer with solar who manage to reduce the load significantly but not completely in  
8 the summertime should be treated differently from a residence in a community located in  
9 a high elevation or communities that experience cooler summers and colder winters or  
10 prolonged shoulder seasons. These geographic communities experience significant  
11 winter-time loading and virtually no summertime loading. An example of this summer /  
12 winter costing can be found on page 71/715 line 17 to 31. Is FBC proposing a minimum  
13 annual consumption amount for the rate recovery, if so what is this figure? Please  
14 comment.

15

16 **Response:**

17 FBC has not proposed to treat customers in different locations in a different manner and has not  
18 proposed rates that result in differing treatment of any customers that are in substantially similar  
19 circumstances.

20 FBC constructs rates that aim to ensure appropriate cost recovery from all customer classes. If  
21 the trend to lower use per customer continues, rates should be restructured to ensure that  
22 customers are paying their fair share to the extent possible. This principle would apply  
23 regardless of the reason for lower consumption levels.

24 FBC has proposed an increase to the Customer Charge in this Application to help minimize the  
25 transfer of cost recovery from one group of customers to another.

26

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29 **IR#3**

30 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

31 **Section 3.6 A Potential Net Metering Rate. Page 42/715 Line 9**

32 *“The results indicate that NM customers have a lower load factor and R/C ratio than*  
33 *similar customers without NM systems.”*

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1 Please expand on what is meant by the term “similar customers without Net Metering  
2 systems” What customer type does the application reference?  
3

4 **Response:**

5 Load characteristics of residential customers with NM systems were compared to the load  
6 characteristics of residential customers as a whole. As the statement indicates, based on the  
7 current mix of customers, NM customers appear to have different load profiles. However, as  
8 discussed in the Application, the NM group is relatively small and the program relatively new, so  
9 FBC is highlighting what may become an issue in setting rates in the future, but has chosen not  
10 to suggest changes to the NM rates at this time.

11

12

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14 **IR#4**

15 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

16 **Section 3.6 A Potential Net Metering Rate. Page 42/715 Line 15**

17 *“FBC did review potential NM rate variants that have been introduced or are under*  
18 *consideration in other jurisdictions, such as a demand-related rate.”*

19 Shouldn't this suggested “demand related rate” need to be qualified by a Time-of-Use ?  
20 Electricity demand, and associated energy consumed during this demand period, if  
21 imposed in an “off-peak” part of the day / week helps to improve the system utilization  
22 factor therefore helping to make the utility network more efficient. Please comment.

23

24 **Response:**

25 TOU rates and rates that incorporate a demand charge can be implemented separately to good  
26 effect just as is the case today. With specific reference to the potential demand based  
27 component of net metering rates, the focus is on the recovery of fixed costs that do not vary with  
28 consumption and that can be avoided through customer owned generation. These are primarily  
29 costs related to the delivery system, which are not affected by the time that energy is  
30 consumed.

31

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1 **IR#5**

2 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

3 **Section 3.6 A Potential Net Metering Rate. Page 42/715 Line 16**

4 *“If FBC were to implement such a rate, it would be optional in the sense that it would be*  
5  *tied to the optional Net Metering Program, and mandatory in the sense that all Net*  
6  *Metering customers within the applicable rate classes would be required to utilize the*  
7  *rate.”*

8 If a demand were to become mandatory for Net Metering customers, would this not be  
9 viewed as being discriminatory between other residential customers? Customers who  
10 experience significant seasonal use as in the example previously referred to above  
11 found on page 71/715 line 17 to 31. Please comment.

12

13 **Response:**

14 In the view of FBC, it would not be discriminatory to create a separate rate for net metering  
15 customers in the circumstance where it could be demonstrated that they exhibit a load profile  
16 that is distinct from customers in general and place different demands on the utility system.  
17 Conceptually, this is no different than the similar segmentation of customers that is routinely  
18 done as part of the COSA exercise. Please note as well, however, that no net metering rate is  
19 being proposed in this Application.

