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August 23, 2022

British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, B.C.
V6Z 2N3

Attention: Ms. Sara Hardgrave, Acting Commission Secretary

Dear Ms. Hardgrave:

Re: FortisBC Inc. (FBC)

Application for Acceptance of Demand-Side Management (DSM) Expenditures Plan for the period covering from 2023 to 2027 (Application)

Response to the British Columbia Utilities Commission (BCUC) Information Request (IR) No. 1

On June 6, 2022, FBC filed the Application referenced above. In accordance with the regulatory timetable established in BCUC Order G-182-22 for the review of the Application, FBC respectfully submits the attached response to BCUC IR No. 1.

For convenience and efficiency, FBC has occasionally provided an internet address for referenced reports instead of attaching lengthy documents to its IR responses. FBC intends for the referenced documents to form part of its IR responses and the evidentiary record in this proceeding.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC INC.

Original signed:

Diane Roy

Attachments

cc (email only): Registered Parties

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A. DSM EXPENDITURE SCHEDULE

1.0 Reference: DSM PLAN AND PROPOSED EXPENDITURES
Exhibit B-1 (Application), Section 4.4, p. 15
Proposed DSM Expenditures

Table 4-2 on page 15 of the Application for Acceptance of Demand-Side Management Expenditures Plan for the Period Covering 2023 to 2027 (Application) shows the 2023-2027 Demand-Side Management (DSM) Plan (2023-2027 DSM Plan) Proposed Expenditures by Program Area.

1.1 Please provide an expanded version of Table 4-2, showing the planned expenditures and forecast energy savings by program between 2023 and 2027.

Response:

An expanded version of Table 4-2 showing the planned expenditures and forecast energy savings by program between 2023 and 2027 is provided in Attachment 1.1. Please note that expanded values have been adjusted to include inflation to match the original table which has taken inflation into account.

1.2 Please calculate, for each year of the 2023-2027 DSM Plan:

(i) DSM spending as a percentage of forecasted annual FBC revenues;

(ii) DSM energy savings as a percentage of energy sales; and

(iii) DSM capacity savings as a percentage of peak system demand.

Response:

Please refer to the table below for the requested information for each year of the DSM Plan.

	2023	2024	2025	2026	2027
(i) DSM spending as a percentage of forecast annual FBC revenues[1]	3.5%	3.8%	4.0%	4.2%	4.5%
(ii) DSM energy savings as a percentage of energy sales[2]	0.8%	0.8%	0.8%	0.8%	0.9%
(iii) DSM capacity savings as a percentage of peak system demand[3]	0.8%	1.0%	1.6%	2.0%	2.5%

The table above reflects increasing year over year expenditures that do not result in a significant increase in DSM energy savings but do result in increasing DSM capacity savings.

1.3 Please provide, in percentage and dollar values, annual rate and revenue impacts for each year of the 2023–2027 DSM Plan duration, compared to proposed 2023.

Response:

Please see the below table for the annual rate and revenue impact, in percentage and dollar values ($000s), for each year of the 2023–2027 DSM Plan when compared to the proposed 2023 revenue requirement. FBC also included the year-to-year incremental revenue and rate impact in Lines 4 and 5, respectively. The average rate impact is approximately 0.46 percent per year from 2023 to 2027. The incremental revenue requirement year-to-year is due to the incremental amortization of the DSM expenditures each year through the deferral account and the rate base return on the deferral account as well as the associated tax. For the average residential customer[4], the cumulative bill impact over the DSM Plan from 2023 to 2027 is approximately $36 per year.

Line	Particulars	Reference	2023	2024	2025	2026	2027
1	Proposed 2023 Revenue Requirement ($000s)	[1]	426,208	426,208	426,208	426,208	426,208
2	Incremental Revenue Requirement to 2023 due to DSM ($000s)		414	2,675	5,009	7,421	9,881
3	Annual Rate Impact (Compared to 2023) in %	Line 2 / Line 1	0.10%	0.63%	1.18%	1.74%	2.32%
4	Year-to-year Revenue Requirement Impact due to DSM ($000s)	Line 2 (Curr Yr - Prev Yr)	414	2,261	2,334	2,412	2,460
5	Year-to-year Rate Impact in %	Line 3 (Curr Yr - Prev Yr)	0.10%	0.53%	0.55%	0.57%	0.58%

Notes to table:

1. Proposed 2023 Revenue Requirement, FBC 2023 Annual Review, Section 11, Schedule 18, Line 7, Column 5, filed August 5, 2022

[1] 2023 Forecast revenue of $409.840 million (filed in the FBC 2023 Annual Review) used for all years
[2] 2023 Forecast of 3,476 GWh (filed in the FBC 2023 Annual Review) used for all years
[3] FBC 2021 Long Term Electric Resource Plan Appendix G, 2.10 "System Peak Demand (MW)" - Reference Case Forecast, Winter, 2023-2027
[4] 2023 Forecast of average residential UPC of 9.95 MWh per year (FBC 2023 Annual Review)

1.4 Please provide a comparison of DSM spending as a percentage of FortisBC Inc. (FBC) revenues for the 2023–2027 DSM Plan to DSM spending as a percentage of FBC revenues for the Long-Term DSM Plan (LT DSM) plan over the equivalent period. Please provide commentary to explain this comparison.

Response:

As the LTERP did not include a forecast of FBC revenue, a direct comparison cannot be made between 2023-2027 DSM Plan spending to FBC revenues forecast in the LT DSM Plan. Please refer to the response to BCUC IR1 1.2 that compares FBC's 2023-2027 DSM Plan spending with FBC's current revenue forecast completed as part of the FBC 2023 Annual Review.

2.0 Reference: DSM PLAN MEETS THE REQUIREMENTS OF THE LEGAL FRAMEWORK

Exhibit B-1, Section 3.1, p. 5

BC Energy Objectives met by FBC DSM Plan

In Table 3-1 on page 5 of the Application, FBC states in relation to objective (i) of the BC Energy Objectives:

> (i) to encourage communities to reduce greenhouse gas emissions and use energy efficiently;
>
> Provision for, and further development of, the BC Step Code are included within Program areas. See Section 3.4.5 and Appendix A, Section 6.

