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August 23, 2017

British Columbia Public Interest Advocacy Centre
Suite 208 – 1090 West Pender Street
Vancouver, B.C.
V6E 2N7

Attention: Ms. Leigha Worth, Executive Director

Dear Ms. Worth:

Re: FortisBC Inc. (FBC)

Project No. 1598911

Application for Community Solar Pilot Project

Response to the British Columbia Public Interest Advocacy Centre representing the British Columbia Old Age Pensioners' Organization, Disability Alliance BC, Council of Senior Citizens' Organizations of BC, and the Tenant Resource and Advisory Centre *et al.* (BCOAPO) Information Request (IR) No. 2

On April 27, 2017, FBC filed the Application referenced above. In accordance with the British Columbia Utilities Commission Order G-114-17 setting out the Amended Regulatory Timetable for the review of the Application, FBC respectfully submits the attached response to BCOAPO IR No. 2.

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

Sincerely,

FORTISBC INC.

Original signed:

Diane Roy

Attachments

cc (email only): Commission Secretary
Registered Parties

12.0 Reference: Exhibit B-2, BCUC IR 1.3

12.1 Please explain more fully the RNG service offering provided by FEI and why it is considered to be similar to the CSPP.

Response:

RNG service was first offered by FEI as a two-year pilot program. Customers who signed up for RNG could elect to pay for various blends of biomethane at cost-based rates. A permanent RNG program was later approved, with biomethane rates continuing to be set based on cost. The method for setting rates was reviewed in 2016, with the result that the Biomethane Energy Recovery Charge (BERC) rate is no longer cost-based. The annual BERC rate is currently set at a $7 premium to the commodity cost (including carbon tax), with a long-term contract rate available at a $1 discount to the annual BERC rate and subject to a minimum strike price of $10.00 per GJ. Specifically, with respect to the similarities between the RNG offering and the CSPP:

- Both the RNG service offering and the CSPP are optional programs for which customers pay a premium over the standard utility offering;
- Customers can elect to participate at differing levels in both the RNG service offering and the CSPP;
- The RNG service offering and the CSPP allow customers to receive a notional portion of their energy from a separately identified resource (notional in the actual RNG or solar cannot be separated from supply generally); and
- Both programs were initially offered as pilot programs as a gauge of customer interest.

For additional discussion of the similarities and differences between the CSPP and the FEI RNG program please refer to the response to Resolution IR 2.3.5.

13.0 Reference: Exhibit B-2, BCUC IR 1.4

13.1 Why does FBC believe that its Application is consistent with the first of the two items referenced from the Summary of Directives, Determinations and Recommendations from the AES Inquiry Report?

<u>Response:</u>

The item that FBC states its Application is consistent with is "The FEU and other utilities considering a new business activity should follow the example provided by the Biomethane Service Introduction in any future applications." This statement is based on the discussion that formed the basis for this recommendation on page 81 of the AES Inquiry Report, reproduced below.

> **3.6 Steps to be Followed by a Utility Endeavouring to Enter into a New Regulated Business**
>
> The Panel finds that the approach taken by FEI in entering into Biomethane Service and the Commission Decision on the Biomethane Application have a number of positive characteristics. These include:
>
> - The Applicant coming to the Commission before significant funds were expended to set out:
>
>   (a) the proposed service offering; and
>
>   (b) the business model the Applicant proposed to utilize;
>
> - Use of a pilot project to allow for testing of the proposed new service, including assessment of the reliability of biomethane supply and the sufficiency of demand for the product; and
>
> - Providing for some growth during the pilot period but placing a limit on the cost and risk exposure faced by ratepayers and the utility by setting a cap on biomethane production.

Since FBC has followed the recommended steps above by filing the Application and following a full regulatory review process, FBC's Application is consistent with this AES Inquiry recommendation.

14.0 Reference: Exhibit B-2, BCUC IR 13.2.1 and Exhibit B-3, BCOAPO IR 3.1

14.1 Please confirm that Tier 1 is the lower priced energy block and provide the basis for the 78%.

Response:

In developing the response to BCUC IR 1.13.2.1, FBC looked at all customers consuming between 10,000 kWh and 12,000 kWh per year and determined that on average, these customers were charged for 78 percent of their consumption at the lower Tier 1 rate of the Residential Conservation Rate. This assumption was used throughout the analyses.

14.2 Please explain why the "solar energy" is deducted from the Tier 1 (as opposed to the Tier 2) energy it in all but the 100% consumption case.

