

REQUESTOR NAME: **BC Sustainable Energy Association and Sierra Club BC**

INFORMATION REQUEST ROUND NO: 1

TO: **FortisBC Inc. (FBC)**

DATE: **October 16, 2018**

PROJECT NO: **1598973**

APPLICATION NAME: **Application for Approval of 2019-2022 Demand Side Management Expenditures Plan**

1.0 Topic: EfficiencyBC

Reference: MEMPR medial release, “New program makes saving energy more affordable” (<https://news.gov.bc.ca/releases/2018EMPR0052-001891>); EfficiencyBC website (<https://efficiencybc.ca>)

On September 28th, 2018, the Province announced a new energy efficiency program – EfficiencyBC – that “makes saving energy more affordable.”

The EfficiencyBC website states:

“About EfficiencyBC

EfficiencyBC is BC’s online hub for homeowners and businesses to access information, incentives and support to reduce energy use and greenhouse gas emissions in new and existing homes and buildings. EfficiencyBC is funded by the Province of British Columbia and the Government of Canada under the Low Carbon Economy Leadership Fund. EfficiencyBC incentives are administered by BC Hydro, FortisBC and BC Housing.

EfficiencyBC resources include:

- Easy to use incentive search tools for residential renovations, residential new construction, commercial renovations, and commercial new construction
- Single application for EfficiencyBC, BC Hydro, FortisBC and local government residential renovation incentives
- Information and answers to frequently asked questions on energy efficiency upgrades
- Free Energy Coaching Services for homeowners and businesses undertaking renovations, including a phone and email hotline staffed by energy coaching specialists
- Search tool to find registered EnerGuide Rating System energy advisors for residential renovations
- Contractor directories to find registered contractors in your area

Resources and support are available for the following building types in British Columbia:

- Residential renovations and new construction
- Commercial renovations and new construction (multi-unit residential buildings, commercial buildings, institutional buildings)

Energy Coach Service

The Energy Coach is a free coaching service for homeowners and commercial building owners and managers in B.C. Energy Coaches are trained energy efficiency specialists who provide building-science based information about the options and opportunities to improve the energy efficiency of your home or building. They are available to answer your questions at all stages of your energy improvement project. Energy Coach services are available for homeowners and commercial building owners or managers.

The Energy Coach, formerly known as the BC Home Energy Coach, has been expanded to include commercial building owners and managers in addition to homeowners.

Energy Coach services include:

- Access to Energy Coaches via a toll-free hotline and e-mail
- Information and advice about energy efficiency upgrades and incentives
- If needed, directing you to appropriate program representative

Please see our Privacy Page for full Energy Coach [Terms of Use.](#)"

According to the EfficiencyBC website, incentives are offered in the residential and commercial sectors, for both new construction and renovations, for a wide variety of heating types and for many places in BC. Incentives cover a variety of items, including gas appliances, heat pumps, insulation, windows, doors, etc. Rebate amounts range from hundreds of dollars to at least tens of thousands of dollars.

- 1.1 Please explain FBC's understanding of the EfficiencyBC program, including the program's strategic objectives and its expected effects on DSM activities in BC and in FBC's service area.
 - 1.1.1 Is EfficiencyBC intended to increase DSM energy savings above the levels planned by FBC and other BC utilities, or to help the utilities achieve planned savings levels?
 - 1.1.2 Is EfficiencyBC intended to reach different potential DSM customers than are targeted by FBC and other BC utilities?
 - 1.1.3 Does EfficiencyBC have strategic objectives regarding the uptake of particular DSM measures (e.g. such as building envelope efficiency upgrades) or fuel type that are different than those of FBC or other BC utilities?
 - 1.1.4 Does EfficiencyBC target any sector or sectors in particular (e.g. rental accommodations) in order to fill any perceived gaps in the

coverage of current and planned DSM offerings by FBC and other BC utilities?