There does not appear to be a section 3.4.5 in the Application.

2.1 Please confirm if this is intended to refer to Table 3-3, or provide an updated reference.

Response:

Confirmed. The intended reference should be Table 3-3 and Appendix A, Section 7.

3.0 Reference: DSM PLAN MEETS THE REQUIREMENTS OF THE LEGAL FRAMEWORK

Exhibit B-1, pp. 1, 5-6

Consistency with the 2021 LTERP

On page 1 of the Application, FBC states:

> The DSM Plan continues many of the cost-effective programs previously accepted in the 2019-2022 DSM Plan, with some additions and modifications to simplify offers for customers, align programs with provincial partners, and comply with changes to applicable legislation.

On page 5 of the Application, FBC states:

> The Base DSM scenario FBC selected for its LT DSM Plan contemplated total DSM expenditures between 2023 and 2027 of $63 million8 and total DSM savings of 139.8 GWh9. The LT DSM Plan was premised on a ramp up in DSM spending and savings, beginning in 2021, that would offset an average of 32 percent of FBC's forecast load growth annually over the LTERP's planning horizon. In response to emerging customer activities, the DSM Plan that is the subject of this Application builds on the target savings contemplated in the LT DSM Plan. Table 3-2 below, shows that the proposed budget for the DSM Plan is $19 million more, in total, than the pro-forma budget contemplated in the LT DSM Plan (inflation adjusted) and is expected to achieve an additional 3.6 GWh of electricity savings for this period.

Table 3-2: 2023-2027 DSM Plan Compared with the LT DSM Plan[10]

Plan	2023	2024	2025	2026	2027	Total
Expenditures ($000s)						
2023-2027 DSM Plan	$14,455	$15,436	$16,572	$17,412	$18,707	**$82,583**
LT DSM Plan	$11,249	$11,907	$13,139	$12,951	$14,014	**$63,260**
Difference	*$3,206*	*$3,529*	*$3,433*	*$4,461*	*$4,693*	***$19,323***
Energy savings (GWh)						
2023-2027 DSM Plan	26.4	27.4	28.6	29.7	31.3	**143.4**
LT DSM Plan	27	27.3	29.3	28.6	27.6	**139.8**
Difference	*-0.6*	*0.1*	*-0.7*	*1.1*	*3.7*	***3.6***

10 LT DSM Plan Expenditure has been adjusted for annual inflation from 2023 to 2027

On pages 6 to 7 of the Application, FBC states:

> Beyond the changes proposed as a result of detailed program design, the main drivers of deviations of the DSM Plan from the LT DSM Plan are as follows:
>
> - Based on feedback from EECAG [The Energy Efficiency and Conservation Advisory Group] stakeholders (see section 4.2), FBC is proposing

increased expenditures in the Low Income Program Area to support additional energy conservation projects in Indigenous communities.

- Based on feedback from EECAG stakeholders, FBC is proposing increased expenditures in the Innovative Technologies Program Area to support a small residential deep energy retrofit pilot in electrically heated homes in Indigenous communities.
- FBC has increased expenditures in the Residential and Commercial Program Areas to support demand and capacity savings measures not included within the scope of the FBC CPR [Conservation Potential Review].
- Based on the results of the Kelowna Demand Response Pilot, FBC is proposing a new program area specifically focussed on demand response which was not included within the scope of the FBC CPR.

3.1 Please provide a table showing the amount of funding associated with each of the drivers of deviation with the LT DSM Plan listed above. Please include sufficient detail to clearly show the sources of the increased plan expenditures between the early years of the 2021 Long-Term Electric Resource Plan (LTERP) and the 2023-2027 DSM Plan.

3.1.1 If the total increased expenditures discussed in IR 3.1 above are substantially different from $19 million, please explain the reason behind the remaining increase in DSM expenditures.

Response:

The LT DSM Plan does not explore the granularity of program design or budgeting at a program level like the 2023-2027 DSM Plan does. Customer participation (and hence expenditures and savings) in the LT DSM Plan is a direct outcome from the economic model and estimated by a simple payback demand curve reflecting cost, estimated operational savings, and DSM incentives. The model used does not account for other external factors that could influence participation including, such items as marketing, non-payback customer drivers, and supply chain availability. The LT DSM Plan also includes a flat assumption for non-incentive expenditures like labour, administration, communications, and the Conservation, Education, and Outreach (CEO), Innovative Technologies, Enabling Activities and Portfolio program areas.

In contrast, the preparation of the 2023-2027 DSM Plan included detailed program design and stakeholder feedback and, thus, resulted in different expenditure assumptions from the LT DSM Plan and additional initiatives considered. This resulted in variation in each program area when compared to the LT DSM Plan. Even in the absence of additional initiatives not considered in the LT DSM Plan, FBC would still anticipate a difference between the LT DSM Plan modeling and the 2023-2027 DSM Plan due to the differing forecasting methodologies.

Table 1 below compares the LT DSM Plan with the 2023-2027 DSM Plan, including variances due to program design and stakeholder feedback for measures that were considered in both the

LT DSM Plan and DSM Plan and additions that were not considered in the LT DSM Plan (noted in Section 3.2). Table 2 provides additional details on drivers of deviations between the LT DSM Plan and 2023-2027 DSM Plan.