20

21

22

23 **IR#6**

24 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

25 **Section 3.6 A Potential Net Metering Rate. Page 43/715 Line 6**

26 *“Given the small sample size and early stage of the NM Program, FBC is not seeking*  
27  *Commission approval of a new rate element such as a demand-related rate for NM*  
28  *customers at this time. FBC will continue to monitor and assess the impact that net*  
29  *metering has on other customers. As such, FBC provides this discussion only to*  
30  *increase understanding of the issues around increasing participation in net metering and*  
31  *one solution that could be adopted to address them.”*

32 With reference to page 383/715 Residential Annual Consumption Distribution Chart

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1 Approximately fourteen percent of residential customers are using 4000kWh or less on  
2 an annual basis, roughly around 16,000 customers who experience low power bills on  
3 an annual basis.

4 Given that the total number of net metered customers totaled eighty-six in 2016  
5 (reference Order Number G-63-18) at what level of Net Meter customers would FBC  
6 consider the need to introduce a demand element to the NM rate to recover system fixed  
7 charges due to lower revenue / lower energy consumption?  
8

9 **Response:**

10 Please refer to the response to CEC IR 1.6.2.  
11  
12  
13

14 **IR#7**

15 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

16 **Section 5.1.1.4 Load Forecast. Page 54/715 Line 10**

17 *“For comparison, in 2009 the total system energy was 3,107 GWh forecast for the year.*  
18 *The system energy change from 2009 to 2017 reflects an average annual increase of*  
19 *0.7 percent per year. The number of customers, however, has increased by an average*  
20 *of 2.3 percent per year.”*

21 And with reference to the EES Consulting – Electricity Cost of Service Study page  
22 176/715

23 *“When comparing the 2017 forecast peaks to 2009 actual peaks (the year of the last*  
24 *COSA), the summer peak is growing nearly twice as fast as the winter peak. For that*  
25 *time period, the total growth was 47 MW in the winter, or about 0.8 percent per year. For*  
26 *the summer peak, the growth was 73 MW, or about 1.5 percent per year. This indicates*  
27 *that the summer peak is moving closer to the level of the winter peak, and that FortisBC*  
28 *system planning will continue to need to recognize the growth in the summer peak.”*

29 From the quoted figures above for electrical energy growth, it is evident the summertime  
30 growth is outstripping the winter growth by a factor of two to one. It would therefore  
31 seem logical to support technologies that facilitate a reduction in the peak summer  
32 loading. Technologies like solar electric, solar domestic hot water and solar pool heating  
33 systems that remove summertime electrical loading during peak hours of summertime  
34 system loadings would be desirable to mitigate the need for system capacity upgrades  
35 driven by summer loading.

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1 It would suggest a solar electric Net Metering customer would be actively supporting  
2 FBC and its customer base by removing their loading from system summer peak.

3 Please comment on how FBC intend to manage future summertime load growth, and the  
4 associated electrical system infrastructure projects which are driven by summertime  
5 growth, and identify which Demand Side Management technologies FBC could deploy to  
6 assist residential homeowners reduce summertime growth.

7

8 **Response:**

9 This question ventures far afield from the subject matter of the present Application.  
10 Management of load growth, infrastructure projects and DSM are the subject of separate  
11 proceedings including in relation to DSM expenditures and the long-term electric resource plan.  
12 Further, the preamble to the question includes commentary on the role of net metering  
13 customers which also properly falls into the ambit of other types of proceedings, including a  
14 recently concluded proceeding specifically related to net metering.

15 However, as background information, FBC notes the following.

16 FBC recently completed a Demand Response (DR) potential study, as part of the BC  
17 Conservation Potential Review additional scope services. Although the focus of the study was  
18 on mitigating winter peak periods that continue to set FBC's annual peak system load, some  
19 measures e.g. direct load control of hot water tanks, are applicable to offsetting summer peaks.  
20 The Company expects to file the DR potential report with its forthcoming multi-year DSM Plan  
21 expenditure schedule.

22 Currently FBC is undertaking a more detailed DR assessment for the Kelowna region that will  
23 quantify both summer and winter peak offsets. The target is larger commercial customers to  
24 enable the subsequent pilot phase that is anticipated to test both summer and winter DR. FBC  
25 considered assessing a primarily residential area that experiences summer peaking, but elected  
26 to proceed with the commercial customer assessment to get the additional benefit of testing  
27 winter peak clipping.