Response:

In both the 10% and 50% scenarios all solar energy is deducted from the Tier 1 consumption since both cases fall below the average Tier 1 consumption of 78%. A customer that has chosen to meet 100 percent of their consumption through the Solar Offset rate will not have any consumption billed at either the Tier 1 rate or the Tier 2 rate; all consumption would be billed at the Solar Offset rate of $0.246/kWh.

14.3 Please provide the details of the Year 1 and Year 40 savings/costs under the Virtual Solar Option?

Response:

The details supporting the table provided in the response to BCUC IR 1.13.2.1 for the Virtual Solar Option and using the 2.0 percent inflation rate are found below. Note that the 11,000 annual kWh are met with 22 percent billed at the Tier 2 rate with the balance (after deducting the panel output) billed at the Tier 1 rate.

Residential Rate	**Year:**	**1**	**40**
	Current	**2018**	**2057**
Basic Charge	$ 16.05	$ 16.37	$ 35.43
Tier 1 Rate	$ 0.10117	$ 0.10319	$ 0.22339
Tier 2 Rate	$ 0.15617	$ 0.15929	$ 0.34483
Solar Rate	$ 0.24600		
Inflation Rate	2%		
Annual Degradation Rate	0.5%		
Annual Production per panel		403	331
Percent Tier 1 Consumption	0.78		
Percent Tier 2 Consumption	0.22		
Number of panels subscribed	1		
Mean Annual Consumption	11,000		
Virtual Solar			
Bill Calculation With Solar Panels			
Tier 1 Charges		$ 844	$ 1,843
Tier 2 Charges		$ 385	$ 834
Energy Only		$ 1,229	$ 2,677
Annual Subscription		$ 86	$ 86
Energy plus panel		$ 1,315	$ 2,763
Bill Calculation Without Solar Panels			
Tier 1 Charges		$ 885	$ 1,917
Tier 2 Charges		$ 385	$ 834
Energy Only		$ 1,271	$ 2,751
Savings or (Cost)		-$ 44	-$ 12

Note that the details above which support the amounts included in BCUC I R1.13.2 include energy-only calculations. The inclusion of the Basic Charge would not change the bill calculation differences as the Basic Charge would be the same in either case.

14.4 Please provide the details of the Year 1 and Year 40 savings/costs under the Solar Offset Option for the 10% and 100% consumption cases.

Response:

The details supporting the table provided in the response to BCUC IR 1.13.2.1 for the Solar Offset Option and using the 2.0 percent inflation rate are found below. The Basic Charge is excluded from the calculations as discussed above.

Residential Rate	**Year:**	**1**	**40**
	Current	**2018**	**2057**
Basic Charge	$ 16.05	$ 16.37	$ 35.43
Tier 1 Rate	$ 0.10117	$ 0.10319	$ 0.22339
Tier 2 Rate	$ 0.15617	$ 0.15929	$ 0.34483
Solar Rate	$ 0.24600		
Inflation Rate	2%		
Annual Degradation Rate	0.5%		
Annual Production per panel		403	331
Mean Annual Consumption	11,000		
Bill Calculation Without Solar Panels			
Tier 1 Charges		$ 885	$ 1,917
Tier 2 Charges		$ 385	$ 834
Energy Only		$ 1,271	$ 2,751
10%	**kWh**		
Tier 1 kWh	7480	772	1,671
Tier 2 kWh	2420	385	834
Offset kWh	1100	271	271
		1,428	2,776
50%			
Tier 1 kWh	3080	318	688
Tier 2 kWh	2420	385	834
Offset kWh	5500	1,353	1,353
		2,056	2,876
100%			
Tier 1 kWh	0	-	-
Tier 2 kWh	0	-	-
Offset kWh	11000	2,706	2,706
		2,706	2,706

15.0 Reference: Exhibit B-2, BCUC IR 14.5 and Exhibit B-4, BCSEA IR 12.4

15.1 Please confirm that any adjustment to the rate, as contemplated in the response to BCSEA 12.4, would require BCUC approval.

Response:

Confirmed.

16.0 Reference: Exhibit B-2, BCUC IR 17.2

16.1 Are the PVs presented in the response calculated at the point in time the project goes into service?

<u>Response:</u>

Yes, the present value of the incremental revenue requirement over 40 years is based on the assumption that the Project will be completed and in-service by the end of 2017 as discussed in Section 4.4 of the Application.

16.2 Please explain why the PV of the 40 year revenue requirement is less than the initial capital cost when the PV also includes ongoing maintenance costs and cost of replacing both communication equipment and inverter during the life of the Project.