- 1.2 Please discuss how FBC's participation in EfficiencyBC affects the design and implementation of the 2019-2022 DSM plan?
- 1.3 Please describe the levels and structure of the funding provided by the Province and the federal government under the Low Carbon Economy Leadership Fund. Does FBC receive such funding, or does the funding go directly to end-users in the form of incentives?
- 1.4 Under the EfficiencyBC program, how much federal and provincial money is allocated to the FBC service area, or to the FBC and FortisBC Energy Inc. (natural gas) Shared Services Territory?
- 1.5 Please confirm, or otherwise explain, that, in theory, federal and provincial funding contributions toward FBC's DSM measures would not affect the TRC but would elevate the UCT and RIM.
- 1.6 Do the benefit/cost estimates in the Application reflect consideration of funding through EfficiencyBC?
- 1.7 Would funding from the federal and provincial governments to FBC under EfficiencyBC be an example of what is referred to as "Partner Co-funding" in Table 1-1: DSM Portfolio Summary Results for 2017 in the FBC DSM 2017 Annual Report? [Exhibit B-1, Appendix E, pdf p.166]
- 1.8 Does FBC anticipate being able to separate the savings consequences of (a) federal and provincial spending through EfficiencyBC and (b) FBC's DSM spending? If so, how? If not, how will FBC handle evaluation?
- 1.9 Does federal and provincial funding through EfficiencyBC mean that FBC will be able to offer incentives for certain efficiency measures that would not otherwise meet benefit/cost objectives?
- 1.10 Can FBC confirm that the federal and provincial funding through EfficiencyBC is incremental to FBC's DSM spending, rather than being a mechanism for FBC to reduce its DSM spending?

2.0 Topic: 2019-2022 DSM Plan Expenditures and Savings
Reference: Exhibit B-1, Appendix A: 2019-2022 DSM Plan, p.1, pdf p.39;
Table 1-1: DSM Plan Expenditures & Savings, 2019-2022, pdf p.40

The Application states:

"Overall, the 2019-2022 DSM Plan expenditures are 21 percent higher (at \$43.3 million) than was contemplated by the pro-forma budgets provided in the 2016 LT DSM Plan (\$35.7 million). Over half (\$4.0 million) of the \$7.6 million total increase in proposed DSM spending is allocated to lighting in the Industrial sector, largely to address agriculture process lighting in the emergent cannabis industry. Other large increases are from the addition of a Residential Customer Engagement Tool (\$1.1 million), the Demand Response pilot (\$1.0

million), and the DSM tracking tool (\$0.6 million) under Supporting Initiatives. The program area sections that follow below provide more details on each of these items.

The 2019-2022 DSM Plan energy savings are also 17 percent higher (130.3 GWh) compared to the 2016 LT DSM Plan forecast (111.6 GWh) due largely to the estimated savings from the proposed cannabis production projects in the industrial sector.”

- 2.1 FBC explains a total of \$6.7 million of the \$7.6 million by which the Plan expenditures exceed the pro forma budgets in the Long-Term Plan. What accounts for the remaining \$0.9 million difference?
- 2.2 Table 1-1 of the 2019-2022 DSM Plan provides LT DSM figures only at the whole plan level. Please provide a table comparing by program area the spending and estimated energy savings for the 2019-2022 DSM Plan and for the LT DSM Plan.
- 2.3 If the 2019-2022 DSM Plan has lower energy savings than the LT DSM Plan for one or more program areas, please provide a detailed explanation.
- 2.4 FBC explains that the proposed savings are 17% higher than the LT DSM Plan “due largely to the estimated savings from the proposed cannabis production projects in the industrial sector.” [underline added]
 - 2.4.1 What portion of the increased savings is due to savings from the proposed cannabis production projects?
 - 2.4.2 Please describe the program areas in which the remaining increased savings are expected.

3.0 Topic: Customer Engagement Tool
Reference: Exhibit B-1, Appendix A: 2019-2022 DSM Plan, p.1, pp.12-13, pdf p.50-51

The Application states:

“... Other large increases are from the addition of a Residential Customer Engagement Tool (\$1.1 million), the Demand Response pilot (\$1.0 million), and the DSM tracking tool (\$0.6 million) under Supporting Initiatives. The program area sections that follow below provide more details on each of these items.” [p. 14, pdf p.19, underline added]

“The Residential Customer Engagement Tool initiative plans to provide home energy reporting and other tools that will provide energy consumption analysis to customers, increase customer awareness of energy efficiency and conservation and foster conservation behaviours. The 2018 DSM Plan included this program under the Residential Behavioural program but, after further refinement and development, FBC determined this program would be more appropriately placed

within the CEO program area for the 2019-2022 DSM Plan. This initiative is in partnership with FEI to develop an online portal where customers can access targeted energy conservation content and are aware of FBC's other DSM offers.