28

29

30

31 **IR#8**

32 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

33 **Section 5.1.2.1 Rate Base. Page 59/715 Line 22**

34 *"The correction of the problem of over allocating demand can be achieved by the*  
35 *application of a Peak Load Carrying Capability (PLCC) adjustment. This adjustment was*

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1            *first introduced in the 2009 COSA. The precise amount of a PLCC adjustment should*  
2            *match the definition of the minimum system adopted. In the FBC case, it was determined*  
3            *that the average PLCC for the FBC system is 1.09 kW per customer. Appendix B to the*  
4            *EES Consulting Report provides a more detailed discussion of the PLCC and how the*  
5            *amount was calculated.”*

6            It would appear the Peak Load Carrying Capability (PLCC) of 1.09kW is extremely  
7            skewed, and given the following flawed methodology described in appendix B of the  
8            EES Consulting report, the PLCC does not reasonably identify the inherent  
9            capacity/demand factor of a basic system. The approach detailed on page 259/715 is  
10           aimed at identifying the cost associated for the system to deliver the minimum energy to  
11           each and every customer (1kWh per year) then calculating the actual system  
12           infrastructure costs, the difference in costing is then associated with the system demand.

13           The minimum system costs approach is converting all the existing system assets to a  
14           base “minimum design” example a transformer will be costed for a replacement unit at  
15           15KVA regardless of present system sizing. This approach is open to a significant error  
16           rate in determining the true cost for a minimum system to deliver minimum supply to a  
17           customer.

18           The system of today is built based on evolving load growth and engineering an efficient  
19           system to deliver power to the end user. In the example of a transformer the existing  
20           network is designed to carry three phase loads, so as to balance the loading imposed on  
21           the network. In the minimum system approach it may not necessarily require a three  
22           phase system for all feeders as the load balancing would be negligible.

23           For example, a pole with three transformers would not necessarily require three units  
24           and could be replaced with one transformer (minimum load) therefore the calculation for  
25           transformers is grossly overestimated. Similar to the conductor count in km, the report  
26           calculates all three phase conductors and then gives an equivalent cost for a #2 ACSR,  
27           again minimum system design would suggest the need for only two conductors Phase &  
28           Neutral.

29           Clearly some three phase balancing is needed and some lines may warrant 3Ph  
30           similarly substations need three phase.

31           The analogy I could provide for the situation detailed above is flying. If the task was to  
32           get an airplane off the ground and airborne (flying) then a very moderate design with one  
33           engine and a small fuselage would suffice. Getting airborne would equate to delivering  
34           electricity. If you wanted to use the airplane for carrying significant payload (demand)  
35           then a sizable craft with several engines capable of long distance flight would be  
36           required. Therefore the demand cost would be based on the two designs for aircraft and  
37           the price differential between the two designs would bring about a closer reflection of  
38           demand cost.

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1           a       Please comment on the effectiveness of the calculation to determine the  
2                    minimum system costs vs the actual system cost and therefore the determination  
3                    of the demand costing.  
4

5       **Response:**

6       FBC does not agree with the arguments set out in the preamble to Resolution IR 1.8a. As no  
7       question is posed about those arguments specifically they are not addressed in this response,  
8       but for clarity, FBC should not be taken to agree with those arguments even if not responded to.  
9       FBC also notes, for clarity, that the preamble to this question does not constitute evidence that  
10       could be taken into account in this form.

11       The Company consulted with EES to provide the following response.

12       Specifically with respect to the question posed after the letter “a”, the calculation used follows  
13       standard COSA practice and is designed to provide a split between demand and customer  
14       related costs. The minimum system with PLCC adjustment is consistent with the approach  
15       used by FBC for the 2009 COSA as accepted by the Commission at the time. While the  
16       approach used may not account for all of the intricacies of a true minimally designed system, a  
17       more detailed approach would require engineering design and would not be cost-effective given  
18       the relative impact (which would at most be small) on the treatment in the COSA.

19  
20

21

22           b       Please comment on what other methods FBC have looked at to assess the cost  
23                    for supply.  
24

25       **Response:**

26       With respect to the preamble to the question, please refer to FBC’s response to Resolution IR  
27       1.8a.

28       Since this question appears in a set dealing with the minimum system approach to allocating  
29       costs, FBC assumes that the request is for comment on what alternatives to the minimum  
30       system approach were explored.

31       The Company consulted with EES to provide the following response.

32       The zero-intercept approach and the 100% demand approach were considered. The minimum  
33       system approach was selected to best reflect the theoretical nature of how the system was  
34       designed and used, to reflect methods used by other utilities, and to reflect the method  
35       approved by the Commission in the past.

