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June 21, 2017

Mr. Patrick Wruck  
Commission Secretary  
BC Utilities Commission  
6<sup>th</sup> Floor 900 Howe Street  
Vancouver, BC V6Z 2N3

Re: FortisBC Community Solar Pilot Project Application

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

Regards,

John Cawley ASCT  
Resolution Electric Ltd

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[www.resolutionelectric.ca](http://www.resolutionelectric.ca)



IR#1

Reference Exhibit B-1 Community Solar Pilot Project

Section Executive Summary; page 6 Lines 4-6

*“The CSPP is proposed for the Ellison area in the north of Kelowna, and will provide an opportunity for FBC customers to meet a portion of their needs with solar power.”*

Please explain the consideration for choosing the Ellison location, and did FortisBC consider other substation locations for the pilot solar project? What other location options are available to expand the solar pilot project should the pilot program prove popular?

IR#2

Reference Exhibit B-1 Community Solar Pilot Project

Section Executive Summary; page 6 Lines 29-30

*“FBC may add the FortisBC Solar Offset as an available rate option, if the Company believes that rate option will attract additional subscribers.”*

Please explain how this second rate would attract more customers? Given the challenge of managing a varying customer electrical demand vs varying solar energy output how do FortisBC propose to manage the complexity of this system billing option?

IR#3

Reference Exhibit B-1 Community Solar Pilot Project

Section Community Solar Pilot Opportunity; page 8 Lines 2-3

*“The CSPP is not a significant source of energy in the context of FBC’s overall requirements; the Program is driven primarily by customer considerations.”*

Please explain which customer consideration you are addressing given the cost of the solar option is significantly higher than regular retail rate? The results of the survey indicate cost reduction as the number one driver with a residential survey result of 81% (page 44).

IR#4

Reference Exhibit B-1 Community Solar Pilot Project

Section Customer Feedback; page 9 Lines 12-14

*“Key results of the survey indicate broad support for FBC to begin offering solar energy as an alternative to help meet customer demand, with three-quarters of both residential and commercial customers stating that FBC should offer solar.”*



Please indicate what the percentage of customers would support FBC offering solar at the cost levels proposed. Given that the following paragraph on page 49 of the survey states;

“Among those who think that FortisBC should offer solar electric energy as an alternative, 10% would definitely consider contributing a small amount on a monthly basis to help offset the increased cost of generating solar energy”

IR#5

Reference Exhibit B-1 Community Solar Pilot Project  
Section Customer Feedback; page 9 Lines 16-18

*“However, there are a number of strong secondary reasons, beginning with GHG emissions reductions, followed by energy independence, resource preservation and energy security.”*

Given the limited knowledge of market researchers asking the questions and typical customers answering the survey would FortisBC accept these secondary reasons as legitimate reasons? Main questionable responses are the “energy independence” and “energy security”. Would FortisBC accept these results to be customer misconceptions? If not please provide an explanation on how you would market the Ellison solar generation with respect to “energy independence” and “energy security” for the customer education.

IR#6

Reference Exhibit B-1 Community Solar Pilot Project  
Section Background; page 11 Lines 9

With reference to the Compass report in pdf format the following statement is quoted from page 12 of the report

“Choosing the correct technology for a given project involves a trade-off between system efficiency (kWh/kW) and overall project economics and cost (LCOE, or \$/kWh)”.

FortisBC have already indicated the use of Mono-crystalline technology, please indicate what technology is to be used for the DC/AC inverter, and if module level monitoring is offered as an option. What is the expected lifespan of the inverter technology?



IR#7

Reference Exhibit B-1 Community Solar Pilot Project  
Section Background; page 11 Lines 24-27

*“The proposed Community Solar Pilot Program will provide an opportunity for those customers not able to install a PV system, such as those that live in rental properties, MURBs, or townhomes, or that cannot afford the up-front capital costs, with a new renewable energy option.”*

Have FortisBC reviewed customer assistance financing which is secured to the utility bill to assist with the full or partial installation cost to alleviate the up-front costs of solar PV for customers?

This is a current offer on your website for Kelowna customers for heat pump technology <https://www.fortisbc.com/Rebates/RebatesOffers/Pages/Results.aspx?type=homes&city=Kelowna>



### Heat pump loans

Instead of a rebate, finance your heat pump with a low 1.9 per cent interest rate.

Up to \$6,500  
loan

IR#8

Reference Exhibit B-1 Community Solar Pilot Project  
Section Project Proposal & Cost Estimate; page 13 Lines 16-18

*“FBC has added a 5% contingency amount to all costs, reflecting that the majority of costs will be firm per the Skyfire contract. These amounts are set out in Table 4-1 below, which shows the total estimated capital cost of \$961 thousand, or \$3.9 CAD/Watt.”*

Given the final cost could finish at \$4.095 / Watt, can FortisBC justify the proposal as financially viable (or value for money) to people seeking power who live in rented accommodation of in MURB's? How confident is FortisBC in selling the proposed 720 modules / output?



IR#9

Reference Exhibit B-1 Community Solar Pilot Project  
Section Project Proposal & Cost Estimate; page 14 Lines 4-7

*“FBC expects that operations and maintenance (O&M) for the facility will begin at \$9 thousand in 2019 and escalate at 2 per cent inflation thereafter. Forecast O&M costs are included in the rate calculations and are forecast to be fully collected from participants in a fully subscribed Program.”*

After reviewing the budget for annual O&M costs it appears a significant costing is missing. I refer to the anticipated replacement cost of the inverter technology after year 15 and year 30. Please explain your reasons for omitting this significant O&M costing? Advise on the anticipated replacement costs for the inverter technology and recalculate the projects expected maintenance costings over the life of the project. Factoring in for anticipated inverter replacements please indicate the recalculated project offering for cost per kWh and / or monthly module rental.

