

REQUESTOR NAME:	BCOAPO
INFORMATION REQUEST ROUND NO:	2
TO:	FortisBC
DATE:	April 27, 2017
APPLICATION NAME:	FortisBC Inc. – 2016 Long Term Electric Resource Plan and Long Term Demand Side Management Plan

51.0 Reference: Exhibit B-2, BCUC 1.1

- 51.1 Is there any linkage between FBC's LTERP and its FBC's Self-Generation Policy Stage II Application? If so, please outline.

**52.0 Reference: Exhibit B-2, BCUC 2.1, page 7, lines 3-7
Exhibit B-1, Volume 2, Section 3**

- 52.1 In BCUC 2.1 reference is made to FBC first determining the "optimal level of DSM". However, the development of the LTDSM Plan only considered four DSM scenarios. Given this limitation on the range of DSM alternatives considered, please explain how the scenario selected (i.e. the High DSM Scenario) can be considered the optimal level of DSM?

53.0 Reference: Exhibit B-2, BCUC 2.2

- 53.1 Were the same metrics that were used to measure how portfolios perform against one another also used to establish the preferred DSM Scenario?
- 53.1.1 If yes, please provide a Table similar to Table 9-2 in Exhibit B-1 that compares the various DSM scenarios against these metrics and indicates that the High DSM scenario is preferable on this basis.
- 53.1.2 If not, why were different metrics used to evaluate the DSM scenarios?

54.0 Reference: Exhibit B-2, BCUC 5.5 and 26.1 to 26.3

- 54.1 If energy and capacity from expiring BC Hydro EPAs were to become available, what resources in FBC's preferred Portfolio A4 would they potentially replace and under what circumstances?

55.0 Reference: Exhibit B-2, BCUC 11.3

- 55.1 Do the same stability concerns apply to larger Self-Generation installations?

56.0 Reference: Exhibit B-2, BCUC 12.4.2

- 56.1 Are the referenced purchases just from one customer or are there a number of customers with whom this arrangement currently exists?
- 56.2 At what price are such purchases currently made and does it vary depending upon whether FBC is in a surplus situation at the time of delivery?
- 56.3 Is FBC obligated to purchase the unplanned deliveries to the system?
- 56.4 Are there penalties that can be or are imposed for unplanned deliveries to the FBC system?

**57.0 Reference: Exhibit B-2, BCUC 16.1
Exhibit B-3, BCOAPO 16.3**

- 57.1 With respect to BCUC 16.1, it is noted that with the exception of BCH Kingsgate (which is the smallest wholesale customer) the forecasts as provided by the wholesalers are consistently in excess of actual load. Has FBC investigated whether or not there is a bias in the forecasts it receives through its survey of wholesale customers?
 - 57.1.1 If yes, what were the results and are should any adjustments be made to offset identified bias in the forecasts?

58.0 Reference: Exhibit B-2, BCUC 23.2.1

Preamble: The response states that “FBC considers DSM savings to be reliable but non-firm resources, and thus are not counted on to defer network system reinforcements that are predicated on peak load requirements”.

- 58.1 When FBC states that it considers DSM savings to be reliable but non-firm resources, is this referring to just forecasted/planned DSM savings to be achieved in future years or also DSM savings that have already been achieved?
- 58.2 When it comes to deferring the need for future generation capacity which is predicated on peak load requirements, please confirm whether FBC considers future DSM savings to be a firm resource that can defer the need to acquire additional generation capacity.
 - 58.2.1 If the answer is yes, please explain why DSM is considered non-firm for purposes of network system reinforcement planning, but firm for purposes of generation capacity planning.

59.0 Reference: Exhibit B-2, BCUC 27.2, 27.4 and 30.1.2

- 59.1 Please confirm that FBC's forecast load-resource balance (Application pages 92-94) does not include any purchases of self-generation from existing customers?
- 59.2 Does FBC's forecast load-resource balance make any provisions for the standby power requirements of existing self-generation customers?
 - 59.2.1 If not, why not?
 - 59.2.2 If yes, how much and in what years?

60.0 Reference: Exhibit B-2, BCUC 30.2.2

- 60.1 Please clarify whether the impacts set out in Tables 1 and 2 are based on:
 - i. Maintaining the level of market purchases assumed in the preferred portfolio but pricing them at the \$85/MWh or \$100/MWh, or
 - ii. Assuming market purchases are priced as requested and the portfolio's use of other existing resources (e.g. PPA Purchases) is re-optimized.
- 60.2 If the impacts are based on approach (i), please re-do the Tables assuming approach (ii).