Industry research on similar tools indicate electric savings for this type of initiative are approximately 2% of total participant electric consumption. However, since these savings are based on behavior changes and there is uncertainty on their relative magnitude, they cannot be effectively forecast at this time and have not been included in this DSM Plan. Once savings are realized, they will be reported in FBC's annual DSM reports to the British Columbia Utilities Commission.”
[pp.12-13, pdf pp.50-51]

- 3.1 FBC explains that \$1.1 million of the budget increase (2019-2022 DSM Plan over LT DSM Plan) is from the addition of a Residential Customer Engagement Tool. What, if any, portion of the \$1.1 million is one-time development costs?
- 3.2 What is the expected ongoing annual cost for the Residential Customer Engagement Tool for the 2019-2022 period?
- 3.3 If FBC continues to implement the Residential Customer Engagement Tool beyond 2022, would it expect the ongoing annual cost to be similar?
- 3.4 Please explain how costs for the Tool are shared between FEI and FBC.
 - 3.4.1 How was the cost allocation between FBC and FEI determined?
 - 3.4.2 What are FEI's costs expected to be for the tool each year, for the 2019-2022 DSM Plan period?
- 3.5 FBC states its position that “since these savings are based on behavior changes and there is uncertainty on their relative magnitude, they cannot be effectively forecast at this time and have not been included in this DSM Plan.” If savings cannot be effectively forecast, what was the basis of FBC's determination that the tool would be a good investment?
 - 3.5.1 Did FBC conduct any sort cost-benefit analysis of the Residential Customer Engagement Tool? If yes, please provide this analysis. If no, why not?
 - 3.5.2 Please explain how the expected savings based on behaviour changes due to the Residential Customer Engagement Tool relate to FBC's position in the 2017 Cost of Service and Rate Design Application that opportunities for future savings due to the Residential Conservation Rate have been largely exhausted.
- 3.6 Does FBC anticipate that the Residential Customer Engagement Tool will be made available to all of its residential customers?

3.7 Please describe FBC’s expected methodology for determining the level of savings that can be attributed to the Residential Customer Engagement Tool.

4.0 Topic: Program Coordination with FEI

Reference: Exhibit B-1, Appendix A: 2019-2022 DSM Plan, p.3, p.5, p.9.

Regarding its Home Renovation program, FBC states that “By design, the program enables partnerships with BC Hydro, FEI, and all levels of government.” [Section 2.1, Home Renovation, pdf p. 41]

Regarding its Rental Apartment Efficiency Program, FBC states that “FBC provides the Rental Apartment Efficiency Program in collaboration with FEI.” [Section 2.6, pdf p. 43]

Regarding its Custom Program, FBC states that “The program is administered jointly with FEI, providing customers with a one-stop program in the FBC service territory to evaluate and implement building-scale energy efficiency projects.” [Section 4.2, pdf p. 47]

4.1 Please explain how these programs that are implemented in partnerships between FBC and FEI are implemented and administered.

4.2 Please explain how cost allocations between FEI and FBC are determined.

4.3 Where certain end uses have efficient options with both electricity and natural gas, for example, electric heat pump water heaters and condensing natural gas demand water heaters, or condensing natural gas furnaces and electric heat pumps, how does FBC envision that programs would ensure that customers receive unbiased information regarding their fuel and technology choices?

4.4 Would the relative climate impacts of the different technologies factor into the information provided to customers?

5.0 Topic: Commercial Program Expenditures and Savings.

Reference: Exhibit B, Appendix A: 2019-2022 DSM Plan, Table 4-1: Commercial Expenditures and Savings, 2019-2022, p.8, pdf p.46.