<u>Response:</u>

The present value of the incremental revenue requirement over 40 years for the Project includes the avoided power purchase expense from BC Hydro due to the solar generation and the income tax deduction via capital cost allowance (CCA) related to the Project, both of which are offsetting the initial capital cost of the Project and ongoing maintenance as well as replacement costs of equipment over the 40-year period.

The present value of the avoided power purchase expense over 40 years due to the solar generation is a net benefit of approximately $276 thousand which is based on the BC Hydro Power Purchase Agreement (BCH PPA) as discussed in Section 6.3.5 of the Application and the response to BCUC IR 1.12.2.

The present value of the income tax expense over 40 years is a net deduction of approximately $40 thousand, which is primarily based on the income tax deduction for the capital cost of the Project as discussed in Section 6.3.3 of the Application.

17.0 Reference: Exhibit B-3, BCOAPO IR 1.1 and Exhibit B-5, ICG IR 4.2

17.1 BCOAPO requested information regarding other suitable sites owned by FortisBC. The response references ICG 4.2. While this reference notes other sites considered, it also indicates a number were unsuitable due to limited sun exposure (e.g., Vaseux Terminal) or lack of public visibility. How many of the sites listed in ICG 4.2 would be suitable as a site for a future solar installation should the program be expanded?

Response:

Each of the sites listed in ICG IR 1.4.2 could be suitable for a future solar installation, although the final decision to develop these installations would be subject to further review. FBC's response to ICG IR 1.4.2 states that other sites were considered but ultimately rejected for the purposes of the CSPP due to lack of visibility or lower solar insolation. However, no ideal site exists and each site remains a potential site for future solar installations.

17.2 Does FortisBC currently own the land adjacent to the City of Kelowna Glenmore Landfill?

Response:

No, FBC does not currently own land adjacent to the City of Kelowna Glenmore Landfill. FBC was approached by the City of Kelowna to investigate the use of land adjacent to the Glenmore Landfill as a potential location for a solar installation. For the purposes of the CSPP, this area was ultimately rejected in favour of the Ellison location.

18.0 Reference: Exhibit B-3, BCOAPO IR 5.2

18.1 The purpose of the first part original question was to determine if FortisBC itself had any possible uses for the land in question. Please provide a response in that context.

Response:

FBC currently has no plans to use the land. This is in part due to the existing zoning of the land which limits the future potential uses, as discussed in the response to BCOAPO IR 1.5.2.

18.2 **Reference:** Exhibit B-3, BCOAPO IR's 9.2, 9.2.1 & 9.2.2 and Exhibit B-4, BCSEA IR 12.5.1

Why would FortisBC not entertain increasing the rate in order to cover costs if the CSPP was oversubscribed and costs were higher than forecast (and/or panel degradation was greater than expected)?

Response:

Even in the event that the CSPP was oversubscribed (demand for panels exceeds the number available), FBC would not recommend increasing the rate if costs were higher than forecast and/or panel degradation was greater than expected because CSPP participation may be negatively impacted without a cap on the rate. Maintaining the rate provides an additional incentive to participants in the Program, because FBC's other rates will increase with general rate increases over time. The potential cost to customers of providing this rate cap for subscribers is minimal – if both the capital cost and panel degradation were 10 percent higher than forecast, the PV of the revenue requirement impact to all customers would be approximately $0.1 million, or 0.002 percent on a levelized rate impact basis.

19.0 Reference: Exhibit B-4, BCSEA IR 12.7.1

19.1 Please comment on what appears to be an asymmetrical risk to other rate payers in that Fortis BC will consider reducing the rates if costs are lower/performance improves but will not consider increasing the rates if costs are higher/performance is less than expected.

<u>Response:</u>

Please refer to the response to BCOAPO IR 2.18.2. Initial rates are expected to be in line with the levels requested, and once approved by the Commission, will not rise over the life of the Program. FBC will consider lowering the rates if in doing so the Company expects to maintain subscription rates at levels that result in the optimal outcome for customers in general. The question seems to assume that raising the rate in the future could result in lower risk for other customers. FBC does not agree that this is necessarily the case as a higher rate could impact subscriptions. On balance, the Company believes that the combination of a cap on the CSPP rate with the option of lowering the rate should that become necessary provides the best overall mitigation of risk to other customers by maximizing the subscriptions.

