

REQUESTOR NAME: **BC Sustainable Energy Association and Sierra Club BC**

INFORMATION REQUEST ROUND NO: 1

TO: **FortisBC Inc.**

DATE: **June 21, 2017**

PROJECT NO: **1598911**

APPLICATION: **FortisBC Inc. Community Solar Pilot Project (CSPP) Application**

1.0 Topic: Competition

Reference: Exhibit B-1, Application, Executive Summary

“The Company's proposed CSPP is designed as an alternative [to a customer-financed, -owned and -operated PV system on customer property] to allow these customers [for whom PV self-generation is not desirable or feasible] to have an option to make solar power part of their energy mix.” [p.ES-1]

- 1.1 Does FBC see the CSPP as being in competition with providers of PV systems to FBC customers for use in the FBC Net Metering program? Please explain why or why not.
- 1.2 If the CSPP is in competition with providers of PV systems to FBC customers for use in the FBC Net Metering program, does the CSPP have an unfair advantage in such competition?
- 1.3 In FBC's view, do providers of PV systems to FBC customers for net metering have reason to fear competition from the CSPP? If so, what if anything can or should be done about it? If not, why not?
- 1.4 Does FBC know whether the levelized cost for power under the CSPP (i.e., \$81/solar panel/year or 23 cents/kWh) is lower or higher than the cost that would be quoted (at the present time) by a provider of small PV systems suitable for the net metering program?

2.0 Topic: Project genesis

Reference: none

- 2.1 In developing the CSPP, what other models of community solar projects did FBC consider? What conclusions led FBC to prefer the model that it chose?
- 2.2 Is FBC familiar with the City of Nelson's Community Solar Garden (CSG) project?
- 2.3 The CSG model differs from the CSPP model in that, among other things, participants in the CSG model pay a lump sum up front for a notional panel or panels rather than paying on a monthly basis for continuing participation as in the CSPP model. Did FBC consider a 'lump sum up front' approach when it developed the CSPP? If so, why did FBC adopt the 'pay as you go' approach?

3.0 Topic: Pilot Project

Reference: Exhibit B-1, Application, 1. Community Solar Pilot Opportunity

“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. The Program will provide the Company with information regarding the complexities associated with offering community solar programs, including the level of customer commitment, constructability, contracting, interconnection, maintenance, and billing.” [p.1, underline added]

3.1 Does FBC anticipate that the information from the CSPP will be relevant to other community solar projects or potential projects?

4.0 **Topic: Participant motivation**

Reference: Exhibit B-1, Application, 2. Customer Feedback

“The primary reasons that customers are likely to consider community solar in particular underscore the appeal of green community projects. Residential and commercial customers are just as likely to cite ‘being part of a green community project’ as they are to cite electricity bill savings as the primary reason they are likely to consider joining a community solar garden. Furthermore, being part of a green community project is a particularly strong motivator among the residential and commercial customers who are most interested in joining a community solar garden.” [p.2, underline added]

4.1 During the marketing phase, will FBC provide an opportunity for people interested in the CSPP to get together with each other and FBC staff to learn more about the project?

“While these results provide support for the CSPP, they also indicate that customers’ expectations concerning savings and the current price of solar may present a challenge to the initial subscription and ongoing viability of a utility-led solar program.” [p.2]

4.2 For greater certainty, is this a reference to customers not necessarily being aware that the cost of virtual solar power under the CSPP (\$81/solar panel/year or 23 cents/kWh) would be initially higher than the cost of offset consumption and that it may be some years before participation in the CSPP results in ongoing financial savings?

“The [February 2016] research did indicate that customers are motivated by more than economic considerations. Conserving the environment (i.e. reducing greenhouse gas emissions and preserving natural resources), having a reliable/secure energy source and energy independence are important secondary reasons.” [p.3]

4.3 For greater certainty, please confirm, or otherwise explain, that the CSPP addresses the ‘conserving the environment’ motivation but does not directly address the ‘energy security/energy independence’ motivation.

“Another important finding of the research is that both residential and commercial customers consider the option of purchasing the output of a set number of panels more appealing than the option of purchasing a percentage of electrical use from a community solar installation.”