Table 1: Comparison of LT DSM Plan and 2023-2027 DSM Plan

	Incentives ($M)	Non-Incentive Expenditures ($M)	Total Expenditures ($M)	Energy Savings (GWh/y)	Demand and Capacity Savings (MW)	TRC
DSM Expenditures Plan (2023-2027)	$49.1	$33.5	$82.6	143.4	62.1	1.3
LT DSM Plan (2023-2027)	$45.2	$18.1	$63.3	139.8	19.9	2.0
Difference	**$3.9**	**$15.4**	**$19.3**	**3.6**	**42.2**	**-0.7**

Table 2: Differences Between LT DSM Plan and 2023-2027 DSM Plan by Key Driver of Deviation

Key Driver of Deviation	Incr. Incentive ($M)	Incr. Non-Incentive Expenditures ($M)	Incr. Total Expenditures ($M)	Incr. Energy Savings (GWh/y)	Incr. Demand and Capacity Savings (MW)
Variation in Incentives in Residential, Commercial and Industrial Measures Included in Both LT DSM Plan and DSM Plan	-$1.2	$0	$-1.2	0.8	8.4
Demand Response Program	$1.4	$4.6	$6.0	0	30.6
Residential Demand and Capacity Savings Measures	$1.2	$0.1	$1.3	0.4	2.0
Commercial Demand and Capacity Savings Measures	$0.4	$0.1	$0.5	0.1	0.7
Electric Residential Deep Energy Retrofit Pilot	$0.4	$0.2	$0.5	0	0
Additional Low Income Expenditures	$1.8	$2.5	$4.2	2.3	0.5
Additional Non-Incentive Expenditures	$0	$7.9	$7.9	0	0
Total Difference	**$3.9**	**$15.4**	**$19.3**	**3.6**	**42.2**

A key difference between the 2021 LT DSM Plan and 2023-2027 DSM Plan is the assumed ratio of incentives to non-incentive expenditure. The LT DSM Plan assumes a 21 percent non-incentive expenditure ratio, while FBC experienced a non-incentive ratio of 39 percent and 35 in 2020 and 2021, respectively. Thus, the non-incentive expenditures in the 2023-2027 DSM Plan

were aligned more closely with recent program experience and are reflective of the proposed incremental initiatives included in the 2023-2027 DSM Plan.

The cost-effectiveness of the 2023-2027 DSM Plan (as expressed as TRC) is lower than the LT DSM Plan, as the proposed DSM plan has higher expenditures without proportionately higher energy savings.

3.2 Please explain the marginal differences in energy savings between 2023 and 2027, in the context of increased expenditures of $19 million over the same period.

Response:

As discussed in the response to BCUC IR1 3.1, the incremental expenditures proposed in the DSM Expenditures Plan that were not reflected in the LT DSM Plan were primarily related to additional Low Income Program Area offers, addition of the Demand Response Program, addition of demand and capacity savings measures, and additional non-incentive expenditures. These incremental programs and measures, with the exception of those in the Low Income Program Area, do not have energy savings (or have minimal energy savings) but have other benefits to our customers. The marginal increase in energy savings is primarily attributed to the increased expenditures in the Low Income Program Area.

3.3 Please provide additional details on the Residential and Commercial Program Areas expenditures to support demand and capacity savings that were not included in the scope of the FBC CPR.

Response:

FBC's 2023-2027 DSM Plan includes new residential measures that have demand and capacity savings within the existing Home Renovation Program. Customers who install a high Season Energy Efficiency Ratio (SEER) air conditioner with an ENERGY STAR designation and enroll in the proposed Demand Response Program would be eligible for a Home Renovation Rebate incentive for the appliance and an on-going incentive for participation in the Demand Response program. FBC assumes that the participation will begin gradually and increase in later years of the 2023-2027 DSM Plan.

The 2023-2027 DSM Plan includes new commercial measures that have demand and capacity savings within the existing Prescriptive Program. Customers who install roof top air conditioning units with a high Energy Efficiency Ratio (EER) would be eligible for a Prescriptive Program

Rebate and an on-going incentive for participation in the Demand Response program. FBC assumes that the participation will begin gradually and increase in later years of the 2023-2027 DSM Plan.

3.4 Please discuss why the demand and capacity savings measures proposed in the Residential and Commercial Program Areas, and the new Demand Response Program Area, were not included in the scope of the FBC's CPR, but are now considered to be ready to be offered as DSM programs.

Response:

Measures with only demand and capacity savings were excluded in the 2021 CPR as FBC had not yet determined the value for demand and capacity-only DSM at the start of the study. While FBC identified increasing capacity impacts associated with growth and emerging loads (such as EV charging) in the 2021 LTERP, FBC was not able to determine if DSM would be a cost-effective means to manage the load.

In parallel to the development of the 2021 CPR, FBC began an internal evaluation of the value for demand and capacity DSM. FBC completed the study in early 2022, several months after the completion of the 2021 CPR. FBC reported the new Long-Run Marginal Cost of demand and capacity as part of FBC's response to BCUC IR1 38.1 in the 2021 LTERP regulatory proceeding.

In the development of the 2023-2027 DSM Plan, FBC determined that both demand and capacity savings measures and the Demand Response Program Area were forecast to be cost-effective using the newly identified LRMC for demand and capacity savings. Therefore, FBC included both the new demand and capacity savings measures in the Residential and Commercial Program Areas and the Demand Response Program Area as part of the 2023-2027 DSM Plan.

3.5 Please explain how FBC makes a distinction between the demand and capacity savings measures proposed in the Residential and Commercial Program Areas, and the new Demand Response Program Area.

Response:

The demand and capacity savings measures proposed in the Residential and Commercial Program Areas will be new product rebates included in the existing Home Renovation Rebate and Commercial Prescriptive Programs, respectively. FBC is proposing to provide prescriptive incentives to achieve demand reduction during FBC's and participants' peak periods. Some minimal additional energy savings are also achieved. These savings are based on retrofitting

older, less efficient air conditioning units with higher efficiency units as discussed in the response to BCUC IR1 3.3.

The Demand Response Program Area proposes to provide incentives for participants to change when they use selected appliances or equipment. Typically, FBC is not providing incentives for participants to install new appliances or equipment, but rather interventions are done on existing customer equipment that is connected to FBC's demand response platform. This includes primarily electric HVAC measures and EV charging. The program achieves demand savings by shifting participant loads outside of FBC's peak period, as well as outside the participants' monthly peak period in the case of customers on a rate schedule that includes demand charges.

4.0 Reference: DSM PLAN MEETS THE REQUIREMENTS OF THE LEGAL FRAMEWORK

Exhibit B-1, Section 3.3, Table 3-3, p. 8; Table 4-1, p. 10; Appendix A, pp. 12, 15, 16, 23; DSM Regulation,[5] Sections 3(1)(b), 4(4)

Rental Apartment Program

On page 8 of the Application, FBC states that it will be continuing to collaborate with FortisBC Energy Inc. (FEI) in the Rental Apartment Efficiency Program (RAP).