61.0 Reference: Exhibit B-2, BCUC 35.1 – 35.3

Exhibit B-1, Volume 1, pages 122-125 & Volume 2, page 15

- 61.1 Please clarify whether the LRMC values presented for the various portfolios on pages 122-125 of the Application (including portfolio B1 – the basis for the LRMC used to evaluate DSM) are average or incremental values (i.e. based on the average cost of all resources used in the portfolio or the incremental cost of the most expensive resources used in the portfolio).
- 61.2 Which LRMC value (average or incremental) for portfolio B1 does FBC consider to be appropriate for evaluating DSM and establishing the appropriate level of DSM in the LTERP?
 - 61.2.1 When, in Volume 2 (page 15), FBC compares the \$104/MWh incremental cost for the High DSM scenario to the \$100/MWh LRMC for clean or renewable resources, are the two values being compared calculated on the same basis (i.e., incremental)?

- 61.3 Which LRMC value (incremental or average) does FBC consider to be appropriate for evaluating the cost-effectiveness of resource portfolios and why?

62.0 Reference: Exhibit B-2, BCUC 51.2.1

- 62.1 Does FBC consider capacity and energy savings achieved through rate design to be cost effective when the rates charged to customer exceed its LRMC?

62.1.1 If yes, please explain why.

**63.0 Reference: Exhibit B-3, BCOAPO 4.1, 29.2 and 29.2.1
Exhibit B-1, BCUC 35.2**

- 63.1 With respect to BCOAPO 29.2, do the Marginal cost values set out in Table 1 include program costs?

63.1.1 If not please re-state, including program costs – so as to be comparable to the other values included in the Table.

63.1.2 If not, and program costs cannot be provided for the Marginal cost case, please restate the Average and Incremental costs excluding program costs.

- 63.2 FBC has not responded fully to BCOAPO 29.2.1 which also requested that FBC identify what the highest cost measure in each DSM scenario was. Please do so.

64.0 Reference: Exhibit B-3, BCOAPO 10.2

- 64.1 Please provide a schedule that compares the 2035 input forecasts used in the 2012 LTRP and current 2016 LTERP for GDP and number of residential customers.

**65.0 Reference: Exhibit B-3, BCOAPO 12.5, 14.2 and 14.3
Exhibit B-1, BCUC 14.1**

- 65.1 With respect to BCUC 14.1 and BCOAPO 14.3, please confirm that the historical “before savings” normalized UPC values are based on the actual weather normalized UPC values and therefore represent “after DSM values” (i.e. they have not been adjusted for historical DSM savings).

- 65.2 BCOAPO 12.5 states that there is no trend in the residential UPC. If the historical UPC values used in calculating the 3-year average are based on actual values (which include the effects of DSM programs during those years), why is it appropriate to use these values to conclude there will be no trend in the future UPC value – prior to additional DSM?

66.0 Reference: Exhibit B-3, BCOAPO 14.1

Preamble: The coefficient in the equation applicable to population has increased materially (from 0.06 to 0.33) in the most equation used to forecast the number of residential customers. It is also noted that the current equation was estimated using only 5 years of data versus the 20 years of data used for the 2012 LTRP.

- 66.1 Why was the current equation estimated using only 5 years of data?
- 66.2 Does FBC have any concerns regarding the material change in the equation?
- 66.3 What would be the result if 10 or 20 years of data were used – in terms of the equation the coefficient applicable to population and the resulting residential customer forecast?

67.0 Reference: Exhibit B-3, BCOAPO 15.1

Preamble: The coefficient in the equation applicable to GDP has increased materially (from 0.06 to 3.52) in the most equation used to forecast the number of commercial energy.

- 67.1 Does FBC have any concerns regarding the material change in the equation?

68.0 Reference: Exhibit B-3, BCOAPO 38 to 41

- 68.1 For each of the portfolios A1, C1, A4 and C4 please provide a schedule that sets out by year the energy (MWh) provided by each resource in the same level of detail at the tables provided in the responses to BCOAPO 38 through 41.

69.0 Reference: Exhibit B-3, BCOPAO 43.2

- 69.1 It is noted (BCOAPO 38.2) that portfolio A4 relies on Biogas #1 and Biogas #3 as resource options but not Biogas #2. In light of the lower cost of Biogas #2 (CEC 23.1), please explain more fully why Biogas #2 was not used in the portfolio in lieu of a portion of the Wind Energy.

70.0 Reference: Exhibit B-3, BCOAPO 47.1

- 70.1 The BCUC Resource Planning Guidelines state (page 1): “Resource planning is intended to facilitate the selection of cost-effective resources that yield the best overall outcome of expected impacts and risks for ratepayers over the long run”. Furthermore, FBC’s LTDSM Plan (page 1) states: “The key objective for LTDSM Plan is to determine the appropriate level of cost-effective DSM

resource acquisition to match the Company's resource needs over the LTERP's planning horizon". Given this focus on cost-effectiveness, wouldn't it be more appropriate to prepares DSM scenarios based on LRMC?