- 4.4 Does FBC have any insight into the reasons why some respondents preferred the option of purchasing a percentage of electrical use from a community solar installation over the option of purchasing the output of a set number of panels? Is one reason so that the customer could choose to purchase 100% solar power and not have to deal with a kWh Bank?

5.0 Topic: Siting
Reference: Exhibit B-1, Application, 4.1 Location

“Also as part of the permitting process, the Company has sent letters describing the Project details to landowners in close proximity to the Project location.” [p.5]

- 5.1 What feedback has FBC received from residents near the Project location? Are there any local concerns? If so, please describe the concerns and what FBC is doing about them.

6.0 Topic: Project Description
Reference: Exhibit B-1, Application, 4.2 Project Proposal and Cost Estimate

“The Company initiated a Request for Proposal (RFP) process to solicit bids from experienced solar PV contractors for the CSPP based on the location selected by FBC, with the contractor requested to propose the layout and equipment to be used.” [p.6, pdf p.13]

- 6.1 Did FBC consider other potential sites? If so, what factors led FBC to select the Ellison substation site?
- 6.2 What are the attributes of the Ellison site in terms of solar exposure?
- 6.3 Is it correct that the size of the facility that is proposed (240 kW) was determined by the selected vendor (Skyfire Energy Inc.) and not by FBC in the RFP?
- 6.4 Is the Ellison site suitable for additional PV panels beyond the 720 proposed in the pilot project, for example as a second phase?
- 6.5 Please discuss whether the size and layout of the proposed PV facility is optimal in terms of making use of the Ellison site.

“Skyfire Energy Inc. (Skyfire) has been selected as both the most experienced and the lowest-cost vendor.” ... “[The CSPP has a] total estimated capital cost of \$961 thousand, or \$3.9 CAD/Watt.” [p.6]

- 6.6 In addition to Skyfire having been selected through the RFP process, what information can FBC provide to support a conclusion that the capital cost of the CSPP is reasonable in relation to its nameplate capacity and other attributes?

7.0 Topic: Timing
Reference: Exhibit B-1, Application, 4.4 Commercial Operation Date

“The Company anticipates the CSPP will be completed approximately six months after receipt of Commission approval. Provided that such approval is received by

June 30, 2017, the CSPP should be in service by the end of 2017. The Company will not commence construction prior to receiving a Commission order and will begin promoting the CSPP and offering subscriptions to the Project output as it nears completion. [p.7, pdf p. 14]

7.1 Is there a particular sensitivity to receiving approval by June 30, 2017 so that the CSPP would be in service by the end of 2017?

8.0 Topic: Capital expenditure

Reference: Exhibit B-1, Application, 5. Regulatory Treatment

FBC seeks Commission approval under section 44.2 of the UCA of a capital expenditure of \$961 thousand for the CSPP. FBC will include the capital costs of the CSPP in FBC's 2017 formula capital spending envelope under the approved Performance-Base Ratemaking (PBR) for 2014-2019. FBC will include estimated O&M expense of \$9,000 in the 2019 formula O&M envelope.

"Although FBC is not seeking any incremental funding for the capital expenditures or O&M expense associated with this Program, the Company recognizes that the 2013 base capital expenditures, and the formula capital under PBR, did not anticipate expenditures on new generation resources such as the CSPP, or other new resources. FBC is therefore seeking acceptance of the capital expenditures for the CSPP pursuant to section 44.2 of the *Utilities Commission Act (UCA)*." [p.8, pdf p.15]