Table 4-1 on page 10 of the Application shows that the RAP has been moved from the Residential Program to the Commercial Program Area.

On page 12 of Appendix A to the Application, FBC states that the RAP, was, in part, included in the residential portfolio in the previous DSM plan. In this DSM plan, this program is being consolidated under the commercial program area of FEI.

4.1 Please provide reasons for the shift of the RAP from the Residential to the Commercial Program Area.

Response:

The Rental Apartment Efficiency Program (RAP) program is currently divided between the Residential and Commercial Program Areas, which results in challenges for forecasting, reporting, and allocating program expenditures between the Program Areas. Shifting the residential component of the RAP to the Commercial Program area is an administrative change to help address the challenges noted above and, at the same time, will create more alignment with FortisBC Energy Inc.'s (FEI) RAP delivery.

4.2 Please clarify if the collaboration with FEI predates the 2023-2027 DSM Plan, or is unrelated to the shift of the RAP to the Commercial Program.

Response:

The collaboration between FBC and FEI on the RAP predates the 2023-2027 DSM Plan and is unrelated to the shift of the RAP to the Commercial Program (as described in BCUC IR1 4.1). FBC and FEI expect to continue their collaboration on the delivery of the RAP during FBC's 2023-2027 Plan period.

[5] https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/10_326_2008.

4.3 Please discuss FBC's involvement in selecting the types of DSM measures and activities pursued in FEI's commercial program area.

Response:

FBC clarifies that the referenced preamble to page 12 of Appendix A contains an error. The text should state that the RAP program is being consolidated under the commercial program area of FBC and not FEI. However, FortisBC's Conservation & Energy Management department's integrated staff develop both electricity and natural gas efficiency programs, identifying DSM measures and activities to serve both FBC and FEI customers. The expenditures associated with the development activities for electricity or natural gas DSM programs, measures and/or activities are allocated between FBC and FEI based on their respective energy source.

On page 15 of Appendix A to the Application, FBC states that the RAP, in collaboration with FEI, provides the direct installation of in-suite measures, including LED light bulbs and low flow showerheads, and faucet aerators for rental suites in multi-unit residential buildings (MURBs). There are three components to this program. To start, participants are provided with direct install of in-suite energy efficiency upgrades completed by an agent of FEI and FBC. Next, participants are provided with energy assessments, which may recommend building level energy efficiency upgrades such as condensing boilers, high efficiency water heaters and control upgrades. Lastly, participants are provided with support in implementing the energy efficiency recommendations and applying for rebates.

4.4 Please provide any information FBC has on the proportion of customers who are tenants, by housing type and rate schedule.

Response:

It is estimated that tenants represent the following proportion of FBC customers by housing type[6]:

- 2.5% of single-family home customers
- 10.8% of semi-detached home customers
- 13.4% of row/town home customers
- 34.5% of apartment or condo unit customers
- 6.5% of mobile or other home customers

[6] FBC 2017 Residential End Use Study, May 2019.

FBC does not have information regarding the proportion of tenants by rate schedule. However, it is expected that:

- Tenants receiving electricity from FBC renting single-family detached, semi-detached, row houses, town houses and/or mobile homes are typically on Rate Schedule 1.
- Tenants receiving electricity from FBC renting in an apartment-style multi-unit residential building with their own metered service are typically on Rate Schedule 1, with common areas separately metered on Rate Schedule 20 or 21 depending on the size of the building.
- Apartment-style multi-unit residential buildings receiving electricity from FBC, but where tenants are not separately metered would typically be on Rate Schedule 20 or 21 depending on the size of the building.

4.5 Please discuss how FBC provides DSM offerings to renters who do not live in rental apartment buildings.

Response:

Renters who do not live in rental apartment buildings have access to various FBC DSM programs. For certain upgrades where renters are unlikely to take on the cost of an upgrade (e.g. building envelope or mechanical systems), the registered homeowner is eligible to participate for the rental unit. Renters, or rental units, are eligible to participate in the Home Renovation Rebate Program, including retail offers, under the Residential Program Area. Income-qualified renters, living in various housing types, can participate in the Self Install, Direct Install and Prescriptive Programs under the Low Income Program Area. Furthermore, housing providers, including Indigenous communities, can participate in Low Income Programs which benefit income-qualified renters.

4.6 Please discuss if rental customers are able to access incentives for custom building energy efficiency projects, for both existing and new buildings through the Commercial Performance Program.

Response:

The Commercial Performance Program is available to rental customers (i.e. customers who own and/or operate rental apartments) if they have common or whole-building areas metered on a commercial rate and otherwise meet the program terms and conditions.

In Exhibit 9 on page 16 of Appendix A to the Application, FBC states that the RAP Program has a Total Resource Cost (TRC) value of 0.4.

FBC provides the following TRC values for the Low-Income program in Exhibit 13 on page 23 of Appendix A to the Application:

Self Install: 3.2

Direct Install: 0.7

Prescriptive: 1.3

Performance: 1.6

4.7 Please discuss why the TRC values for the RAP are lower than the TRC values for all of the Low Income Programs, including a comparison of the measures provided in the different program, or any other details which may help to explain the differing TRC results.

Response:

The RAP program TRC results are not comparable to the Low Income Programs.

The Low Income Programs TRC calculation is enhanced by 1) the use of the long-run marginal cost of acquiring electricity generated from clean or renewable sources in British Columbia as per Section 4(1.1)(a) and (b) of the DSM Regulation, and 2) the use of a benefit adder of 40% as per DSM Regulation Section 4 (2)(b).

As there is no Low Income Program that is a perfect mirror of the RAP, FBC expects that there would be a natural variance in TRC results. Further, as the RAP only targets apartment buildings and Low Income Programs involve a broader scope of building types, the savings calculations and thus, the TRC results will be different.

There are also differences with respect to measures supported between the RAP and Low Income Programs which make comparing TRC results between programs difficult. The RAP measures include LEDs, faucet aerators, showerheads, an energy study, and implementation support. No Low Income Program has this exact set of measures. LEDs, faucet aerators and showerheads are a component of both the Self Install Program and the Direct Install Program however, those Programs involve several other measures as well. Please refer to BCOAPO IR1 8.3 and 8.4 for a list of Self Install and Direct Install measures

4.8 Please compare the current TRC value for the RAP to historical TRC values realized for the RAP.

Response:

The table below provides the forecast and historical TRC values for the RAP.

