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

Attention: Patrick Wruck Commission Secretary and Director

By Electronic Filing

Dear Mr Wruck:

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

IR #1 BCSEA Submitted Evidence

1. With reference to Mr Grevatt's evidence that DSM is a way for FortisBC (FBC) to defer/offset long term capital expenditures, can Energy Futures Group Inc (EFG) expand on the kinds of programs that EFG would recommend that the Company might consider introducing?

2. Many of FBC's current DSM programs focus on subsidizing purchase of energy efficient equipment but do not actually guarantee that the customer will actually end up reducing their grid consumption load. In contrast BC Hydro had a program that gave customers a cash rebate for reducing their consumption load by 10% on an annualized basis. If, as FBC says, DSM is neither firm nor reliable (their words not mine), might it not be better for FBC to expand (and possibly scrap its energy efficiency subsidy purchase programs), and focus DSM programs on grid consumption reduction incentives that compensate customers for winter and summer peak shaving and reduction in overall long term demand for grid power?

3. At C10-6 I provide evidence of our household's grid electric consumption for the six billing periods in each calendar year starting with 2005 and ending in 2017: **Electricity Consumption 2005-2017 Shadrack/Bauman Household**. As noted by EFG, FBC takes the position that DSM is neither firm nor reliable. Would EFG agree that between 2005 and 2014 the empirical evidence shows that grid consumption reduction in the Shadrack/Bauman household was both firm and reliable?

i. Does EFG believe that the kinds of grid consumption savings demonstrated in the Shadrack/Bauman household are replicable across a significant percentage of the residential customer base, given the right incentives?

ii. If so what percentage of uptake could achieve the 1% to 2% annual load reduction, stated as possible in evidence given by EFG, by these kinds of grid consumption savings?

4i. Does EFG agree that between 2014 and 2017, the Shadrack/Bauman household achieved certain further firm and reliable grid consumption reductions through enrollment in FBC's Net Metering program (the household hooked up to the grid and began Net Metering in April 2015)?

ii. Does EFG have any knowledge of Net Metering (NM) programs being incorporated into a utility's suite of DSM programs, and have some North American utility commissions issued orders to the utilities under their jurisdiction setting out clear guidelines for expansion of renewable energy distributed generation (DG)?

Please provide examples of the kinds of orders that North American utility commissions have issued concerning DG and NM, and whether or not any firm DG or NM enrollment targets have been set as well.

5. Does EFG believe that Net Metering could be incorporated as part of a suite of DSM programs that FBC uses in the future?

6. FBC has stated that Net Metering, especially solar PV and wind, is not either a reliable or firm source of power for the Company to consider incorporating into its Long Term Energy Resource Plan.

i. Looking at empirical evidence provided in C10-6 at **Solar Production, Solar Transfers and Total Use as a Function FBC Grid Purchase kWh 314 D Avenue Kaslo Net Metering Service Contract**, would EFG agree that, while solar and wind are an intermittent resource, they would provide, over the time frame of a specific billing period, a consistent and firm source of electrical power if a certain percentage of customers enroll in this kind of program?

ii. At a macro level are you aware of the agreement that Denmark, a renewable energy producer, is trying to reach with Norway, a hydro electric producer, as a means to merge intermittent renewable energy with hydro electric power that currently has a larger energy storage capacity?

iii. Do you believe that such opportunities exist within North America at a regional and sub-regional grid level and can you give examples of such integration?

7. FBC has consistently stated that NM, especially solar PV, cannot be utilized in helping to shave winter peak load. At Shadrack IR 1.15.ii, FBC provides the specific dates of the ten highest peak consumption days in 2017. At C10-6 I provided a cross comparison with FBC's ten highest peak consumption days and our solar PV system's best production/transfer days in 2017: **Twelve Best Solar Production Days in January and February 2017**.

My hypothesis is that the best solar production days in winter are when the skies are clear, which coincides with the coldest days when FBC usually also has its highest peak demand. Does EFG agree, based on the empirical evidence provided in C10-6, that the potential exists for NM, including solar PV, to help FBC shave winter peak demand, if enough customers enroll in the program?

8i. Is EFG aware of other utilities that are incorporating NM into their long term demand side and supply side resource options?

If so, could you please provide examples of how other utility companies are doing this.

