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British Columbia Utilities Commission
Sixth Floor, 900 Howe Street, Box 250
Vancouver, B.C. V6Z 2N3

Attention: Ms. Laurel Ross, Acting Commission Secretary and Director

Dear Ms. Ross:

Re: FortisBC Inc. 2016 Long Term Electric Resource Plan (LTERP) and Long Term Demand Side Management Plan (LT DSM Plan) ~ Project No.3698896

Intervenor Information Request No.1

1. FortisBC (FBC) stated in its application at 2.3.3 "Small Scale Distributed Generation" that:

"...the fixed charges in current rate structures do not adequately recover the cost of connection to the distribution system".

i. Please compare the average cost to FBC, by rate class if available, of connecting Net Metering (NM) customers with the average cost to FBC for connecting regular customers.

ii. Does the expression "*fixed charges in current rate structures*" refer, for residential services under 200 amps, to the \$533 Schedule 82, Sheet 40 installation charge, or does it refer to something else? If it does refer to something else, please elaborate on what costs or charge FBC is referring to.

iii. Are there any pro-rata or other connection or installation charges based on service size which are applied to residential services at 100 amps, 125 amps, 150 amps and 200 amps? If so, please list these charges and elaborate as to why these different charges are levied

iv. Are there any other charges, excluding line extension ones, related to connection of a new or upgraded residential service under or over 200 amps? If so, please list these charges and elaborate as to why they are levied.

v. Please provide a table showing the average per annum kWh household residential consumption rates by 100 AMP, 125 AMP, 150 AMP and 200 AMP service.

2. In section 2.3.3, FBC mentions a "*perception that distributed generation is 'greener'*" amongst the reasons that small scale generation is gaining customer traction. Is photovoltaic generation, in FBC's opinion, actually "*greener*" overall? Please elaborate.

3. FBC stated in its application at 2.3.4 "Rate Design Considerations" that:

"...the growth in interest and participation in small scale customer - owned generation, such as the installations that qualify for the Company's Net Metering Program, may begin to pose rate stability challenges for all customers. While the current participation rates and installed capacity are not a cause for concern, FBC recognizes that a proliferation of grid -connected customers with greatly reduced, zero, or periodic load is problematic for the current regulatory model where the costs of providing all aspects of service are recovered primarily through volumetric rates. FBC, like many other utilities, is concerned that the result of the widespread installation of customer - owned generation will be the transfer of costs to customers who either cannot participate, or choose not to participate".

i. Can FBC project a level or degree of small scale generation at which the Company would expect rate structures to become unstable, and please describe how it would expect such instability to manifest itself?

ii. FBC states that all aspects of service are "*recovered primarily through volumetric rates*". If this is correct, please explain in detail the existence and purpose of the Basic Charge.

4. BC Hydro Netmetering Evaluation Report No 3 states:

"Generally speaking, the economic value of customer self-generation to BC Hydro and non-participating customers is measured in terms of avoided costs because customers supply part or all of their own electricity. For example, customer self-generation may reduce forecast load that BC Hydro is expected to serve or it may appear as a supply resource, reducing the amount of electricity BC Hydro must generate or acquire. Customer generation may also allow BC Hydro to avoid or defer system costs, such as upgrades to enhance the reliability of the system in a particular area" (A-21/BC Hydro Netmetering Evaluation Report No 3, April 30th , 2013, Value of RS 1289: Avoided Cost and Load Resource Balance, p 15, line 11-18).

i. BC Hydro suggests that self-generation provides value to the utility and non-participating customers measured in avoided costs, and postulates that self-generation may reduce the amount of electricity the utility must generate or acquire, and may allow the utility to avoid or defer upgrade costs in particular areas. Does FBC share BC Hydro's views on customer self-generation? Please elaborate.

ii. Please list the documents and reference the sections where FBC has previously provided to the BC Utilities Commission cost-benefit analyses of the overall positive and negative financial and system stability attributes of Distributed Generation (DG) and Net Metering (NM) in particular.