Plan	TRC, Forecast	Notes
2023-2027 FBC DSM Plan - RAP	0.4	
2019-2022 FBC DSM Plan - RAP	3.0	
Year	**TRC, Actual**	**Notes**
2022	-	TRC not determined until end-of-year
2021	4.4	
2020	-	TRC not reported, as there were no participants.
2019	5.8	
2018	4.9	
2017	6.7	
2016	4.5	

Rental accommodations are an adequacy requirement under Section3(1)(b) of the DSM Regulation.

Section 4(4) of the DSM Regulation states:

> The commission must determine the cost-effectiveness of a specified demand-side measure proposed in a plan portfolio or an expenditure portfolio by determining whether the portfolio is cost effective as a whole.

4.9 Please confirm, or explain otherwise, that DSM measures targeting rental accommodations are not considered specified demand-side measures.

Response:

FBC confirms that it does not consider the measures within the Rental Apartment Efficiency Program to be specified demand-side measures. FBC does consider the Rental Apartment Efficiency Program as meeting the adequacy requirement in section 3(1)(b) of the Demand-Side Management Regulation.

5.0 Reference: DSM PLAN AND PROPOSED EXPENDITURES

Exhibit B-1, Section 4, Table 4-1, p. 10; Appendix A, p. 18; Appendix B, p. 15

Industrial Strategic Energy Management

FBC notes in Table 4-1 on page 10 of the Application, that the Industrial Strategic Energy Management (SEM) Program is new for the 2023-2027 DSM Plan.

On page 18 of Appendix A to the Application, FBC states:

> The Strategic Energy Management Program is a comprehensive offering for large and medium industrial customers that provides them with energy modeling, energy efficiency coaching and strategic planning support to achieve both operational savings and to encourage larger capital upgrades. The program will be administered in collaboration with FEI. In 2020, FBC began a pilot project to extend FEI's SEM cohort offer to one wood products customer in the FBC service territory. This pilot is now being expanded into a full offer in this DSM Plan.

On page 15 of the 2021 DSM Annual Report in Appendix B, FBC states:

> FBC is currently conducting a pilot that extends the FEI Strategic Energy Management cohort offer to seven customers in the FBC service territory. The FBC Strategic Energy Management cohort pilot activities are expected to be complete by May 2023. At that point, FBC will assess the results to determine if the pilot can be transitioned into a program.

5.1 Please provide the results of the Industrial SEM pilot to date, comparing both planned and actual expenditures and savings realised over the pilot period.

Response:

The FBC SEM pilot has seven participants since beginning in 2019 and is anticipated to be complete in early 2023. The planned, actual to-date, and end-of-plan year forecast for expenditures and energy savings are shown in the table below:

	Planned	Actual (2019 to July 2022)	Forecast (2019 to 2023
Total Expenditure ($)	$415,826	$328,289	$500,000
Energy Savings (GWh/y)	3.2 GWh	5.1 GWh	7 GWh

5.2 Please discuss the factors considered by FBC in evaluating the results of the Industrial SEM pilot, and when deciding if this pilot should be transitioned into a program.

Response:

The following factors were considered by FBC in evaluating the results of the Industrial SEM pilot to-date and deciding to transition the pilot into a permanent program:

- **Cost-effective energy savings:** The SEM pilot to date is forecasting energy savings that are expected to continue when the pilot transitions to a permanent program. While a conservative estimate was used for forecasting energy savings in the 2023-2027 DSM Plan, recent data up to July 2022 (presented in BCUC IR1 5.1) suggests that the pilot's forecast per-customer savings are greater than the cost-effective savings forecast in the 2023-2027 DSM Plan.
- **Customer feedback:** Feedback to date suggests that customers are satisfied with the support received by FBC and its SEM consultant.
- **Scalability and/or repeatability:** FBC anticipates that customers participating in the pilot will continue to participate in a permanent program and that there are other potential participants in the FBC service territory.

5.3 Please provide FBC's views on when a pilot program ceases to be a pilot and transitions to a regular program, and the role of the BCUC in accepting the expansion of a pilot project into a full program offering in a DSM Plan.

Response:

A key distinguishing feature between a pilot and a program is limited or closed eligibility for recruitment and a limited time frame for the pilot's operation. FBC views the role of a pilot as a means to evaluate whether a particular technology or program concept can be a cost-effective addition or alteration to FBC's existing conservation and energy management programs. This contrasts with a permanent program that generally has open eligibility and an open time frame (subject to DSM Expenditure Plan approval periods).

Once a pilot is completed, its evaluation results serve as a decision gate for FBC on whether to move the measure forward into a permanent program or offer and what changes from the pilot are required to support a successful program. FBC would only launch a permanent program if the pilot was successful and the program was forecast to be cost-effective.

FBC's expenditures related to both pilots and permanent programs are included in FBC's DSM expenditure plans, which are subject to BCUC review and acceptance pursuant to subsections

44.2 of the UCA.[7] Over successive DSM expenditure plans, the BCUC will have continuous oversight over FBC's DSM pilots and programs.

[7] Section 3 of the Application sets out in detail the legal framework for the filing of DSM expenditure schedules.

6.0 Reference: DSM EXPENDITURE SCHEDULE

Exhibit B-1, Section 4.3, p. 14

Annual Inflation Rate Adjustments from 2023 to 2027

On page 14 of the Application, FBC states:

> FBC used an inflation rate of two percent annually for program expenses. The inflation rates assumed for program labour for each year are 3.3 percent (2024), 2.7 percent (2025), 2.6 percent (2026) and 2.7 percent (2027).

6.1 Please provide the basis for FBC's inflationary assumptions, and discuss the possible impact to FBC's DSM plan of higher than anticipated inflation over the 2023-2027 DSM Plan duration, with respect to the level of expenditures sought and cost-effectiveness results.