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c Would FBC consider recalculating the minimum systems costing to establish a figure that is more realistic?

**Response:**

FBC does not agree with the apparent suggestion in Resolution IR 1.8c that the present figure is not realistic or not appropriate.

FBC would not consider an alternative approach due to the cost associated with a full engineering design compared to the limited if any expected benefits. Please see the further discussion in this regard, as well as in relation to the preamble, in the response to Resolution IR 1.8a.

**IR#9**

**Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design  
Section 6.1.4.1 No Natural Gas Access Rate. Page 71/715 Line 32**

*“The Company agrees that as a group, customers that do not have natural gas service, whether as a result of the lack of gas delivery infrastructure or as a matter of choice, will have an average annual electrical consumption that is higher than residential customers in general. This is also a factor in higher than average annual bills.”*

Please identify what the term “group” is referring to, and how this group was determined.

**Response:**

“Group” in this context is as described in the same sentence – customers that do not have natural gas service. This is the only defining characteristic referred to or intended in identifying the group, though as described elsewhere in the quoted passage, its members may tend to have an average annual electrical consumption that is higher than residential customers in general.

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2 **IR#10**

3 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

4 **Section 6.1.4.1.1 No Basis in Cost Causation. Page 72/715 Line 10**

5 With respect to the atypical load profile reference in line 10, is this reference to winter  
6 over summer demand characteristics as per customer example on the previous page (71  
7 line 17). Please confirm or clarify otherwise.

8

9 **Response:**

10 As compared to customers in general, “no-gas” customers have higher usage per customer and  
11 therefore have more usage above the Tier 2 threshold.

12 In general, the no-gas group had higher load factors in the winter, likely due to more electric  
13 heat customers. They were also more likely to peak at the same time as one another, but were  
14 less likely to peak at the same time as the total system peak.

15

16

17

18 **IR#11**

19 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

20 **Section 6.1.4.1.1 No Basis in Cost Causation. Page 72/715 Line 29 to 38**

21 With respect to operating costs for residential customers with natural gas supplies, do  
22 FBC agree with the following rationale, that the natural gas delivery basic charge (meter  
23 charge) of \$0.3890 per day is a fixed cost regardless of consuming natural gas, this fixed  
24 cost equates to \$146.95 per year for the natural gas residential customer.

25 Given that the \$146.95 would buy you the equivalent electricity of 950kWh at the Tier 2  
26 rate or 1450 kWh at the Tier 1 rate, this factor should also be identified when discussing  
27 price comparisons.

28 I firmly believe this is a cost that is often overlooked by the non-gas consumer; I believe  
29 these costs should also factor in when determining annual energy costs and that FBC  
30 should include this relevant information in their presentations to the general public during  
31 open houses etc. Please comment.

32

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1 **Response:**

2 FBC agrees with the statement in the preamble that the fixed Basic Charge in natural gas bills  
3 (not paid by customers who are not natural gas customers) should be factored in when  
4 comparing annual energy costs of homes who have access to both natural gas and electricity  
5 with annual energy costs of those who are only electric customers. Further, a residential  
6 customer currently using electricity for space heating would have to make considerable upfront  
7 investments to purchase and install a natural gas furnace and water heater, as well as potential  
8 costs for retrofits within the dwelling (e.g. ductwork and venting) to accommodate natural gas  
9 equipment. For a further discussion of electric versus natural gas costs please see the  
10 response to AMCS IR 1.4.1.

11

12

13

14 **IR#12**

15 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

16 **Section 6.1.4.2 Changes to the Existing RCR. Page 74/715 Line 8 to 13**

17 Have FBC ever considered a simple equivalency statement on their utility bill to educate  
18 the customer as to what the equivalent charge per kWh would be based on a flat rate  
19 1250kWh per month. This would provide some assurance to customers that going over  
20 the 800 kWh per month is not theoretically a financial addition until the 1250kWh  
21 threshold is reached.

22

23 **Response:**

24 FBC has provided information to customers regarding the breakeven point for the RCR and flat  
25 rate on its website, in rate-related information sessions and through various media  
26 opportunities. It has not considered adding this information to customer bills as well. On  
27 balance FBC does not believe that would be helpful, given the information already available  
28 elsewhere and the importance of keeping customer bills as straightforward as possible.