Table 4-1: Commercial Expenditures and Savings, 2019-2022

Program	Expenditures 2019 dollars (000s)					Energy savings (GWh)					TRC 2019- 2022
	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total	Ratio
Commercial Custom	\$980	\$963	\$1,005	\$1,095	\$4,043	4.4	5.3	6.0	6.8	22.6	1.3
Commercial Prescriptive	\$1,371	\$1,218	\$1,174	\$1,057	\$4,819	11.1	10.1	9.2	8.7	39.1	2.8
Labour and expenses	\$828	\$828	\$828	\$828	\$3,312						
Total	\$3,178	\$3,008	\$3,006	\$2,980	\$12,173	15.5	15.5	15.3	15.5	61.8	2.0

- 5.1 Please explain the reason for the annual decrease in the Commercial Prescriptive expenditures and savings.
- 5.2 Why are the proposed annual labour and expenses identical for each year, while the program Commercial Prescriptive budget is decreasing?

6.0 Topic: Low Income Program Area.
Reference: Exhibit B-1, Appendix A: 2019-2022 DSM Plan, pp.6-7, pdf pp. 44-45;
2018 DSM Expenditure Schedule proceeding, Exhibit B-2,¹ FBC Responses to BCUC IR1, Appendix A – 2018 DSM Plan, Section A2 Residential Program Area, Table A2-1: Residential Program Expenditures & Savings, pdf p.33; BCUC Order G-113-18.

The Application states:

“Table 3-1 outlines the Low Income programs planned expenditures, energy savings and the Benefit/Cost ratio on a Total Resource Cost (TRC) basis. Overall, the Low Income Program Area continues to grow throughout the plan period.” [pdf. p. 44]

Table 3-1: Low Income Expenditures and Savings, 2019-2022

Program	Expenditures 2019 dollars (000s)					Energy savings (GWh)				
	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total
Self Install (ESK)	\$74	\$74	\$74	\$74	\$296	0.2	0.2	0.2	0.2	1.0
Direct Install (ECAP)	\$665	\$687	\$704	\$726	\$2,781	0.7	0.7	0.7	0.7	2.8
Social Housing Support										
Prescriptive Rebate	\$15	\$16	\$18	\$20	\$68	0.1	0.1	0.1	0.1	0.4
Support	\$26	\$30	\$35	\$40	\$130					
Labour and expenses	\$64	\$64	\$64	\$64	\$254					
Program	\$843	\$870	\$894	\$923	\$3,530	1.0	1.0	1.0	1.1	4.1

Table A2-1: Residential Program Expenditures & Savings from the FBC 2018 DSM expenditure schedule proceeding is reproduced for reference:

¹ https://www.bcuc.com/Documents/Proceedings/2017/DOC_50491_B-2_FBC-Responses-to-BCUC-IR1.pdf.

Table A2-1: Residential Program Expenditures & Savings

Program		2017 Approved		2018 Plan		TRC, net B/C ratio
		Savings, system MWh	Cost (\$000s)	Savings, system MWh	Cost (\$000s)	
1	Home Renovation					
2	Home Renovation	364	206	1,203	300	1.1
3	Heat Pumps	781	253	395	167	0.9
4	Lighting	2,735	153	3,337	202	1.8
5	Appliances	126	71	215	159	2.1
6	Water Heating	17	28	38	25	1.8
7	New Home					
8	New Home	126	52	169	76	1.3
9	Income Qualified & Rentals					
10	Low Income	3,247	1,265	1,229	731	2.0
11	Rentals	0	0	306	53	3.4
12	Customer Engagement Tools	3,097	200	240	165	0.7
13	Non-program specific expenses		491		610	
14	Total	10,493	2,718	7,132	2,486	1.4

6.1 With reference to the 2017 Approved, and 2018 Plan, Savings and Cost for Income Qualified & Rentals, please explain why the 2019-2022 DSM savings that FBC proposes for its low income customers are so much lower than the 2017 Approved, and 2018 Plan, Savings and Cost for Income Qualified & Rentals shown in Table 2A-1 from the 2018 DSM expenditure schedule proceeding.

6.2 Given that the savings are less in each year of the 2019-2022 DSM Plan than were proposed in 2018, why are the costs in 2019-2022 more than the 2018 costs?

6.3 In Order G-113-18 the BCUC accepted FBC's 2018 DSM expenditure schedule and stated on page 7 that "It is expected that FBC will provide an update on the effectiveness of its program outreach efforts in the next expenditure schedule filing with the BCUC." Has FBC provided such an update? If yes, please provide it. If not, why not?