- 8.1 FBC will include the capital costs of the CSPP in FBC's 2017 formula capital spending envelope under PBR. Does this assume the project is in service in 2017? Would the capital costs of the CSPP be included in the 2018 capital spending envelope if the in-service date is in 2018?
- 8.2 Are there any consequences of the distinction between the project's capital costs being in the 2017 capital spending envelope instead of the 2018 capital spending envelope that are material to the timing of Commission approval of the Application? If so, please explain.
- 8.3 If the project's capital costs are included in the 2017 capital spending envelope, why are the operating expenses included in the 2019 O&M envelope, as distinct from the 2018 O&M envelope?
- 8.4 Please explain why FBC is seeking acceptance under s.44.2 of the CSPP capital costs even though these costs will be included in the capital cost envelope under PBR.
- 8.4.1 Is the purpose to ensure that FBC has the Commission's approval or rejection before FBC decides to approve the capital expenditure, in order to avoid the risk that the Commission might disapprove of the expenditures after they have already been made?
- 8.4.2 Does the purpose have something to do with total capital expenditures exceeding or potentially exceeding the dead-band under the PBR mechanism?

9.0 Topic: Section 44.2 Factors

Reference: Exhibit B-1, Application, Table 5-1: UCA Section 44.2 Requirements

“British Columbia’s energy objectives include achieving “energy self-sufficiency” to generate at least 93% of the electricity in British Columbia from clean or renewable resources.

The existing resources utilized by FBC to serve customer load are already overwhelmingly clean and renewable; being composed primarily of FBC’s own embedded hydro-electric generation and long-term contracts with other entities engaged in hydro-electric energy production. However, the Company recognizes that the Program would provide an intermittent source of incremental clean and renewable energy that will added to the overall provincial portfolio.” [p.9]

9.1 What proportion of FBC’s supply side energy resources for planning purposes are met by non-clean or renewable resources?

FBC notes that in determining whether to accept a capital expenditure schedule under s.44.2(b) of UCA the Commission must consider, among other things, the most recent long-term plan filed by FBC. FBC states:

“FBC filed its 2016 Long Term Electric Resource Plan on November 30, 2016. The Community Solar Pilot Project is identified in section 2.3.3.1.”

The Commission’s proceeding regarding FBC’s 2016 LTERP is underway and a decision has not been issued at the time of writing.

9.2 FBC is evidently of the view that the Commission should not defer consideration of the CSPP capital expenditure schedule until after it has made a decision regarding FBC’s 2016 LTERP application. Why?

10.0 Topic: Eligibility

Reference: Exhibit B-1, Application, 6.1 Eligibility and Participation

“Rate Schedule 81 is excluded since customer billing cycles must be synchronized with the monthly reading cycle of the solar array. This is not economic for radio-off customers. This restriction also impacts customers with standard advanced meters that are non-communicating.” [Footnote 6, page 10, pdf p.17]

10.1 Why is it not economic to synchronize the monthly meter reading cycle of RS 81 customers with the monthly reading cycle of the solar array?

10.2 Would it be feasible to use an estimated or deemed monthly consumption figure so that Radio-Off customers or customers with standard advanced meters that are non-communicating could be eligible for the CSPP?

“TOU rates are excluded due to the expense of implementing the billing system changes required to capture the solar array output on a TOU basis for a relatively small number of customers.” [p.10, footnote 7]

- 10.3 Please explain “capture the solar array output on a TOU basis.” Does this mean that the solar array output would be metered and tallied on the same hourly basis as the TOU rate?
- 10.4 Would it be feasible to allow TOU customers to participate in the CSPP Virtual Solar rate by, for example, applying the monthly solar energy to the customer’s monthly high-load-hour and low-load-hour consumption on a *pro rata* basis? Or by allocating the monthly solar energy to the customer’s low-load consumption?

11.0 Topic: Eligibility

Reference: Exhibit B-1, Application, Appendix A, Proposed Tariff Pages, Schedule 85A FBC Virtual Solar Rate Option, Schedule 85B FBC Solar Offset Rate Option

“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).” [Pdf p.26]

“ELIGIBILITY: The Solar Offset 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). [pdf p.28]

- 11.1 Does “all Customers” include transmission customers? Would the participation of a transmission customer in the CSPP create any particular challenges?
- 11.2 Does “all Customers” include wholesale customers?
- 11.2.1 For greater certainty, please confirm, or otherwise explain, that customers of municipal utilities that are wholesale customers of FBC would not be eligible for the CSPP.