29

30

31

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1 **IR#13**

2 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

3 **Section 6.1.4.2 Changes to the Existing RCR. Page 75/715 Table 6-4**

4 It is evident that fifty-eight percent of the customer base would see an increase in utility  
5 costs, rising between three percent and ten percent. Would this not be viewed as a  
6 penalty to the group of residential customers who live a lifestyle with low to moderate  
7 (below FBC average customer) energy usage? Please comment.  
8

9 **Response:**

10 Table 6-4 does not indicate the 58 percent of customers would see annual bill increases ranging  
11 from 3 to 10 percent. Please refer to the response to BCUC IR 1.44.1.3.1 for a discussion of  
12 table interpretation.

13 Generally speaking, an inclining block rate favours low-consuming customers and will result in  
14 higher consuming customers experiencing higher annual bills than under a flat rate. This is a  
15 function of consumption level, which may or may not include consumption related to what some  
16 may consider discretionary.

17 Given the lack of a cost driver for the energy components or threshold of the RCR, a flat rate  
18 provides that best balance in terms of equitable treatment of residential customers. FBC has  
19 recognized the impact that returning to a flat rate may have on customers and has proposed a  
20 phase in period as a mitigation strategy.

21

22

23

24 **IR#14**

25 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

26 **Section 8.2.1 Time of Use Rate Periods. Page 120/715 Table 8-4**

27 With regard to the on-peak window it appears the 9pm threshold is late in the evening,  
28 given the on peak window should capture the time of power at ninety percent of system  
29 peak power as defined in the EES Consulting report.

30 For TOU tariffs to be effective they must also be realistic in as much as to enable the  
31 customer to make changes in lifestyle to delay electrical consumption until after the on-  
32 peak window has expired. Having an 8pm on-peak threshold would be more effective  
33 and encourage the residential consumer to adopt this rate structure and wait until the  
34 8pm.

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1 With reference to the TOU example on page 401/715 the hypothetical cost difference  
2 between the cost of energy on the RCR rate of \$268 per month and Time of Use cost of  
3 energy of \$234 is only \$34 or approximately a dollar a day, and given the TOU rate also  
4 could potentially have additional unknown costs if more electricity is inadvertently  
5 consumed in the peak period it is difficult to imagine how this rate would appear  
6 attractive? Please comment.

7

8 **Response:**

9 The commentary contained in the question is one perspective and may not be representative of  
10 customers in general. Whether or not the optional TOU rate is attractive will depend on  
11 individual customer circumstances, and FBC will aid customers by providing information related  
12 to hourly load and the impacts of consumption changes. Ultimately, the decision to opt in to the  
13 TOU rate rests with the customer.

14

15

16

17 **IR#15**

18 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

19 **Section EES Consulting Report. Page 261/715 Table Minimum System Power Poles**

20 The need for a three phase system under a the minimum system analysis would be  
21 dramatically reduced. The pole count for three phase lines which require more than a  
22 single pole in the construction design to cater for conductor loading from larger  
23 conductor sizing should not enter the cost equation when calculating the minimum  
24 system unless physical spans warranted such designs. Please comment.

25

26 **Response:**

27 The Company consulted with EES to provide the following response.

28 The minimum system analysis already uses a single-phase system as the minimum system.  
29 Therefore, the concern in the question that the pole count for three phase lines and associated  
30 conductor enter the cost equation when calculating the minimum system is not warranted.

31

32

33

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1 **IR#16**

2 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

3 **Section EES Consulting Report. Page 263/715 Table Minimum System Conductors**

4 Again the argument for conductor count follows the three phase requirement which the  
5 present system evolved through load growth. Using the conductor Length in column two  
6 of the table will lead to significant over estimation for the true minimum system cost  
7 approach to supply 1kWh per customer per year it seems to me that using the present  
8 system components and downgrading them to serve a minimum loading is inherently  
9 flawed and leads to significant miss-calculations for the cost to supply minimum power  
10 and the associated PLCC.

11 The need for three phase in a residential application is based on load requirements,  
12 under the minimum load analysis there should be no requirement for a residential  
13 customer to take a three phase service.

14 Commercial customers may require three phase to run plant and processes, any feeder  
15 requiring three phase should be therefore be costed to the commercial class.

