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Sent via eFile

<b>FORTISBC INC. LONG TERM ELECTRIC RESOURCE PLAN &amp; LONG TERM DEMAND SIDE MANAGEMENT PLAN EXHIBIT A-13</b>
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Mr. Andy Shadrack  
Box 484  
Kaslo, BC V0G 1M0  
ashadra@telus.net

**Re: FortisBC Inc. – 2016 Long-Term Electric Resource Plan & Long-Term Demand-Side Management Plan –  
Project No. 1598896 – BCUC Information Request No. 1**

Dear Mr. Shadrack:

Further to your filing of late intervener evidence regarding the above-noted application, please file your responses electronically no later than Thursday, August 10, 2017.

Sincerely,

*Original signed by Nhi Do*

Patrick Wruck  
Commission Secretary

/yl  
Enclosure



**FortisBC Inc.**  
**2016 Long Term Electric Resource Plan & Long Term Demand-Side Management Plan**

British Columbia Utilities Commission  
Information Request No. 1 to Mr. Shadrack On Shadrack Late Intervener Evidence

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**1.0 Reference: KASLO GREEN ENERGY OPPORTUNITIES**  
**Exhibit C10-9, pp. 20, 25; Exhibit B-11, BCUC IR 64.1; *The Clean Energy Act, Part 1***  
**British Columbia energy objectives**

On page 20 and 25 of Shadrack Intervener Evidence, Mr. Shadrack (Shadrack) describes a potential Kaslo micro hydro system and solar electricity system.

*The Clean Energy Act* (CEA) includes as British Columbia (BC) energy objectives:

(a) to achieve electricity self-sufficiency; (c) to generate at least 93% of the electricity in British Columbia from clean or renewable resources; (g) to reduce greenhouse gas emissions; and (l) to foster the development of First Nation and rural communities through the use and development of clear or renewable resources.

FortisBC Inc. (FBC) states in British Columbia Utilities Commission (BCUC) Information Request (IR) 64.1 that it plans to purchase 89.9% of its energy from sources that meet the CEA definition of electrical self-sufficiency in 2017.

1.1 Does Shadrack consider that the potential micro hydro and solar electricity system project would be supportive of the BC energy objectives under the following scenarios: (i) the energy produced was used to displace lower-cost (non-BC, non-clean) market purchases; and (ii) the energy produced was used to displace lower-cost purchases from the British Columbia Hydro and Power Authority (BC Hydro)? Please explain.

**2.0 Reference: KASLO GREEN ENERGY OPPORTUNITIES**  
**Exhibit B-1 (Application), pp. 74, 109, 127; The BC Energy Plan, Appendix A, p. 39;**  
**Exhibit B-11, BCUC IR 72.4, 75.2, 75.3.1**  
**Value of energy generated from clean distributed generation**

FBC states in response to BCUC IR 72.4 that net metering customers delivered approximately 310 MWh of energy in 2016. FBC further shows in Table 5-1 on page 74 of the Application, that the 2016 available energy volume from "Market and Other Contracts" is 241 GWh (or 241,000 MWh).

FBC also states in BCUC IR 75.2 that it cannot consider small-scale distributed generation, and in particular net metering, a long-term resource.

Policy Action No. 25 of the BC Energy Plan states: “Ensure the procurement of electricity appropriately recognizes the value of aggregated intermittent resources.”<sup>1</sup>

FBC estimates the long-run marginal cost (LRMC) of its preferred portfolio (i.e. A4) at \$96/MWh, on page 127 of the Application. FBC further estimates on page 109, that the unit energy cost (UEC) of market purchases is \$34-\$64/MWh and the unit energy cost (UEC) of PPA Tranche 1 Energy is \$47-\$56/MWh.

FBC states in response to BCUC IR 75.3.1 that it does not believe it is correct to apply the BC Hydro Standing Offer program (SOP) adjustments to FBC. However, by applying SOP delivery factor adjustments to FBC’s \$84/MWh LRMC of acquiring energy, FBC estimates a seasonally adjusted LRMC of \$81/MWh (i.e. 96% of FBC’s LRMC) for Photo Voltaic (PV) solar and \$78/MWh (i.e. 93% of FBC’s LRMC) for micro hydro.