12.0 Topic: Pricing

Reference: Exhibit B-1, Application, 6.2 Pricing Methodology

“The pricing for the Program is designed to recover the incremental revenue requirement of the CSPP from Program participants over its 40 year expected life. The rates that accompany this Application are designed to effectively offset the initial capital costs and ongoing incremental costs of the Program in the Company’s revenue requirement determination over the assumed life of the Project. Because the revenue collected from customers will be based on estimated costs, the actual costs may differ from that estimate. However, because some of the assumptions that are contained in the rate derivation, such as the panel degradation, annual output and O&M costs, will not be known until future years, FBC does not intend to adjust the rates on an annual basis.” [p.10, underline added]

“Assuming that the rates associated with the Project became permanent, this fee [the annual payment per panel of \$81, paid in equal installments on a billing-period basis] would not increase over time but, subject to periodic review, may need to be reduced in response to changes in Program participation or the competitiveness of the Program with other renewable options such as rooftop solar that may decrease in cost during the life of the Program. The result of a fixed fee is that the notional value of the consumption offset would increase as electricity rates increase.” [pp.12-13, underline added]

“Similar to the FortisBC Virtual Solar rate, this rate would not increase over time but, subject to periodic review, may need to be reduced in response to changes in Program participation or the competitiveness of the Program with other renewable options, regardless of what happens to the level of rates generally.” [p.13, underline added]

- 12.1 Please confirm, or otherwise explain, that from a customer’s financial perspective the “value proposition” of participating in the CSPP is that “the notional value of the consumption offset would increase as electricity rates increase.” In other words, by joining the CSPP before all the output of the solar array has been acquired the participating customer obtains the right to participate continuously in the CSPP in future years as the financial value of the consumption offset increases due to anticipated general rate increases.
- 12.2 Please clarify the circumstances in which FBC would or might adjust the CSPP rates in the future.
- 12.3 The discussion under the heading “FortisBC Solar Offset” on page 13 appears to state more affirmatively that the CSPP rate would not increase over time than does the discussion under the heading “FortisBC Virtual Solar” on page 12. Please explain.
- 12.4 It appears that one circumstance in which FBC may adjust the CSPP rates in the future is if actual costs differ from the estimated costs on which the original rates are based. Is it correct that an adjustment for this reason could be either upward or downward depending on whether actual costs exceed or fall below the estimated costs?
- 12.5 It appears that another potential circumstance in which the CSPP rates might be adjusted is that the CSPP rates might be reduced to attract greater participation if the Program becomes less than fully subscribed due, for example, to other renewable options becoming more financially attractive to eligible customers than the CSPP.
 - 12.5.1 Confirm that this would only be a reduction, not an increase, i.e., that the CSPP rates would not be increased above the level necessary for cost recovery even if the market would bear higher rates.
 - 12.5.2 For greater certainty, please confirm, or otherwise explain, that a reduction in CSPP rates to boost participation would be inconsistent with the objective of full cost recovery but would be undertaken for

the purpose of incremental participation in order to increase program cost recovery.

- 12.6 Please outline the reasons why a would-be participant in the CSPP should have confidence that the initial CSPP rates (i.e., the \$81/solar panel/year or 23 cents/kWh) would remain in place in future years when the value of the consumption offset has increased significantly?
- 12.7 Please confirm, or otherwise explain, that the expected degradation of annual solar energy output is factored into the levelized unit energy cost that is the basis for the price under the Virtual Solar rate schedule (\$81/solar panel/year) and under the Solar Offset rate schedule (23 cents/kWh).
- 12.7.1 To clarify, please confirm, or otherwise explain, that a divergence between actual and expected degradation of annual solar energy output would affect the implicit value (to the participant) of participation in the Virtual Solar rate schedule but would not affect the implicit value of participation in the Solar Offset rate schedule.
- 12.8 For the FortisBC Solar Offset, Rate Schedule 85B, the discussion on page 13 says that the participating customer can elect to serve a percentage of their billing period consumption ranging from 10% to 100% in 10% increments, whereas in the draft wording of RS 85B on pdf p.29 it states "Customers may specify that 5% to 100% of monthly consumption is to be served under the Solar First, in 5% increments." Please clarify.