16

17 **Response:**

18 FBC does not agree with the analysis set out above, including the suggestions of flaws and  
19 miscalculations. Please refer to the response to Resolution IR 1.8a with respect to the status of  
20 and FBC's approach to preambles such as found above.

21 The Company consulted with EES to provide the following response.

22 Any amounts related to three-phase service are included in the demand-related component of  
23 the minimum system split. That amount would be allocated more heavily to customers that  
24 have higher demand levels than residential customers.

25

26

27

28 **IR#17**

29 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

30 **Section EES Consulting Report. Page 266/715 Table Minimum System Transformers**

31 The transformer count for a minimum system approach is largely overestimated. When  
32 converting a 2500KVA transformer (3 phase unit) to a 15KVA single phase unit to  
33 provide the conceptual analysis for minimum-cost approach it is completely in alignment  
34 with the principle, however the system is designed to three-phase construction for load

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1 balancing as previously outlined in IR#8. Given the high population of 15 and 25KVA  
2 transformers how many are configured as three phase? The minimum system analysis  
3 rule should only account for one transformer per pole as this would be reasonable to  
4 deliver the minimum power requirements for service drops. Please comment.

5

6 **Response:**

7 The Company consulted with EES to provide the following response.

8 The minimum system is designed as single-phase and follows standard practice. Under  
9 standard practice the cost of a minimum sized transformer is applied to all transformers and the  
10 number of transformers is not reduced when calculating the minimum system. The minimum  
11 system approach is a theoretical concept and is not an attempt to redesign the entire system.

12

13

14

15 **IR#18**

16 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

17 **Section Rate Schedule 95 – Net Metering. Page 670/715 - Billing Calculation item 3**

18 “If in any billing period, the eligible Customer-Generator is a net generator of energy, the  
19 Net Excess Generation will be valued at the rates specified in the applicable Rate  
20 Schedule and credited to the Customers account.”

21 Doesn't this statement contradict the new kWh bank per BCUC order G-63-18 with  
22 respect to establishing a kWh bank and not directed financial credits applied to the  
23 customers account?

24

25 **Response:**

26 Order G-63-18 was issued by the Commission after the Application was filed. Order G-63-18  
27 contains directives related to revising the Net Metering rate schedule and FBC will be following  
28 the revised rate schedule.

29

30

31

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1 **IR#19**

2 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

3 **Section Rate Schedule 95 – Net Metering. Page 670/715 - Billing Calculation item 4**

4 “For eligible Customers receiving Service under a Time-of-Use (TOU) Rate Schedule,  
5 *consumption and generation during On-Peak Hours will be recorded and netted*  
6 *separately from consumption and generation during Off-Peak Hours such that any*  
7 *charges or credits applied to the account reflect the appropriate time-dependent value*  
8 *for the energy.”*

9 Shouldn't the statement in item 4 make reference to the potential mid-peak rate?

10

11 **Response:**

12 Please refer to the response to Resolution IR 1.18.

13

14

15

16 **IR#20**

17 **Reference Exhibit B-1 2017 Cost of Service Analysis & Rate Design**

18 **Section Rate Schedule 95 – Net Metering. Page 672/715**

19 *“A Customer-Generator will, at its expense, provide lockable switching equipment*  
20 *capable of isolating the Net Metered System from FortisBC's system. Such equipment*  
21 *will be approved by FortisBC and will be accessible by FortisBC at all times.”*

22 Paragraph 2 states the lockable switch will be accessible by FortisBC at all times. For  
23 consistency throughout British Columbia would FortisBC consider making the  
24 appropriate changes to paragraph 2 of Rate Schedule 95 and remove the need for  
25 accessibility at all times and align the wording with BC Hydro?

26 The BC Hydro wording requirements does not place such a condition for accessibility at  
27 all times. See except below.

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### DG System Disconnect Means

All generators interconnected with the Distribution System require a means to safely disconnect them and ensure isolation in accordance with *CEC Part I, Section 84*. BC Hydro does not specify the physical location of the customer's means of disconnection.

As per *CEC Part I, Section 84-030*, the DG shall install a warning label at the revenue meter location and at the Disconnect Means, and a single-line, permanent, legible diagram of the interconnected system shall be installed in a conspicuous place at the disconnecting means.

R1 – October 17, 2014

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**Response:**

FBC is not proposing to alter the interconnection requirements related to net metering installation.