

BRITISH COLUMBIA UTILITIES COMMISSION

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

British Columbia Sustainable Energy Association and Sierra Club British Columbia

Response to Intervener Andy Shadrack Request for Information [Exhibit C10-7]  
on BCSEA-SCBC Evidence [Exhibit C5-5]

June 29, 2017

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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?

**RESPONSE:**

There are many types of programs that FBC could undertake to capture capacity and energy savings, and FBC certainly already implements some programs that could be shaped to provide the needed benefits. The specific types of programs that FBC might offer would depend on the particular long term capital expenditures that it is trying to defer. Several of the approaches that FBC might consider are as follows:

1. Geographically-targeted “traditional” DSM/energy efficiency programs that promote specific energy savings measures, such as efficient air conditioning or heating and shell efficiency improvements for homes and businesses. If demand growth is driven by new developments, then a program that drives highly efficient construction practices, perhaps coupled with distributed generation and demand response, might be appropriate. Creating enhanced promotions that either offer more aggressive incentives or enhanced outreach and marketing (or both) can drive greater participation in the specific geographic areas where infrastructure is stressed by demand growth. Typically such programs would be expected to have considerably more aggressive savings targets than a generally-available program might have, even if the specific measures were similar.
2. Capacity-focused DSM, addressing either curtailable loads or direct load control/demand response to reduce system needs. Such programs have provided reliable capacity savings in numerous jurisdictions, typically at costs that are far less than the expected infrastructure development costs.
3. Non-specific, procurement-driven programs, such as those being tested by ConEd’s BQDM project. In this project, ConEd has solicited proposals to provide capacity saving or offsetting measures. The solicitation was intentionally broad to encourage creative and innovative proposals, and did not specify the types of measures that were sought. Respondents could provide efficiency, demand response, storage, or a variety of other solutions that, in combination, would be designed to provide ConEd with the capacity relief it needed to defer expensive

## **infrastructure upgrades.**

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?

### **RESPONSE:**

**EFG does not agree that it would be better for FBC to scrap its energy efficiency programs in favor of grid consumption reduction incentives. Without dismissing the possible benefits of such an approach, EFG considers that there are many hurdles that would need to be overcome before contemplating a wholesale transition.**

**Numerous approaches to reducing the amount of energy and capacity required to serve customers are available to utilities including FBC. In Mr. Grevatt's view, DSM programs do not need to "guarantee" that every piece of equipment for which an incentive is provided will save a certain amount of energy. Rather, the DSM program administrator needs to establish a high level of confidence that, in aggregate, a large number of measures will collectively save an expected amount of energy. Such confidence can be gained through effective Evaluation, Measurement and Verification (EM&V), both in an individual utility territory and in comparable jurisdictions that have implemented similar programs.**

**Some utility programs have been premised on measured energy savings rather than promotion of specific equipment. These programs have not received widespread adoption. There could be several reasons for this, such as the challenges of measuring relatively small changes in consumption at the individual premise level, and the difficulty in communicating program requirements to potential participants. This would be considerably more difficult than communicating that a customer will receive a certain incentive amount in exchange for purchasing a specific piece of equipment.**

**The availability of "smart meters" in some utility territories has led to increased interest in DSM programs that are based on measured changes in energy use. One example of this is the EmPOWER Maryland Home Performance with ENERGY STAR program, that is in the midst of planning a transition to "performance incentives."**

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?

**RESPONSE:**

**EFG's view is that a single household does not provide a sufficiently robust sample from which to draw conclusions regarding the reliability of measures to reduce electricity consumption.**

3i. 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?

**RESPONSE:**

**While EFG appreciates Mr. Shadrack's interest in this topic, the question is outside the scope of Mr. Grevatt's testimony.**

3ii. 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? C10-7

**RESPONSE:**

**Please see the response to 3i.**

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)?

**RESPONSE:**

**With respect, the question is outside the scope of Mr. Grevatt's testimony.**

4ii. 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.

**RESPONSE:**

**Please see the last paragraph in the response to 2, above.**

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

**RESPONSE:**

**EFG considers that, in the long run, we may see customer-sited renewable generation technologies be combined with various forms of (a) storage (e.g. electric vehicles or electric hot water) and (b) rate designs that will help utilities control demand. Net metering is one policy element that may be relevant in the advancement of customer-sited renewable energy.**

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.

6i. 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?

**RESPONSE:**

**While EFG appreciates Mr. Shadrack's interest in this topic, the question is outside the scope of Mr. Grevatt's testimony.**

6ii. 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?

**RESPONSE:**

**Please see response to 6i.**

6iii. Do you believe that such opportunities exist within North America at a regional and subregional grid level and can you give examples of such integration?

**RESPONSE:**

**Please see response to 6i.**

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?

**RESPONSE:**

**While EFG appreciates Mr. Shadrack's interest in this topic, the question is outside the scope of Mr. Grevatt's testimony.**

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.

**RESPONSE:**

**EFG is not aware of utilities that are incorporating net metering as an element of their long-term demand side and supply side resource options. However, some utilities are considering how to estimate the effects of independently-driven customer-sited renewable generation on their resource and infrastructure needs.**

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?

**RESPONSE:**

**While EFG appreciates Mr. Shadrack's interest in this topic, the question is outside the scope of Mr. Grevatt's testimony.**

10i. 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."*

**RESPONSE:**

**With respect, this question is outside the scope of Mr. Grevatt's testimony.**

10ii. 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.

**RESPONSE:**

**Please see response to 10i.**

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 ‘nonwires 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 deferment 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.

11i. 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?

**RESPONSE:**

**EFG’s evidence addresses, among other things, the use of DSM measures to defer transmission and distribution expenditures. EFG is not in a position to comment on the topics addressed in the preamble and the question.**

11ii. 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*”?

**RESPONSE:**

**Customer self-generation is not commonly considered a DSM measure. Mr. Grevatt’s evidence focuses on DSM measures that are more commonly included in utility DSM portfolios, including energy efficiency and capacity-focused DSM. Distributed generation and net metering are important topics but are outside the scope of Mr. Grevatt’s testimony.**

11iii. 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?

**RESPONSE:**

**Please see the response to 11ii.**

11iv. 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?

**RESPONSE:**

**With respect, this question is outside the scope of Mr. Grevatt's testimony.**

12. 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.

12i. Should, for example, monetized line loss assessment be part of the consideration of DG and NM programs?

**RESPONSE:**

**Please see BCSEA response to BCOAPO IR 5.1.**

12ii. 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?

**RESPONSE:**

**With respect, this question is outside the scope of Mr. Grevatt's testimony.**

12iii. 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?

**RESPONSE:**

**Please see response to 12ii.**