- 2.1 Does Shadrack consider that clean distributed generation would be a short-term or long-term resource for FBC? Specifically, please describe:
- (i) the expected variability in the volume of energy produced year-over-year for a portfolio of clean distributed generation that included micro hydro and solar electricity;
  - (ii) the likelihood that the facilities be relocated outside of FBC’s service area; and
  - (iii) the ability of the customer to sell the energy fed into the grid to a party other than FBC.
- 2.2 Please estimate the annual cost to FBC ratepayers if FBC purchased energy from the Kaslo micro hydro and the PV solar project at a price of \$91.2/MWh (95% of \$96/MWh).
- 2.3 Please estimate the incremental cost to FBC ratepayers assuming FBC would have otherwise purchased energy at \$50/MWh.
- 2.4 Please estimate the percentage of FBC’s total load that the output from the micro hydro and PV solar project would represent.

- 3.0 Reference: KASLO GREEN ENERGY OPPORTUNITIES**  
**Exhibit B-2, BCUC IR 10.2; Exhibit B-11, BCUC IR 23.2, 72.2.2, 72.4.1, 73.3; BC Hydro Standing Offer Program - Program Rules, Version 3.2, April 2016, p. 4; BC Hydro Standing Offer Program - Standing Offer Program Review Engagement Guide, dated April 2014, p. 3; BC Hydro Micro-Standing Offer Program - Program Rules, Version 1.0, March 2017, pp. 3, 4; BC Hydro Application to Amend Rate Schedule 1289 - Net Metering Service and Cancel Tariff Supplement No. 63 – Net Metering Interconnection Agreement, Order G-57-12 and Reasons for Decision dated May 14, 2017, p. 21**  
**Market barriers to clean distributed generation**

FBC states in BCUC IR 10.2 that “the Company seeks to neither advantage nor disadvantage DG [distributed generation] regardless of size, type, or ownership” and also provides the following table:

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<sup>1</sup> [http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/bc\\_energy\\_plan\\_2007.pdf](http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/bc_energy_plan_2007.pdf)

DG Policy Issue	FBC Comments
Should grid-side benefits of customer DG be monetized and allocated among stakeholders?	FBC has a Self-Generation Policy Stage II Application before the Commission in which it proposes to share any net benefits of self-generation on a 50-50 basis between the DG customer and other customers.
Should DISCOs participate in DG?	Not Applicable.
Should DG interface with grid operations and markets?	Self-Generating customers in the FBC service area have access to markets utilizing the Company's Open Access Tariff and wheeling related rate schedules.
Should the interconnection technical requirements, processes, and contracts be modified for DG?	FBC has established interconnection guidelines that are applicable to DG customers.
Should utilities be compensated for stranded costs associated with DG installations?	In cases where assets are put in place to serve a load customer who then installs DG, it would generally be appropriate for the utility to be compensated for stranded costs.
Should utilities be compensated for providing standby services?	FBC has an approved standby rate.
Should siting and permitting requirements be modified for DG?	Not a consideration for the utility.
Should DG technologies be supported by financial incentives, subsidies, or public funding of R&D?	Not a consideration for the utility.

FBC states in BCUC IR 73.3 that “it does not consider it is currently incented to mitigate (or exacerbate) market barriers to DG [distributed generation] / SG [self-generation].”

FBC states in BCUC IR 72.4.1 that it does not consider distribution-connected generation is less mature of an industry compared to transmission-connected generation.

FBC states in BCUC IR 23.2 that it is possible that clean distributed generation resources could defer the requirement for network system reinforcement.

BC Hydro’s SOP rules, dated April 2016 state that eligible project size is over 100kW and up to and including 15MW, and that customers from a utility other than BC Hydro are not eligible.<sup>2</sup> Target volumes are limited to 150 GWh/year.<sup>3</sup>

BC Hydro’s Micro-SOP rules, dated March 2016, state that the program was developed as a component of the SOP to enable small-scale clean energy projects over 100 kW up to 1MW in BC, particularly for those developed by First Nations and Communities. It also states that projects must be located within BC Hydro’s service area.<sup>4</sup> Available energy volumes are managed under the SOP.<sup>5</sup>

FBC states in BCUC IR 72.2.2 that, where a large commercial customer uses generation to offset against their own supply, the energy will inherently have a value to the customer equal to the retail rate. For a customer on Rate Schedule (RS) 30, that would be 5.6c/kWh and for a customer on RS 31 it would be 5.5 c/kWh.