20.0 Reference: Exhibit B-4, BCSEA IR's 15.2 & 21.2 and Exhibit B-5, ICG IR 8.1

20.1 If the pilot were to prove unsuccessful (e.g. there was low level of subscription demonstrating little interest by customers in actually participating in community solar projects) and no more community solar projects were undertaken by FortisBC, will FortisBC: i) still apply for approval of "permanent rates" for the Ellison Project and permit those customers seeking to continue to participate to do so or ii) are there circumstances under which FortisBC would propose the Ellison program be fully terminated after the two years?

Response:

Since the CSPP is expected to be low cost to operate from a customer billing perspective, the Company may still seek permanent rates if the CSPP is not fully subscribed. However, this determination will be made closer to the end of the pilot period in consideration of any factors that are relevant at the time.

20.1.1 If rates become permanent, for how many years would customers' participation be "guaranteed"?

Response:

Permanent rates associated with the Ellison array would be effective in the same manner as any other rate in the Company's approved tariff. That is, they would remain effective unless the Company was either ordered by the Commission to change them, or permission to change them was granted by the Commission upon request by FBC. In the case of the Ellison project, FBC expects that the rates will be in place for the life of the array.

20.1.2 If there are circumstances under which the Program could be terminated after the two years, what are they?

Response:

Please refer to the response to BCOAPO IR 2.20.1.

20.2 Recognizing that the current rate approval requested is only for two years, what commitments will FortisBC be making to customers seeking to participate regarding future rate levels?

Response:

As stated in the Application on page 12, line 30, the rates associated with the Project, once approved, will not rise over the life of the Ellison array, and may, under certain circumstances, be lowered.

20.2.1 Will customers be advised that the rates are subject to review and reset again at the end of the two years?

Response:

Please refer to the response to BCOAPO IR 2.20.2. Rate levels are not expected to change at the end of the pilot period. If at any time the rates were to be adjusted downward, participants would be notified.

20.2.2 In FortisBC's view, is this uncertainty regarding future rates likely to affect participation in the CSPP?

Response:

FBC is not aware of any uncertainty regarding future rates (assuming a guarantee of no rate increases) and does not believe there to be an issue regarding the rates that would affect participation. As stated in the response to BCSEA IR 1.12.4, "FBC will not adjust the rate upward once the rates are set. If the initial capital cost exceeds the current estimate materially (or is lower), FBC would adjust the CSPP rate accordingly prior to offering it to customers." However, the Company is confident in its current estimate of the project cost, and as described in the response to BCOAPO 2.18.2, it would require a significant variance of actual costs to the estimate to have a material impact on the initial rate.

20.3 Is FortisBC seeking any commitments from the BCUC regarding future rate levels?

Response:

No. FBC is seeking approval of the rates as applied for in the Application (as amended by Errata 1) and has stated that the final rates, once approved, should not increase.

20.3.1 If so, what commitments is FortisBC seeking?

Response:

Please refer to the response to BCOAPO IR 2.20.3.

21.0 Reference: Exhibit B-2, BCUC IR 7.1 and Exhibit, B-5, ICG IR 4.3

Preamble: The response to ICG 4.3 indicates that proponents were required to propose a system capable of generating an annual energy output of at least 1,0000 kWh (AC) per installed kW (DC) and were required to submit the expected annual energy production from their respective proposals.

21.1 Is the 290,000 kWh annual output based on the annual kWh provided in Skyfire's proposal?

Response:

Yes, the 290,000 kWh annual output is based on the proposed SkyFire design and was included in SkyFire's proposal.

21.1.1 If not, what is it based on and what actions were taken to verify the output estimate?

Response:

Please refer to the response to BCOAPO IR 2.21.1.

21.1.2 If yes, did FortisBC undertake/commission any separate analysis to verify the kWh value in the proposal?

Response:

FBC verified that the kWh value in the SkyFire proposal was reasonable based on known solar insolation and panel efficiency data.

SkyFire used PVsyst to determine the output of their design. PVsyst is a popular software program commonly used in industry to evaluate PV system designs for a given site. Given the level of analysis completed by SkyFire, their expertise and reputation, and that the proposed SkyFire system exceeded FBC's minimum requirements, FBC felt a detailed separate analysis was not necessary.

21.1.3 If yes, what guarantees regarding the level of output were provided by/required of Skyfire?

Response:

SkyFire does not provide a guarantee that the output of the station will meet the estimated annual output (290.2 MWh annually for first year) given that the actual output of the station is impacted by several factors beyond the control of SkyFire or FBC. The estimated annual output is a P50 estimate which indicates 290.2 MWh is the expected average annual output of the station in the first year.