5 FBC expresses specific concern about NM customers "*with greatly reduced, zero, or periodic load*" as "*problematic for the current regulatory model where the costs of providing all aspects of service are recovered primarily through volumetric rates*".

i. What percentage of FBC's seasonal, occasional and conservation minded residential customers have a volumetric consumption level that would give rise to a similar concern as that of NM customers, or is FBC's focus just on NM customers?

6. In accordance with 2 (l) of the *Clean Energy Act* FBC is encouraged to "*foster the development of first nation and rural communities through the use and development of clean or renewable resources*"?

i. What percentage of FBC's customers are first nation and/or live in remote/rural locations where the cost of delivering electricity is considerably more expensive than to highly concentrated urban areas?

ii. Please elaborate on how the concern about "*greatly reduced, zero, or periodic load*" fits in with the *Clean Energy Act's* overarching goal of energy self-sufficiency and promotion of economic development for First Nations and rural regions within the FBC service area

iii. Please provide cost comparisons of transmitting and service delivery of power to remote and rural service populations versus delivery of power to densely populated urban and city populations.

iv. Are there remote and rural portions of FBC's service delivery area where take up of FBC's NM program, using micro-hydro, wind or solar PV etc, would allow FBC to defer upgrades of transmission lines, etc?

v. Has FBC considered a pilot program offering incentives to customers in remote and rural areas to install their own self-generation, such that the cost of electricity is offset, thus reducing overall cost to FBC and non-participating NM customers?

7i. In accordance with s.2(k) of the *Clean Energy Act*, please provide examples of how FBC is encouraging "*economic development and the creation and retention of jobs*" within its electrical service area.

ii. How many Full Time Equivalent (FTE) employees were directly employed by West Kootenay Power/Utilicorp in the FBC electrical service area in 1997?

iii. How many FTE employees were directly employed in the electrical service area by FBC in 2007?

iii. How many FTE employees does FBC directly employ in the FBC electrical service area in 2017?

iv. How many FTEs has FBC both directly and indirectly helped create and retain within the FBC service area through corporate economic activity, for each of the last five years?

8. BC.'s energy objectives as outlined in the Clean Energy Act included reducing, by 2016, B.C. greenhouse gas emissions by 18% (s.2 (g)(ii), and at s.2(i) "*encourage communities to reduce greenhouse gas emissions and use energy efficiently*".

i. Have FBC's existing Plan and Demand Side Management programs, by any calculation, succeeded in reducing, by 2016, greenhouse gas emissions by 18% in any area or category? Please elaborate.

ii. Have FBC's existing Plan and Demand Side Management programs, by any calculation, succeeded in encouraging "*communities to reduce greenhouse gas emissions and use energy efficiently*". Please elaborate.

iii. Have FBC's existing Plan and Demand Side Management programs, by any measure, succeeded in reducing consumption of electricity in any rate class?

iv. Can FBC's existing Plan and Demand Side Management programs be said to have demonstrably influenced lowering average per household consumption of residential electricity during the past five years? Please elaborate

9. FBC stated in its application at 2.3.3 "Small Scale Distributed Generation" that:

"...Grid stability the distribution grid must be able to handle unpredictable distributed generation output without causing power quality problems for other customers"

i. Please explain in detail, using examples, what exactly is being referred to in this statement.

ii. How does FBC currently adjust load production from its facilities on the Kootenay River, in accord with overall customer power needs?