70.2 Please clarify whether, in concluding that a DSM scenario with only measures whose LRMC was less than or equal to \$100 / MWh would "land between the High and Max cases", FBC assumed the \$100 also included program costs.

70.2.1 If the answer is yes, please reconcile this response with BCOAPO 29.2 which indicates that for the High DSM scenario the additional DSM included (vis-à-vis the Base Scenario) had an incremental cost of \$104 when program costs are included.

70.2.2 If no, please provide responses to BCOAPO 47.1 through 47.4 assuming the \$100 includes program costs.

71.0 Reference: Exhibit B-3, BCOAPO 48.1 and BCOAPO 2.2

- 71.1 The response provided did not address the request for cumulative DSM savings. Please confirm that since FBC assumes there is no loss in the persistence of DSM savings over time (BCOAPO 2.2) that the cumulative savings in any year will simply be the sum of the DSM savings in that year and all preceding years.
- 71.2 Has FBC undertaken any evaluations of past programs that confirm its assumption that there will be no loss in the persistence of DSM savings over time?

**72.0 Reference: Exhibit B-3, BCOAPO 49.1
2016 LTDSM Plan, pages 8-10**

Preamble: The response states that DSM measures (programs) were not defined in the DSM scenarios. However the 2016 LTDSM Plan (page 13) states that each DSM scenario draws on a portfolio of measures sourced from the FBC CPR results.

- 72.1 Please provide a schedule that sets out the DSM measures included in the High DSM scenario. In the same schedule, please include the LRMC for each measure (including an allowance for program costs).
- 72.2 Please indicate in this schedule those "measures" for which FBC's 2017 DSM Plan has programs that address/target the savings opportunity presented by the measure.

- 72.3 Please provide a schedule that sets out the TRC test (ratio) results for each DSM measure included in the High DSM scenario, where:
 - i) benefits include both the LRMC and DCE and ii) DSM measure costs also include program costs.
- 72.4 Please provide another schedule that sets out the DSM measures included in the Max DSM scenario. In the same schedule, please include the LRMC for each measure (with and without an allowance for program costs).
- 72.5 Please provide a schedule that set out the TRC test (ratio) results for each DSM measure included in the Max DSM scenario, where:
 - i) benefits include both the LRMC and DCE and ii) DSM measure costs also include program costs.

73.0 Reference: Exhibit B-4, BCSEA 16.1 and 16.2

- 73.1 Please confirm that the “market potential” used to establish the percentages in BCSEA 16.2 was the “economic market potential”.
 - 73.1.1 If not, what definition of market potential was used and why?
- 73.2 In making the referenced statement (see preamble to question) did the LRMC used to determine “cost-effective” DSM measures (as compared to FBC’s LRMC of \$100.45 / MWh and DCE of \$79.85 / kW / year per 2016 LTDSM Plan, page 8) include any allowance for program costs?
 - 73.2.1 If not, please re-do the response to BCSEA 16.2 where the cost-effective DSM from an LRMC perspective is DSM measures whose costs (including program costs) are less than FBC’s LRMC.

74.0 Reference: Exhibit B-4, CEC 23.1

- 74.1 It is noted that Portfolio B1 (the no DSM portfolio used to evaluate the cost effectiveness of DSM) includes resources with costs up to \$188 / MWh. Doesn’t this suggest that, to some degree, DSM measures with costs in excess of the \$100 / MWh value used by FBC for evaluation purposes would be a cost-effective alternative?
- 74.2 It is noted that the preferred Portfolio A4 includes resource options (i.e. wind) with costs in excess of \$100 / MWh. Does mean that the use of the \$100 / MWh to evaluate the cost effectiveness of DSM screens out measures that would be cost-effective in terms of a preferred portfolio?

75.0 Reference: Exhibit B-1, Volume 1, page 119 and pages 124-127

- 75.1 Please explain why Portfolio B2, which meets the CEA’s 93% clean or renewable resource objective and has a lower cost than the

Preferred Portfolio (A4), was not included as one of the portfolios considered for preferred portfolio.

- 75.2 Please re-do Table 9-2 to include Portfolio B2.

76.0 Reference: Exhibit B-4, CEC 25.1

- 76.1 Would a portfolio similar to A1 but incorporating the Low DSM scenario (per Volume 2, page 3) have a LRMC lower than \$72 per MWh?
- 76.2 Would a portfolio that incorporated the Low DSM scenario but also met the 93% clean criteria and the self-sufficiency criteria have a lower LRMC than Portfolio B2?
- 76.2.1 If yes, why was it not included as one of the portfolios to be considered for preferred portfolio?

77.0 Reference: Exhibit B-4, CEC 29, 30 and 31

- 77.1 For each of the tables provided, please add a column indicating the annual MWh expected from each site.
- 77.2 Please provide a comparable table for the Biomass projects identified by FBC and considered in the 2016 LTERP Application.