**7.0 Topic: Potential Changes to Markets and Avoided Costs during the 2019-2022 Plan period.
 Reference: Exhibit B-1, Application for Acceptance of DSM Expenditures for 2019-2022, p.1.**

The Application states:

"The LT DSM Plan was premised on a ramp up in DSM spending and savings, beginning in 2021, that would offset an average of 77 percent of FBC's forecast load growth annually over the LTERP's planning horizon. In response to emerging customer activities, the DSM Plan builds on and is an escalation of the target savings contemplated in the LT DSM Plan." [underline added]

- 7.1 Does FBC view it as possible that “emerging customer activities” could occur that are not anticipated in the four-year Plan period, and that could materially either increase or decrease the opportunity for cost-effective energy saving opportunities prior to its next LTERP and LT DSM Plan and 2023+ DSM Expenditure Schedule filings?
- 7.1.1 If yes, what process would FBC propose to use to adapt or alter its approved Plan?
- 7.1.2 Does FBC anticipate that BCUC approvals would be required?
- 7.2 Does FBC view it as possible that avoided costs could substantively change in a manner that is not anticipated in the four-year Plan period, and that could materially either increase or decrease the opportunity for cost-effective energy saving opportunities prior to its next LTERP and LT DSM Plan and 2023-2028 DSM Expenditure Schedule filings?
- 7.2.1 If yes, what process would FBC propose to use to adapt or alter its approved Plan?
- 7.2.2 Does FBC anticipate that BCUC approvals would be required?
- 8.0 Topic: Heat Pumps**
Reference: Exhibit B-1, Appendix A: 2019-2022 DSM Plan, section 2.2, Heat Pumps, p.4, pdf p.42;
Exhibit B-1, Appendix E, FBC DSM 2017 Annual Report, Subappendix C, Residential Heat Pumps Program Executive Summary, pdf p.195

Appendix A to the Application states:

“Central and ductless heat pump incentive offers are consolidated within the Home Renovation program. With its temperate winters and hot summers, the FBC service area is an ideal climate for air source heat pumps (ASHP). Customers can upgrade electric heating systems to either central split (forced-air) or ductless mini-split (for customers with electric baseboard heating) air source heat pumps.” [pdf p.42]

The March 2018 Final Report of the Evaluation of the FortisBC Residential Heat Pump Program states in the executive summary:

“Conclusion 5: Current rebates, although reasonable, could be further optimized. While current participants indicated that rebate levels were adequate – and even suggested they might have bought heat pumps at lower rebate levels, feedback from surveyed contractors and nonparticipants⁴ suggests that current incentive levels may not be sufficient to drive a large increase in participation.⁵ Since staff are considering restructuring rebate offers, we recommend exploring tiered rebates that depend upon factors such as efficiency level or whether the heat pump is certified to operate in very cold climates. Tiered rebates would reward (i.e., be higher for) customers who installed more efficient equipment and are the most common type of rebates offered by many

heat pump programs we reviewed during this evaluation.” [pdf p.200, footnote numbers removed]

- 8.1 Please explain the heat pump incentive offers that FBC proposes will be available within its Home Renovation program.
 - 8.2 Will FBC offer tiered, or otherwise enhanced, rebates as recommended in the Evaluation?
- 9.0 Topic: Commercial and Industrial Custom Program**
Reference: Exhibit B-1, Appendix E, FBC DSM 2017 Annual Report, Subappendix D, Custom Business Efficiency Program Executive Summary, pdf p.201

The March 2018 Evaluation of the FortisBC Custom Business Efficiency Program (CBEP) states in the executive summary:

“1.3.2 Summary of Trade Ally Findings and Recommendations

The results of our limited interviews indicate a surprisingly low level of involvement with and awareness of CBEP among 17 companies identified as trade allies by FortisBC. Even though we reached out to the specific contact provided by FortisBC or spoke with individuals we were referred to by that contact, only a few trade allies were aware of any involvement with projects completed through CBEP. While trade allies who had completed applications for the program generally considered the paperwork and other administrative requirements to be reasonable, those who were aware of the program but had not participated perceived it to be complicated and cumbersome, and they were not certain of what kinds or sizes of projects would be eligible for the program.