Response:

FBC notes the inflation rates were applied from 2024 onwards as the DSM plan is forecast in 2023 dollars.

For the non-labour program expenses, consistent with the approach used in the 2021 Long-Term Electric Resource Plan and Long-Term Demand-Side Management Plan (LT DSM Plan)[8], the inflation rate (BC-CPI) forecast is based on the average forecast of 2024 to 2027 from Canadian Chartered banks (including TD Bank, Royal Bank of Canada, Bank of Nova Scotia, Bank of Montreal, and Canadian Imperial Bank of Canada) as of April 2022, the Conference Board of Canada (CBOC) Long-term forecast (2021), and BC Ministry of Finance (2022 Budget). Additionally, the annual inflation forecast of 2 percent agrees with the inflation control target set by the Bank of Canada[9].

For the program labour expenses, the inflation rate is based on the BC-AWE forecast from CBOC as well as BC Ministry of Finance (2022 Budget).

FBC believes the effect of inflation is unlikely to have a material impact on the cost-effectiveness of the DSM Plan; however, FBC will monitor inflation and may apply for adjustments to its DSM expenditure plan if it increases enough to have a material impact on the cost effectiveness test.

[8] Section 2.5.6.2 of FBC 2021 LTERP.

[9] https://www.bankofcanada.ca/core-functions/monetary-policy/inflation/#:~:text=At%20the%20Bank%20of%20Canada%2C%20we%20aim%20to,inflation%20close%20to%202%20percent.

7.0 Reference: DSM PLAN AND PROPOSED EXPENDITURES

Exhibit B-1, Appendix A, pp. 10, 34

Capacity Savings

In Exhibit 4 on page 10 of Appendix A to the Application, FBC provides a summary of the Portfolio Electricity Savings, Cost-Effectiveness, Levelized Cost of Electricity by Program Area, including annual demand savings by program area, and with a portfolio total of 62.1 MW.

In Exhibit 18 on page 34 of Appendix A to the Application, FBC provides a forecast of demand savings in the new Demand Response Program Area by program, for each year between 2023 and 2027, totalling 30.6 MW.

7.1 Please provide a table showing the forecast demand savings by program area, for each year between 2023 and 2027, for the entire DSM portfolio.

Response:

The following tables show the forecast demand savings by program for each year between 2023 and 2027 across the entire DSM portfolio for winter and summer, respectively:

		Winter Forecast Demand Savings (MW)					
Program Area	**Program Name**	**2023**	**2024**	**2025**	**2026**	**2027**	**All Years**
Commercial	Prescriptive	1.3	1.3	1.3	1.3	1.3	6.3
Commercial	Performance	0.3	0.3	0.3	0.3	0.3	1.5
Commercial	Rental Apartment Program	0.0	0.0	0.0	0.0	0.0	0.2
Industrial	Prescriptive	1.0	1.0	1.0	1.0	1.0	5.1
Industrial	Performance	0.2	0.2	0.2	0.2	0.2	0.9
Industrial	Strategic Energy Management	0.2	0.2	0.3	0.3	0.3	1.3
Residential	Home Renovation	1.2	1.6	1.9	2.4	3.6	10.7
Residential	New Home	0.2	0.3	0.4	0.4	0.5	1.8
Low Income	Self Install	-	-	-	-	-	-
Low Income	Direct Install	-	-	-	-	-	-
Low Income	Prescriptive	0.1	0.1	0.1	0.2	0.2	0.7
Low Income	Performance	0.0	0.0	0.0	0.0	0.0	0.2
Program Area (non DR) Total		*4.7*	*5.0*	*5.6*	*6.1*	*7.4*	*28.8*
Demand Response	Residential DR	1.0	2.2	4.5	6.0	7.7	21.5
Demand Response	Commercial DR	-	-	1.9	3.0	4.3	9.1
Demand Response Only Total		*1.0*	*2.2*	*6.4*	*9.0*	*12.0*	*30.6*
Grand Total		**5.6**	**7.3**	**12.0**	**15.1**	**19.4**	**59.4**

Program Area	Program Name	Summer Forecast Demand Savings (MW)					
		2023	2024	2025	2026	2027	All Years
Commercial	Prescriptive	1.1	1.1	1.1	1.2	1.2	5.6
Commercial	Performance	0.3	0.3	0.3	0.3	0.3	1.5
Commercial	Rental Apartment Program	0.0	0.0	0.0	0.0	0.0	0.2
Industrial	Prescriptive	1.0	1.0	1.0	1.0	1.0	5.1
Industrial	Performance	0.2	0.2	0.2	0.2	0.2	0.9
Industrial	Strategic Energy Management	0.2	0.2	0.3	0.3	0.3	1.3
Residential	Home Renovation	0.8	1.1	1.5	2.1	3.1	8.6
Residential	New Home	0.2	0.3	0.4	0.4	0.5	1.8
Low Income	Self Install	-	-	-	-	-	-
Low Income	Direct Install	-	-	-	-	-	-
Low Income	Prescriptive	0.1	0.1	0.1	0.1	0.1	0.4
Low Income	Performance	0.0	0.0	0.0	0.0	0.0	0.2
Program Area (non DR) Total		*4.0*	*4.4*	*4.9*	*5.6*	*6.7*	*25.5*
Demand Response	Residential DR	1.0	2.2	4.5	6.0	7.7	21.5
Demand Response	Commercial DR	-	-	1.9	3.0	4.3	9.1
Demand Response Only Total		*1.0*	*2.2*	*6.4*	*9.0*	*12.0*	*30.6*
Grand Total		**4.9**	**6.6**	**11.4**	**14.6**	**18.7**	**56.2**

Please note that the two tables contain a number of overlapping measures, as some will have equivalent demand savings across both the winter and summer seasons (e.g. lighting). The primary difference between the two tables is that the winter values include heat pump savings and omit air conditioner savings, while the summer values omit heat pump savings and include air conditioner savings.

The demand response program assumes that there will be equal participation across both winter and summer seasons. The small difference between the 62.1 MW forecast in the Application and the summer and winter demand savings forecast above is due to measures with demand savings that occur in the summer and not winter, and measures with demand savings that occur in the winter and not summer. The small difference represents the sum of demand savings that do not overlap in both seasons.