The Commission stated, on page 21 in its 2012 Reasons for Decision attached to Order G-57-12 on BC Hydro’s Net Metering tariff (RS 1289):

<sup>2</sup> <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/independent-power-producers-calls-for-power/standing-offer/standing-offer-program-rules.pdf>

<sup>3</sup> <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/independent-power-producers-calls-for-power/standing-offer/standing-offer-program-engagement-guide-april-2014.pdf>

<sup>4</sup> <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/independent-power-producers-calls-for-power/standing-offer/micro-sop-program-rules.pdf>

<sup>5</sup> [https://www.bchydro.com/energy-in-bc/acquiring\\_power/current\\_offerings/micro-sop/current-applications.html](https://www.bchydro.com/energy-in-bc/acquiring_power/current_offerings/micro-sop/current-applications.html)

To this end, the Panel adopts the following evaluation framework for this Application:

- RS 1289 should not impose any unnecessary economic or other barriers to ratepayers seeking to install small-scale clean DG.
- RSA 1289 should not incur any substantial cost on the utility.
- Interconnections must be safe, but interconnection rules must not be excessive or burdensome.

3.1 Does Shadrack consider that FBC should mitigate market barriers to clean distributed generation? Please explain.

3.1.1 Please identify the market barriers, if any, faced by investors looking to invest in the Kaslo micro hydro and solar PV projects.

3.2 Please explain whether there could be any grid-side benefits arising from the Kaslo micro hydro and the solar PV project (such as deferral of network infrastructure investment). If yes, please explain whether, under existing FBC policies, project investors would be compensated for this benefit.

3.3 Please explain whether there are market barriers related to being compensated for the value of energy generated from the Kaslo micro hydro and the solar PV project. Please include a description of the options available to the Kaslo micro hydro and solar PV for the sale of their energy, including:

- net metering rates;
- sales to BC Hydro or FBC under ‘standing offer’ programs;
- sales to Powerex and/or marketers; and
- sales into the Mid-C spot market (i.e. using the Open Access Transmission Tariff).

3.3.1 Please explain whether opportunities to access the market exist. If yes, do you consider them overly-complex for clean distributed generation investors?

3.3.2 Please explain whether some or all of the energy produced by the Kaslo micro hydro and the solar PV projects could be offset against retail rates (i.e. whether it is ‘behind-the-meter’ generation). If yes, please estimate the credit that would be received.

3.3.3 Please describe and explain the option Shadrack considers would be most appropriate to mitigate any ‘access-to-market’ barrier for the Kaslo micro hydro and the solar PV project (e.i. expansion of the net metering program, micro-SOP, SOP, Open Access Transmission Tariff, etc.).

3.4 Does Shadrack consider that FBC interconnection arrangements are overly-complex for clean distributed generation investors? Please explain.

3.5 Does Shadrack consider that clean distributed generation is an ‘immature industry’ compared to transmission-connected generation? Please explain.

3.5.1 If yes, does Shadrack consider that there could be a net benefit to BC if FBC attempted to mitigate this market barrier, provided it does not result in a substantial cost to the utility? Please explain.

**4.0 Reference: KASLO GREEN ENERGY OPPORTUNITIES  
Exhibit B-2, BCUC IR 11.3  
Technical considerations**

FBC states in BCUC IR 11.3 that the connection policy does not address distribution stability concerns.

- 4.1 Please explain whether the Kaslo solar electricity project could include advanced inverters. If yes, please explain whether this would allow the project to improve grid stability, support power quality and provide ancillary services.

**5.0 Reference: KASLO GREEN ENERGY OPPORTUNITIES  
Exhibit B-2, BCUC IR 11.6; Exhibit B-11, BCUC IR 73.1  
Level playing field**

FBC states in response to BCUC IR 11.6 that the Community Solar Pilot Project being considered by FBC would be included in rate base and that self-generators are not in a position to make an investment that is analogous to the Community Solar Pilot Project.

FBC was asked in BCUC IR 73.1 whether it ensures customer investments in PV are on a level playing field with its own PV investments.

- 5.1 Please explain whether the Kaslo solar electricity project could be considered analogous to the FBC Community Solar Pilot Project.
- 5.2 Does Shadrack consider that FBC policies result in a level playing field between customer investments in PV and its own proposed PV investments? Please explain.