IR#10

Reference Exhibit B-1 Community Solar Pilot Project  
Section Rate Descriptions; page 18 Lines 30-31

*“The BC Hydro Power Purchase Agreement (BCH PPA) has been assumed as the resource to value energy displacement cost due to solar generation.”*

In the event of low customer take-up on this pilot project, FortisBC assume the cost of power to be set at the BCH 3808 rate, however this BCH rate is inclusive of their generation O&M costs. FortisBC anticipate an additional cost of \$9,000 per year, increasing at a rate of 2% per year. Given that the O&M cost for operating the Solar Pilot operation are approximately 64% (\$9,000 / \$14,000) of the wholesale value of the kWh output of the system, total cost per kWh is approximately 8.13 C/kWh (\$23,000 / 282,939kWh). Please comment on how this is a fair proposal for the rate base to absorb the excess kWh in the event the pilot program fails.



IR#11

Reference Exhibit B-1 Community Solar Pilot Project  
Section Rate Schedules Terms & Conditions; page 21 Lines 17-18

*“Based on FBC’s experience with this pilot, there may be future solar projects for which rates may need to be developed. To accommodate this eventuality, the rate schedules have been drafted such that rates will be specific to “Defined Solar Generation Resources, or DGSR”. This will allow for future solar projects to be added to the existing rate schedule as they are approved by the Commission. In the current case, the DGSR is defined as the Ellison Solar Array.”*

Please explain which additional rates FortisBC refer to. And with reference to other locations if the Ellison Solar Array proves successful please indicated how the cost per kWh or monthly leasing cost would be calculated given the solar exposure and associated solar array output can vary significantly throughout the FortisBC service territory.

How do FBC intend to manage future subscriptions to other solar arrays in years to come, and how will the kWh / kWh cost be evaluated?

There would potentially be a significant demand for the Ellison panel subscription in future years because the cost for this array will be fixed at today’s rates, other solar arrays built in the future will have a different cost associated. If customers drop out of the Ellison subscription these panel allotments are more cost effective and desirable than say arrays built in 10 year’s time.

How will FBC manage customer wait list and allocations to potentially multiple solar array subscription options in the future?

IR#12

Reference Exhibit B-1 Community Solar Pilot Project  
Section Rate Schedules Terms & Conditions; page 22 Lines 5-8

*“The customer’s participation in the Program is transferable. If participants move to a new premise within the FBC electric service area, their subscription will transfer with them at no charge. If a participant moves outside of the Company’s service area, the customer will be removed from the Program and the panels or output will be made available to other customers.”*

Please indicate how long a customer will be allowed to be without a FortisBC account. If a customer is in an interim stage of a sale/purchase of a home or between rentals for a



period of time (weeks /months) how will this be handled? Will there be a grace period for solar subscribers to relocate to new properties within the FBC service area?

IR#13

Reference Exhibit B-1 Community Solar Pilot Project  
Section Rate Schedules; page 26 Eligibility

*“The Virtual Solar Rate is available to all Customers of FortisBC with the exception of those being served under Rate Schedule 81 (Radio-Off Advanced Meter Option), on a rate in which energy charges are either time differentiated (such as Time-of Use rates), or do not form a separate component of the rate, (such as with Lighting rates).”*

Please clarify whether an existing Net Metering customer on rate schedule 95 would be allowed to supplement their own home generation if they wish to participate in the solar pilot project?

Please confirm whether a customer subscribing to the solar pilot program (schedule 85A) would be eligible to install their own solar array in addition to the subscription panels and be eligible for Net Metering under schedule 95.

IR#14

Reference Exhibit B-1 Community Solar Pilot Project  
Section Rate Schedules; page 26 Billing

*“Customers will be required to have meters read on the last day of each month and are required to be billed on a monthly basis.”*

Please identify the reason why monthly billing a requirement. Bi-monthly billing is presently employed for the Net Metering rate schedule 95 program and seems to be working satisfactory.

IR#15

Reference Exhibit B-1 Community Solar Pilot Project  
Section Rate Schedules; page 27 Billing

*“Each month, the total energy output, measured in kWh, of the DSGR will be divided by the total number of panels in the DSGR and the resulting kWh will be allocated to the individual customers in proportion to the number of the panels allocated to the customer relative to the total number of panels in the DSGR.”*

Please indicate the point of metering, will it be at the Module level? DC inverter input? AC inverter output? 13.8kV bus connection point (13.8kV feeder)?



IR#16

Reference Exhibit B-1 Community Solar Pilot Project  
Section Rate Schedules; page 27 Billing

Given that solar array output is dependent on efficient operation and maintenance and repairs, what service and maintenance and inspections will FortisBC provide with respect to module cleaning, vegetation management, equipment failure and return to service time?

Will the system design enable faulty components to be (manually) sectionalized? Can a faulty element of the system be isolated in the event of an issue with a solar module or inverter? This would enable a reduced output as opposed to no output.  
Do FBC intend to carry strategic spares to expedite repairs?

IR#17

Reference Exhibit B-1 Community Solar Pilot Project  
Section Rate Schedules; page 27 Billing

*“The rate paid for electricity represented by kWh remaining in the kWh Bank at the billing period immediately following March 31 in each year shall be the BC Hydro 3808 Tranche 1 energy rate in effect at the time.”*

Please comment on why this rate is appropriate, given the Net Metering customers are compensated at the tier 1 rate for NEG. Given that the maintenance cost (\$9k+ / annum) to run the generation facility are attached to the solar subscribers, how can the solar pilot subscriber be responsible for these costs?