9. Further, would small in-stream hydro diversions, using pelton wheels, also provide a firm and reliable source of power to FBC as (unless the creek is seasonal) it is not intermittent?

10. Is EFG familiar with the periodic emails sent out by Navigant Research and have they seen the notice sent out about a seminar on distributed energy resources, held on Friday August 5th, 2016?

"Navigant expects distributed energy resources (DER) capacity to grow almost 3 times faster than new central station generation over the next 5 years. In the United States, total DER capacity will more than double by 2023. Rapidly expanding investment in DER has generated both concern and optimism throughout the power industry as vendors, regulators, and grid operators work to understand an evolving landscape redefining the relationship between utilities and their customers.

The shift away from centralized generation will require the use of innovative technologies and solutions, including advanced software and hardware that enable greater control and interoperability across heterogeneous grid elements. This highly networked and distributed architecture will provide the foundation for an emerging Energy Cloud. DER developments are challenging incumbent grid operating models and forcing business model innovation."

Does EFG agree with the general thrust of Navigant Research's observations, and does EFG believe that FBC is well positioned to handle this change within the current proposed LTERP and LTDSM timeframe?

Please illustrate, giving examples.

11. In regard to Navigant Research's observations about DG (DER) above (10), EFG, at page 8 of BCSEA's Submitted Intervener Evidence (C5-5), states:

"EFG recommends that Fortis modify its transmission planning process to consider 'non-wires alternatives' to construction, including aggressive energy efficiency and demand response initiatives, on an equal footing with traditional poles and wires solutions. In addition, Fortis should assess its expected distribution upgrade projects to determine if there is potential for deferral through the use of targeted DSM.

In response to BCSEA IR 26.1, Fortis describes the Unplanned Growth and Small Growth programs, but does not provide information about its forward - looking distribution planning.

Fortis should perform a thorough analysis of both system - wide and geographically targeted DSM alternatives to future proposals for transmission and generation investments".

FBC, for example, recently filed an application before the BC Utilities Commission proposing to build a solar farm in Kelowna at an investment cost of \$931,000 amortized over forty years, which would retail power back to customers at more than double the current Tier 1 residential retail rate, at 23.3 cents per kWh.

Meanwhile FBC is simultaneously attempting to argue in a reconsideration hearing that it should have the right to lower the cost of Net Metered excess power purchase from its own customers to 4.3 cents per kWh – at a rate more than five times lower than what it has just applied to sell its own centralized solar power production. FBC is even now claiming that it has the right to expel customers from their NM program, because those customers produce power in excess of their own needs.

i. Is this an example of what both Navigant Research and EFG are pointing to, in that FBC could avoid spending all of the fixed capital cost of creating its own solar farm, and instead encourage expansion of intermittent renewable DG and NM energy production throughout its service area, that could be retailed to customers at half the price of its own solar production, and not use the main transmission wires into the geographic regions of its service area where it is needed?

ii. Is this the kind of partnership that FBC could develop with its own customers to, as EFG states, target “*DSM alternatives to future proposals for transmission and generation investments*”?

iii. Are DG and NM a good way to tackle geographic issues such as the fact that FBC has no company owned generation in the Boundary, Okanagan or Similkameen; and should the 50 KW/750 Volt cap be lifted to 100 KW as it has been by BC Hydro?

iv. Should FBC be offering a premium above Tier 1 retail residential rates, as does BC Hydro, to promote in situ generation, especially in remote and rural locations that are more expensive for FBC to service?

12i. When EFG, at page 11, indicates that FBC should use a:

“*...Modified TRC (MTRC) that includes monetization of the environmental benefits associated with DSM...as standard practice in DSM cost effectiveness testing*”

...can EFG please list the kinds of factors that it believes need to be quantified as environmental benefits.

ii. Should, for example, monetized line loss assessment be part of the consideration of DG and NM programs?

ii. Should the fact that transfer of NM power does not have any fixed capital cost associated with its purchase be part of the environmental monetization consideration?

iii. Should FBC be expanding its NM electrical program to assist natural gas customers convert to electric heating, thus considerably enhancing green house gas reduction in the Company’s service area, and in addition promote the NM program to assist electrical heat customers to stay at the Tier 1 rate?

All of which is respectfully submitted,
Andy Shadrack