13.0 Topic: Difference between Virtual Solar and Solar Offset
Reference: Exhibit B-1, Application, 6.2 Pricing Methodology

"In the event that the FortisBC Virtual Solar option does not result in a fully subscribed Program, the Company may consider offering the FortisBC Solar Offset option in the future in order to allocate any remaining output." [p.10]

- 13.1 Please confirm, or otherwise explain, that the Solar Offset rate schedule (RS 85B) differs from the Virtual Solar rate schedule (RS 85A) in two ways: (a) the definition of the amount of notional solar power purchased, and (b) the unit of measurement on which the rate is based. In particular:
- 13.1.1 Under the Solar Offset rate schedule, the amount of notional PV energy purchased by a participant is defined in terms of a percentage of the participant's monthly billing period consumption, and the amount of notional PV energy purchased by the participant varies according to the participant's monthly consumption. In contrast, under the Virtual Solar rate schedule, the amount of notional PV energy purchased by a participant is defined in terms of the average output of one or more solar panels, each panel being 1/720 of the output of the solar array, and the amount of notional PV energy purchased by the participant varies according to the output of the solar array.

13.1.2 Under the Solar Offset rate schedule, the rate for the purchase of notional PV energy is defined in cents/kWh (i.e., 23 cents/kWh). In contrast, under the Virtual Solar rate schedule, the rate for the purchase of notional PV energy is defined in dollars per solar panel per year (i.e., \$81/solar panel/per year or \$6.75/solar panel/month).

14.0 Topic: Value of displaced energy
Reference: Exhibit B-1, Application, 6.3.5 Power Purchase Displacement Rates

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

14.1 Please explain why FBC’s price to buy power under the BCH PPA, rather than the customer’s retail rate, is the appropriate measure of the value of the energy that the CSPP displaces.

15.0 Topic: Terminology
Reference: Exhibit B-1, Application, 6.3.6 FortisBC Virtual Solar Panel

FBC refers to the payment under the CSPP Virtual Solar model as a “lease payment.” [p.12]

15.1 For greater certainty, please confirm that “lease” is not an exact description of participation under the CSPP, because a participant in the CSPP does not have a multi-year commitment to remain in the program.

“Assuming that the rates associated with the Project became permanent...” [p.12]

15.2 Please explain what is meant by the rates associated with the Project becoming permanent.

16.0 Topic: Levelization
Reference: Exhibit B-1, Application, 6.3.7 FortisBC Solar Offset; Appendix B, Line 15, pdf p.33

“The cost per kWh for the Solar First rate was calculated by taking the present value of the incremental revenue requirement divided by the present value of the annual kWh production over 40 years for the life of the array.

$\$877,490 / 3,793,218 \text{ kWh} = \0.231 per kWh [p.13]

16.1 Please confirm that “3,793,218 kWh” is not the simple sum of solar energy forecast to be produced by the CSPP over 40 years. Instead, it is the result of discounting the CSPP 40-year energy forecast by FBC’s weighted average cost of capital (WACC).

16.2 Please explain why it is appropriate to discount the CSPP’s energy output by the WACC in order to calculate the levelized unit energy cost.

17.0 Topic: Solar Offset
Reference: Exhibit B-1, Application,

“If the FortisBC Solar Offset option is offered in the future, usage is variable and may cause a mismatch of output to consumption. Were this to occur such that there is insufficient output to satisfy the expected percentages of consumption, the individual FortisBC Solar Offset customers would have their allocations reduced such that they will receive the same percentage of the available output as if no shortage existed.”

17.1 In the scenario described (Solar Offset is offered, output is insufficient to satisfy the expected percentages of consumption), would the reduction in allocation be done on a monthly basis?

17.1.1 Would it be done on a *pro rata* basis among Solar Offset participants?

17.1.2 Please confirm that there would be no reduction in the PV energy allocated to participants in the Virtual Solar rate schedule.