For most trade allies, the Business Direct Install (BDI) program was one with which they had more experience and found much easier to use and sell to their customers. The Commercial Products Program is seen as less generous in the level of rebates provided but easier to participate in than CBEP.

Both these results and specific suggestions from some respondents indicate that better communication with trade allies is needed to explain the details of CBEP, including eligibility requirements and the participation process. In addition, several trade allies pointed out that customers are relatively uninformed regarding energy efficiency generally and FortisBC programs in particular. A more focused outreach program to address these concerns should be manageable for the limited number of trade allies involved.” [pdf p.214, underline added]

- 9.1 Please explain the steps that FBC intends to implement to improve communication with trade allies for its Commercial Custom Program and its Industrial Custom Program.

10.0 Topic: Kelowna Demand Response Assessment
Reference: Exhibit B-1, Appendix A-1, Kelowna Demand Response Assessment, Phase 1: Screening Study, pdf p.64

Appendix A to the Application states:

“FBC is considering Demand Response (DR), where electricity consumers reduce their load by responding to a signal from the utility at critical times, as a potential low-cost solution to defer system upgrades. A study conducted by Navigant identified 50-60 MW of DR potential across FBC’s entire territory from the residential & commercial sectors. With this information, FBC has decided to conduct a DR screening study (Phase 1 and 2), and subject to the results, conduct a pilot to determine if DR can cost-effectively and reliably provide avoided capacity benefits in the Kelowna area.” [p.2, pdf p.64]

10.1 Please provide the Navigant study referenced in the paragraph above.

11.0 Topic: Kelowna Demand Response Assessment
Reference: Exhibit B-1, Appendix A-1, Kelowna Demand Response Assessment, Phase 1: Screening Study, p.3, pdf p.63 & 83

The executive summary of the enbala report states:

“FBC Inc. (FBC or the Company) is investigating the potential use of Demand Response (DR) for mitigating both system peaks (winter and summer) and regional congestion within the Kelowna area. FBC has engaged Enbala to examine the potential for commercial, industrial and institutional sectors in the Kelowna area to provide sufficient DR capacity to provide capacity relief during grid peak times.... ” [pdf p. 63]

The conclusions and recommendations of the enbala report state:

“FBC’s load projections, by necessity, are constantly adapting to new information. The rapid adoption of plug-in electric vehicles (PEV) and air conditioning units may pose a significant challenge on the electricity network, which not only impacts the peak load, but also impacts the load shape. Interestingly, both of these end-use technologies are loads that can be included in DR programs.” [pdf p.83]

11.1 Did FBC consider whether to include an assessment of the potential for residential or small commercial customer Demand Response, such as through direct load control of air conditioning, to contribute to capacity relief in the Kelowna area? If yes, why did FBC determine not to include residential or small commercial DR in the assessment? If no, why not?

11.2 Will FBC investigate, in future assessments, the potential for residential or small commercial customer Demand Response, such as through direct load control of air conditioning, to contribute to capacity relief in the Kelowna area?

- 11.3 Will FBC investigate, in future assessments, the potential for residential or small commercial customer Demand Response, such as through direct load control of air conditioning, to contribute to capacity relief in other constrained areas of its service territory?

12.0 Topic: Kelowna Demand Response Assessment
Reference: Exhibit B-1, Appendix A-1, Kelowna Demand Response Assessment, Phase 1: Screening Study, p.5, pdf p.65; p.17, pdf p.77

The Kelowna Demand Response Assessment states:

“The total load forecast for both summer and winter is shown in Figure 2 for the Kelowna area. This plot includes the overall reliable capacity of bulk supply substations, Lee Terminal and DG Bell together. Currently there is a narrow margin between the peak loads and reliability limit in summer, whereas winter contains significant additional capacity. Therefore, the study is focused on analyzing the summer peak periods only. The forecast shown here is based on historical load drivers expected in the Kelowna area and does not include proposals for cannabis facilities or block-chain which may increase the load growth significantly. Enbala has focused this study on the Kelowna area load as a proxy to represent peak demands system wide.” [p.5, pdf p.65, underline added]