7.2 Please clarify if any of these savings were included in the 2021 LTERP, and if so, provide a comparison of the capacity savings outlined in this Application and the

2021 LTERP. Please explain any significant differences between the capacity savings outlined in this Application and the 2021 LTERP.

Response:

The capacity savings were included in the 2021 LTERP, Table 8-1, are shown below:

Category	DSM Scenario				
	Low	Base	Med	High	Max
Energy Savings, GWh					
Average per annum ('21 - '40)	21.0	21.8	22.4	23.4	25.2
Average per annum ('21 - '29)	26.8	28.0	29.4	31.4	34.5
Total (2021 to 2040)	421	435	449	468	503
Capacity Savings, MW					
Total (2021 to 2040)	61.6	64.0	65.6	68.1	72.7
Resource Cost, 2020 ($000s)					
Average Cost ($/MWh)	$38	$44	$49	$57	$75
Incremental cost compared to base case ($/MWh)	N/A	-	$183	$190	$234

The Base Scenario identified a total of 64.0 MW of capacity savings between 2021 to 2040, with 19.9 MW of capacity savings between 2023 and 2027. The capacity savings outlined in the 2021 LTERP are winter capacity savings, and do not include capacity savings from the Demand Response Program Area.

The 2021 LTERP Base Scenario's 19.9 MW of capacity savings between 2023 and 2027 is less than the 28.8 MW for winter, non-demand response program areas stated in the response to BCUC IR1 7.1. The capacity savings in the DSM Plan are greater than the 2021 LTERP because a greater emphasis was made in the DSM Plan on measures that provide greater capacity savings. These measures include residential heat pumps, clothes washers and dryers, commercial heat pumps, and industrial horticultural LED lighting.

8.0 Reference: DSM EXPENDITURE SCHEDULE

Exhibit B-1, Section 3.2, p. 7; Appendix A, pp. 32-33; FBC 2021 Long-Term Electric Resource Plan (2021 LTERP) and Long-Term Demand Side Management Plan (LT DSM Plan) Proceeding, Exhibit B-2, BCUC IR1 41.1; Exhibit B-11, BCUC IR2 58.2

Demand Response Pilots

On page 7 of the Application, FBC states:

> Based on the results of the Kelowna Demand Response Pilot, FBC is proposing a new program area specifically focussed on demand response which was not included within the scope of the FBC CPR.

On page 32 of Appendix A to the Application, FBC states:

> In 2020, FBC completed the initial pilot phase of its Kelowna Demand Response (DR) program for large commercial and industrial customers that focussed on custom-dispatched DR. FBC is also currently running a residential demand response pilot in Kelowna, the "Peak Saver Pilot", that is expected to complete in early 2023. FBC plans to roll out permanent DR programs for both commercial and residential sectors.
>
> […]
>
> The Commercial and Industrial Demand Response activities including conducting the next phase of the commercial DR program, focusing on automated DR in 2023 and 2024, and adding industrial customers to the program. If successful, FBC would make the program permanent and expand to additional customers.

8.1 Please provide a table clarifying which of the DR programs have been included in the main Program Areas as a permanent program offering, and which remain at the pilot stage, showing any planned transition from pilot to permanent offering. Please include information on the forecast expenditures and capacity savings for each of the DR programs.

Response:

Tables clarifying which DR programs are in permanent versus pilot stage, and providing details regarding forecast expenditures and capacity savings are below.

DR Initiative	DR Initiative Stage	Initiative Details	Timeline
Kelowna Demand Response Pilot	Pilot (concluded)	Pilot for large commercial and industrial customers focused on manually-dispatched DR.	Summer 2019 – Winter 2020

DR Initiative	DR Initiative Stage	Initiative Details	Timeline
Kelowna Residential Peak Saver Pilot	Pilot (in progress)	Pilot for residential customers focused on connected thermostats, electric vehicle chargers, hot water tanks, and pool pumps.	Winter 2022 – Spring 2023 (anticipated transition into Residential Demand Response Program at completion)
Residential Demand Response	Permanent offer of Demand Response program (future)	Offer for residential customers focused on connected thermostats, electric vehicle chargers and telematics, and other potential loads as identified in the future.	Spring 2023 onwards
Automated C&I Demand Response Pilot	Pilot (future)	Pilot to test the feasibility of connecting commercial thermostats and fleet vehicles to an automated DR dispatch software.	2024
Commercial Demand Response	Permanent offer of Demand Response program (future)	Offer for commercial and industrial customers focused on connected thermostats, fleet electric vehicle charging, and ad-hoc large industrial end-uses.	2025 onwards

DR Initiative	Actual / Forecast Expenditure	Capacity Savings
Kelowna Demand Response Pilot	$400,000	619 kW (summer average) 524 kW (winter average)
Kelowna Residential Peak Saver Pilot	$500,000	TBD following pilot results (summer average) TBD following pilot results (winter average)
Residential Demand Response Program	$2,743,000	Estimated 7.7 MW (summer and winter, by 2027)
Automated C&I Demand Response Pilot	$400,000 *Note that this pilot will be funded through the Innovative Technologies budget rather than the Demand Response budget.*	TBD. The primary goal of this pilot will be to assess technology capabilities, scalability, and ease of dispatch.
Commercial and Industrial Demand Response Program	$1,179,000	Estimated 4.3 MW (summer and winter, by 2027)

In Exhibit 18 on page 33 of Appendix A to the Application, FBC estimates a combined capacity savings of 9.2 MW for both the Commercial and Industrial Demand Response Program area, with a combined TRC of 0.8. The Residential DR program is shown to have a TRC of 1.1.

In response to BCUC Information Request (IR) 41.1 of the FBC 2021 LTERP Proceeding regarding the commercial DR pilot, FBC stated:

> The commercial DR pilot was completed in December 2020 and evaluated in 2021.

[…]

The overall results did not conclusively show that commercial DR using the approach advanced in the pilot could have a notable impact on commercial customer demand. FBC will re-assess the approach to commercial DR for a potential future pilot as the assessment expected a notable DR potential in the region despite the pilot results.