22.0 Reference: Exhibit B-5, ICG 4.4 and Exhibit B-6, Resolution IR 6

22.1 Do the Project costs include the cost of the extended warranty? Please explain the rationale for purchasing/not purchasing the extended warranty.

Response:

No, the Project costs do not include the cost of SMA's Extended Warranty Plan. FBC did not include the cost of purchasing the SMA Extended Warranty Plan primarily because it can be purchased from SMA at any time during the ten-year factory warranty period. FBC will defer any decision on purchasing the SMA Extended Warranty Plan until it has sufficient experience with the SMA inverter to assess whether the extended warranty is worth purchasing. If FBC believes based on experience that the annual maintenance costs will exceed the cost of the extended warranty, then FBC will purchase the extended warranty.

22.2 How many inverters are there in total?

Response:

The proposed SkyFire design for the CSPP includes nine (9) inverters. Additionally, FBC plans on purchasing an additional inverter as a strategic spare.

22.3 Given three are assumed to be replaced every five years (starting in Year 10) what is the implicit assumption regarding the average life of an inverter?

Response:

As discussed in response to ICG IR 1.4.4, FBC assumed the inverters typically have a life ranging from 10 to 20 years with an average life of 15 years. This is based on the particular inverter model included in the SkyFire proposal.

FBC does not expect all nine inverters of the Project will fail at the same time, therefore, based on a typical life of 10 to 20 years, it is assumed to replace three inverters for every five years, starting in Year 10 of the financial analysis.

23.0 Reference: Exhibit B-6, Resolution IR 11

23.1 In the marginal cost comparison presented by FortisBC, wouldn't the future replacement costs of the communications equipment and inverters also be relevant considerations in determining the marginal cost of the power from the solar array?

<u>Response:</u>

FBC has been unable to relate the reference (Resolution IR 1.11) to the question posed. However, the Company notes that as per the Errata filed with the Commission on July 7, 2017 (Exhibit B-1-2), the cost of communications equipment and inverters is reflected in the CSPP rates.

24.0 Reference: Exhibit B-7, Scarlett IR 2 and Exhibit B-5, ICG IR 5.1

Preamble: In its response to Scarlett IR 2, FortisBC sets out an alternative approach to offering the Solar Offset rate and suggests that it could be implemented from the start of the project if preferred by customers and approved by the Commission.

24.1 Is the alternative outlined in Scarlett 2 only applicable to the Solar Offset rate or could the same concept also be employed for the Virtual Solar rate?

Response:

This option is only applicable to the Solar Offset rate. With the Virtual Solar option, the customer receives the benefit of the full output of the subscribed panels regardless of the level of consumption on the associated account. The output is either used during the month or carried forward for use in a future month.

24.2 At this point in the development and approval process for the CSPP, how would a customer preference for the alternative suggested in Scarlett IR 2 be determined?

Response:

To be clear, FBC is proposing that only the Virtual Solar rate be offered during the pilot period of the CSPP, with the option of offering the Solar Offset rate approved by the Commission. In order for the alternate approach to the Solar Offset rate to be implemented, the Commission would first have to make such a determination in its Decision on the CSPP.

In the response to Scarlett IR 1.2, FBC indicated the following,

> The Company could implement this method from the start of the pilot if preferred by customers and approved by the Commission, or could wait to gain experience form the Program and apply for this change during or at the end of the pilot period.

However, upon further consideration, the Company is of the opinion that the alternate method would likely be easier to understand for customers and if the Commission were to direct FBC to offer the Solar Offset rate (with the understanding that there may be a mismatch between kWh sales at the CSPP rate and the actual array output), the alternate approach would be preferred.

24.3 Why didn't FortisBC explore such customer rate preference prior to making is Application to the BCUC for implementation of the rates as proposed?

Response:

FBC initially explored the rate options with customers only at a high level during its customer research (i.e. gauging a preference for a lease model versus a percentage of consumption model). The level of detail related to the mechanics of the specific rate was beyond the scope of the questions posed to customers.

24.4 What are the pros and cons of offering the alternative rate set out in Scarlett 2 as opposed to the rate proposed by FortisBC?

Response:

The advantage of the alternate version of the Solar Offset rate is that there is no adjustment required to the percentage of customer consumption met with solar energy that is dependant on the amount of available energy from the array. This would be easier to understand for the customer and would not require a monthly adjustment to be made by FBC billing staff.

The disadvantage is that there may be a mismatch in the number of kWh billed to customers with the actual amount of energy available from the array over the course of the year. However, any difference will be small relative to overall power supply and revenue requirements.