“FortisBC is experiencing large potential uncertainty in load growth in the Kelowna region due to emergent cannabis production facilities and cryptocurrency miners. Given this uncertainty, it is difficult for FBC to be certain that even 11 MVA of DR as identified in this study will be sufficient to avoid a capital upgrade.” [p.17, pdf p.77, underline added]

- 12.1 What steps will FBC take to minimize the capacity needs of emergent cannabis production facilities and cryptocurrency miners to mitigate the potential impact they may have on capital upgrade needs?
- 12.2 Will FBC develop comprehensive energy efficiency and demand response proposals for emergent cannabis production facilities and cryptocurrency miners to ensure that load impacts due to this market growth will be minimized? If yes, please describe FBC’s expected approach to these emergent customers. If no, why not?

13.0 Topic: Innovative Technologies
Reference: Exhibit B-1, Appendix A, FBC 2019-2022 DSM Plan, section 9.3 Innovative Technologies, p.18-19, pdf p.56-57

Under the Innovative Technologies program, FBC states:

“An example of a field study is to monitor cold climate heat pumps (CCHP). FBC has submitted a proposal to NRCAN to co-fund a CCHP study, in collaboration with BC Hydro and BC Ministry of Energy and Mines.”

13.1 If the study goes ahead, when does FBC anticipate receiving the results?

14.0 Topic: Electrification (fuel switching)

Reference: Exhibit B-1, Table 3-1: BC's Energy Objectives Met by FBC DSM Plan, p.5, pdf p.10

Regarding BC energy objective (h), to encourage the switching from one kind of energy source or use to another that decreases greenhouse gas emissions in British Columbia, FBC states:

"FBC pursues electrification (fuel switching) measures pursuant to s. 18 of the CEA and s. 4 of the Greenhouse Gas Reduction (Clean Energy) Regulation. For example: FBC undertook construction of the Kootenay Electric Vehicle (EV) charging network and plans to pursue the construction of further EV charging facilities." [footnote omitted]

14.1 In addition to the Kootenay EV charging network, what low-carbon electrification (fuel switching) measures does FBC have underway or planned?

15.0 Topic: Market Potential, Incentive Levels

Reference: Exhibit B-1, Appendix B, BC Conservation Potential Review, Section 5, Market Potential

The Application states:

"Market potential is a subset of economic potential that estimates the rate of adoption, over the planning horizon, of DSM measures using factors like equipment turnover (a function of a measure's lifetime), simulated incentive levels, consumer willingness to adopt efficient technologies, and marketing activities. Table 5-2 provides an overview of the approach used for each of the factors." [p.16, pdf p.21, underline added]

In Table 5-2, with reference to "Incentive Strategy," FBC states:

"Set incentive levels on a levelized \$ per kWh of savings basis, such that the simulated percentages of total spending from incentives versus non-incentive costs aligns with planned 2017 values across the sector." [p.17, pdf p.22]

The Navigant CPR Market Potential chapter says that the model estimated market potential based on incentive levels determined as follows:

"1.1.5 Incentive Strategy

Per FortisBC Electric's guidance, this study calculates measure-level incentives based on a levelized dollar-per-kWh of savings basis. A levelized dollar-per-kWh incentive represents the dollar amount provided for each discounted kWh of savings over a measure's lifetime. The discount rates used to find the present value of savings are consistent with those applied to discounted cash flows. Since a single incentive level is found for each sector¹⁰, the model bounds the actual incentive provided

to each measure to be at least 25% of the incremental measure cost, and to not exceed more than 100% of the incremental measure cost. Section 1.1.8 discusses how the model calibration process informed the specified incentive percentage in more detail.

¹⁰ Navigant applied incentive percentages at the sector level, as opposed to the measure level, per the focus of this study's scope on sector-level market potential, rather than program-level potential. Actual program design would define incentive levels for each measure." [p. 11, pdf p. 98]

15.1 Please confirm, or otherwise explain, that the quoted explanation relates to deriving the estimate of market potential, not to setting incentive levels for specific programs.