10. Recently it was reported that:

"The U.S. Energy Department's National Renewable Energy Lab expects [solar] costs of about \$1.20 a watt now declining to \$1 by 2020"

<https://www.bloomberg.com/news/articles/2017-01-03/for-cheapest-power-on-earth-look->

[skyward-as-coal-falls-to-solar](#))

- i. Can FBC please supply the source for its solar and other power cost estimates stated in Table 8-1 of its application?
- ii. Given the range of reported PPA Tranche 1 Energy costs of between \$47 and \$56 per MWh in Table 8-1, can FBC please provide the average cost of Tranche 1 Energy, Tranche 2 Energy (where applicable) and Market purchases per MWh for the last five years.
- iii. Please provide the average cost to the company of NM customer electrical power transfers per MWh for each of the last five years.
- iv. Please provide the cost to the company of NM Net Excess Generation (NEG) per MWh for each of the last five years.
- v. FBC provides three different Unit Energy Cost estimates in Table 8-1 for DSM. For comparison purposes, please provide the average DSM UEC MWh expenditures for each of the last five years.
- vi. FBC provides no Unit Capacity Costs for DSM and PPA Tranche 1 and Tranche 2 energy, but does for PPA Capacity and Market Purchases. Please explain why a different approach is taken for each of these different options.

11. In Part 8, Resource Options, FBC states:

"FBC does not treat DG supply in the same manner as other generation resource options. This is because the availability of DG in the future is not predictable or within FBC's control to operate or call upon on demand when needed. As discussed in the FBC Net Metering Program Update Application dated April 15, 2016: The Company does not consider small - scale customer - owned renewable power to be a secure or reliable firm resource..."

"FBC has also not included power supply from self-generators within FBC's service area in the table above. This is because FBC does not have any information regarding available energy or capacity, timing or cost related to any self - generation supply at this time".

- i. Has FBC ever had discussions with any of its NM customers prior to enrollment about designing their systems so that they could provide power to FBC's system in a "secure or reliable" manner, including matters related to "available energy or capacity, timing or cost"?
- ii. Has FBC ever had discussions with any of its NM customers, especially those who consistently provide Net Excess Generation (NEG), about ways to make that supply source "secure or reliable", in matters related to "available energy or capacity, timing or cost"?
- iii. Please elaborate on why FBC believes that its current DSM programs are more reliable than its NM program?

iv. Please provide, data, or provide estimates, in MWh, of the amount per annum by which each DSM program is reducing consumption of power in a table so that the figures can be compared with the amount of power being transferred from NM program customers to FBC for each of the last five years.

12. In 8.2 Supply-Side Resource Options FBC states:

"...all of the generation plants FBC owns are located in the Kootenay region whereas most of the load and expected load growth is in the Okanagan region".

Has FBC ever considered contracting out load supply for the Okanagan Region to BC Hydro, in the same manner that BC Hydro contracts with FBC to supply electrical power to its Lardeau and Yahk service areas?

13. Have FBC and BC Hydro ever had discussions about swapping hard-to-reach service areas, like Lardeau and Yahk, for similar areas that are harder for FBC to service?

14 i. What is the MWh cost differential between producing and delivering power to the Kootenays versus producing and delivering power to the Boundary and Okanagan?

14 ii. Has FBC ever done a cost benefit analysis of solely purchasing power from BC Hydro for the Boundary and Okanagan region, and discontinuing use of the transmission lines from the West Kootenay?

15. The Drake Landing Solar Community (DLSC) is a planned community in Okotoks, Alberta, Canada, equipped with a central community solar heating system, the first of its kind in North America, and which achieved 100% space heating from solar PV collectors and seasonal thermal energy storage in 2015/16, as well as other energy efficient technology (<http://www.dlsc.ca> and https://en.wikipedia.org/wiki/Drake_Landing_Solar_Community)

i. Has FBC conducted any solar hours studies in the north, mid and south Okanagan and/or talked to any of their NM customers in the Okanagan region about solar PV production capacity with a view toward developing a similar seasonal thermal energy storage project?

ii. What have been the ten highest peak consumption days for FBC in 2017?

16. Please reconstitute Figure 9.1 to include an NM LRMC.

17. With reference to A3 BCUC IR #1.19 has FBC experienced any time, since 2010, an inability to purchase power on the spot market at any price?

i. On what dates and for what length of hours did this occur?

ii. Did this situation result in power outages or forced shut down of certain customers' electricity supply? Please elaborate.