18.0 Topic: Defined Solar Generation Resource
Reference: Exhibit B-1, Application, 6.6 Rate Schedules and Terms and Conditions; Appendix A, Proposed Tariff Pages, Schedule 85A FBC Virtual Solar Rate Option, Schedule 85B FBC Solar Offset Rate Option

“The rates that have been developed are specific to the Project that is described in this Application. 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.” [p.14]

18.1 Does the concept of “Defined Solar Generation Resource” in the proposed tariff pages imply that rates for participation in a second or subsequent community solar project would be separate and based on the costs of the specific Defined Solar Generation Resource?

18.1.1 Has FBC considered a community solar model in which the rates are based on pooled costs? Is that yet to be determined?

18.2 Does FBC see the Defined Solar Generation Resource concept in the tariff pages as being amenable to a model in which a solar facility is built, owned and operated by an entity other than FBC?

18.3 In developing the CSPP, did FBC consider a model in which the PV facility was built, owned and operated by an entity other than FBC? If so, what conclusions did FBC come to?

18.4 Could the CSPP model be adapted so that the rates component was under the proposed RS 85A or 85B and the facility component was outside of FBC?

19.0 Topic: Transferability

Reference: Exhibit B-1, Application, 6.6.3 Transferability

“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.” [p.15]

19.1 For greater certainty, please confirm that a customer’s participation in the Program cannot be transferred to a different customer.

20.0 Topic: Evaluation of pilot project

Reference: Exhibit B-1, Application, 7.2 Reporting

“FBC proposes to implement the CSPP as a pilot in order to gauge customer interest and to gather information on the installation, operation, and maintenance of PV systems of this size. This information will allow the Company to make prudent decisions with respect to the potential to expand the Program in the future.” [p.ES-1]

“FBC will be collecting data on an ongoing basis related to the performance of the solar installation and customer value derived from participation in the Program. The Company will file with the Commission and post to the FBC website on a quarterly basis, a report containing information including but not limited to:

- Project energy production;
- Operating and Maintenance work and costs;
- Program subscription rates by billing option (if applicable);
- Program wait list status.” [p.16]

20.1 By what criteria will FBC evaluate the pilot project?

21.0 Topic: Permanent rates

Reference: Exhibit B-1, Application, 8. Approvals Sought and Further Process

“At the end of the pilot period, FBC will apply to continue with either one or both of the pricing methodologies, an amended methodology, or to discontinue the Program. Since this Program is a pilot, a future assessment will need to be made as to whether or not the Program should be made permanent. The Company is proposing that after a period of two years from the date of initial operation it will file with the Commission an Application regarding the ongoing viability of the Program. FBC is confident in the success of the Program, however, should the Company recommend that the Program not be made permanent, it will, as part of that Application, update the Commission on the amount of energy that will be forecast to be included in the Company’s resource portfolio.” [p.17, underline added]

- 21.1 Does making the Program permanent mean that the rates are permanent as distinct from interim?
 - 21.2 Does making the Program permanent mean that the rates (\$/solar panel/year or cents/kWh offset) would then be fixed for the remainder of the life of the Ellison solar array?
- 22.0 Topic: Financial analysis**
Reference: Exhibit B-1, Application, Appendix B, Financial Analysis and Determination of Rates
- 22.1 How has FBC taken into account the value of the land at the Ellison Substation in the financial analysis and the determination of the rates for the CSPP?
 - 22.2 Does the land being valued at zero cost artificially reduce the effective rate (the 23 cents/kWh) for CSPP power in comparison with the effective price that PV providers offer for customer self-generation PV systems? Or is the 'free' land aspect of the CSPP rate equivalent to the customer being responsible for providing the site in the case of customer self-generation PV systems?
- 23.0 Topic: Brand Name**
Reference: Exhibit B-1, Application, Appendix A, Proposed Tariff Pages, Schedule 85A FBC Virtual Solar Rate Option, Schedule 85B FBC Solar Offset Rate Option
- The Solar Offset Rate is referred to as "Solar First."
- 23.1 Will the Virtual Solar Rate be marketed under a brand name (comparable to the Solar Offset Rate being referred to as "Solar First")? If so, what will the name be?