15.2 What strategy or guidelines does FBC apply to setting actual incentive levels for DSM measures?

15.3 Does FBC maintain a guideline that incentives will not exceed 50% of the participant's cost of the measure?

16.0 Topic: Natural Change
Reference: Exhibit B-1, Appendix B, BC Conservation Potential Review, Section 5, Market Potential, 1.2.6 Adjustments for Natural Change

The Navigant report states:

"As discussed in Section 2.3.2, Navigant estimated natural change to account for differences in end-use consumption in the Reference Case compared to the frozen EUI case. Natural change accounts for changes in consumption that are naturally occurring and are not the result of utility-sponsored programs or incentives." [pp. 27-28, pdf pp. 114-115, underline added]

16.1 Do changes in consumption due to FBC's Residential Conservation Rate (RCR) fall into the "natural change" category in the market potential modeling?

The Navigant report states:

"On average across the study period, the residential technical potential after adjusted natural change is roughly 5% lower than the potential prior to natural change." [p.29, pdf p.116]

16.2 Did Navigant's estimate of natural change for the residential sector assume that the RCR remains in place throughout the test period?

17.0 Topic: Proposed Optional Time of Use Rates
Reference: FBC 2017 Cost of Service and Rate Design Application, Exhibit B-1, p.8

- 17.1 Please confirm that in its 2017 Cost of Service and Rate Design Application FBC seeks Commission approval of optional time of use rates, and that this proceeding is not yet concluded.
- 17.2 Please explain whether and how the 2019-2022 DSM Plan incorporates the possibility of approval of optional time of use rates.

18.0 Topic: Benefit/Cost Measures

Reference: Exhibit B-1, Appendix A, 2019-2022 DSM Plan, Table 10-1: DSM Plan Benefit-Cost Tests, 2019-2022, p.21, pdf p.59

Table 10-1: DSM Plan Benefit-Cost Tests, 2019-2022

Program Area (Sector)	TRC	mTRC	UCT	PCT	RIM	TRC	Utility Cost
	Ratio	Ratio	Ratio	Ratio	Ratio	\$/MWh	\$/MWh
Total	1.5	1.7	2.8	3.1	0.8	84.5	45.1
Residential Program							
Home Renovation	2.2	2.4	4.2	4.3	0.8	77.2	39.7
New Home	2.2	2.4	3.9	4.0	1.0	92.0	52.4
Lighting	1.9	2.2	13.6	1.9	1.1	58.3	8.2
Rental Apartment	3.0	3.4	3.0	-	0.7	38.2	38.2
Total	2.1	2.3	4.8	3.5	0.9	72.6	32.4
Low Income Program							
Self Install	3.6	3.6	3.6	-	0.3	30.6	30.6
Direct Install	1.6	1.6	1.6	-	0.7	73.5	73.5
Social Housing Rebate Support							
Prescriptive Rebate Support	1.5	1.5	10.2	1.4	1.1	75.7	11.3
Total	1.7	1.7	1.8	-	0.6	68.4	62.9
Commercial Program							
Commercial Custom	1.3	1.5	4.7	1.9	0.8	92.5	25.2
Commercial Prescriptive	2.8	3.2	6.7	5.2	0.8	43.9	18.4
Total	2.0	2.2	5.8	3.2	0.8	62.2	21.0
Industrial Program							
Industrial Custom	1.8	2.1	5.1	2.3	1.0	58.7	21.2
Industrial Prescriptive	1.4	1.5	4.9	1.7	0.9	91.6	25.4
Total	1.7	2.0	5.1	2.2	1.0	64.0	21.8

- 18.1 Please define the measures TRC as \$/MWh and Utility Cost as \$/MWh.

19.0 Topic: Low Income Program

Reference: FEI Annual review for 2019 Delivery Rates, Exhibit B-9, response to Undertaking No. 5, pdf pp. 6-7

In its response to Undertaking No. 5 in the FortisBC Energy Inc. (natural gas) Annual Review of 2019 Delivery Rates proceeding, FEI explained that:

“2018 projected expenditures for the low income program area are below plan due to anticipated lower project completions in the Energy Conservation Assistance Program. This is due to a program delivery vendor transition that occurred during 2018 after the initial delivery vendor entered creditor protection early in the year.

- 19.1 Did the program delivery vendor transition affect FBC's implementation of the Energy Conservation Assistance Program?
- 19.2 What is the current status of FBC's ability to deliver ECAP for its customers?