8.2 Given the inconclusive results of the above commercial DR pilot and the TRC of 0.8, please provide FBC's view on the benefits to ratepayers of making this program permanent and expanding to additional customers.

Response:

The completed 2020-2021 commercial DR program pilot explored manually dispatching loads as a potential low-cost approach for DR instead of automated DR which is a more prevalent and proven approach in North America (including Central Hudson, Pacific Gas & Electric, Southern California Edison, and San Diego Gas & Electric). FBC will pilot automated commercial DR as part of its Innovative Technologies projects for 2023 and 2024. Assuming that FBC achieves similar results to other utilities in North America, FBC plans to continue and expand the program in 2025 and beyond.

Both the residential and commercial DR programs can be characterized as initiatives with higher initial costs in terms of DR platform setup, with lower expenditures in future years associated with incentives and annual license fees. The table below also shows the cost effectiveness (TRC) result for each year of the proposed DSM plan.

Year	Total Resource Cost
2023	0.00
2024	0.00
2025	0.69
2026	1.03
2027	1.38
2023-2027	**0.82**

Though the program itself is not immediately cost effective, it quickly scales up and becomes cost effective. The response to BCUC IR1 8.3 further describes how the cost effectiveness for this program scales over time. FBC anticipates that both residential and commercial DR programs will be permanent fixtures of FBC's DSM portfolio past 2027 and that cost-effectiveness will continue to improve as participation increases.

FBC is forecasting to experience additional demand pressure on its grid (as described in Section 2.3 of FBC's 2021 LTERP). The ability to shed load through a DR program will both reduce FBC's

need for additional transmission, distribution, and capacity resources, as well as improve reliability during future adverse weather events (such as 2021's heat dome).

8.2.1 If the results of the commercial DR pilot were inconclusive, please explain the basis upon which has FBC forecast the cost-effectiveness of the program.

Response:

The results of the commercial DR pilot were for manually dispatched DR, whereas the upcoming commercial pilot and proposed permanent program is for automated DR. FBC used cost effectiveness inputs from a study prepared for FBC by Generac Grid Services (previously Enbala) in 2018 on automated commercial and industrial DR as the basis for the program.

8.2.2 Please discuss if the program would be cost-effective using the mTRC.

Response:

Yes, the mTRC of the commercial DR program would be 1.2.

8.3 Please provide FBC's view of the key reasons behind the differing TRC results for the residential DR program (TRC of 1.1) and compared to the commercial and industrial DR programs
(TRC of 0.8).

Response:

The key reason why the TRC of the residential DR program is greater than the TRC of the commercial and industrial DR program is that it has a longer time to ramp up participants (starting in 2023 instead of 2025). This allows the residential program to realize greater demand savings benefits to offset the initial capital cost of the program and software setup. If the programs were run for a similar time frame, with the forecast participant growth trending with similar year-over-year growth, FBC would expect the commercial and industrial DR programs to have a higher cost-effectiveness than the residential DR program (TRC of 1.4 vs TRC of 1.1).

In response to BCUC IR 58.2 of the FBC 2021 LTERP Proceeding, FBC stated:

> A total of ten participants were enrolled by the completion of the DR Pilot. FBC benefitted the most from DR capacity during both the coldest days in winter and the hottest days in summer, when it was most needed by the system, suggesting that DR may be considered a reliable resource. As a result of the pilot, the system benefitted from a maximum of 1.33 MW of DR capacity and 619 kW average DR capacity in the summer of 2020, and maximum DR capacity of 696 kW and average of 524 kW of DR in the winter. Some lower-performing days reduced the summer 2020 average savings, due to participant technical issues and changes in participant operation creating more variability and less reliability, along with other customer staffing and operational issues. The criteria that FBC used to measure the success of the commercial DR pilot included:
>
> - the magnitude of DR capacity available (compared to the potential estimate);
> - operational characteristics such as: dispatchability, reliability, and timeliness of the DR event responses;
> - customer engagement and satisfaction, including retention;
> - DR potential scalability.

8.4 Please discuss if FBC plans to use the same criteria to determine the success of FBC's residential peak saver pilot program, explaining any differences where applicable.

Response:

FBC intends to use the same criteria to determine the success of the residential peak saver pilot program as discussed in the response to BCUC IR2 58.6 of the FBC 2021 LTERP. This includes:

- the magnitude of DR capacity available (compared to the potential estimate);
- operational characteristics such as: dispatchability, reliability, and timeliness of the DR event responses;
- customer engagement and satisfaction, including retention;
- DR potential scalability;
- the market potential of the proposed DR offerings (i.e. based on pilot information, what percentage of customers will voluntarily enroll in the program);
- the cost-effectiveness of the DR resource using the Total Resource Cost; and

- the suitability of the DR technology to control emerging demand challenges (electric vehicle challenges, space cooling, connected appliances, etc.).

8.5 Please confirm that the DR commercial pilot completed in December 2020 (and referenced in the LT DSM Plan) refers to the same pilot completed for the Kelowna Demand Response program and focussed on custom-dispatched DR.

Response:

Confirmed.

8.5.1 If confirmed, please clarify whether FBC's re-assessment of commercial DR for a future potential pilot is included in the next phase of the commercial DR program scheduled for 2023 and 2024. If yes, please explain how FBC plans to revise its approach to achieve improved DR pilot results.

Response:

FBC's re-assessment of commercial DR (Automated C&I DR Pilot) will be planned in 2023 and actioned in 2024 through the Innovative Technologies budget. FBC plans to revise its approach to commercial DR to improve results by:

- Limiting focus to commercial HVAC via thermostat control and electric vehicle fleets;
- Focusing on automated DR dispatch through a utility signal, so the customer does not need to manually adjust equipment settings to participate in an event; and,
- Increasing participation to validate approaches for scalability across different customer segments, control systems, etc.

8.5.2 If confirmed, please clarify whether achieved maximum and average capacity savings from the 2020 DR commercial pilot helped to inform the estimated demand savings of 9.2 MW for the Commercial and Industrial DR program over the DSM Plan period. If not, please explain why not,

and provide assumptions used to calculate capacity savings over the DSM Plan period.

Response:

The achieved maximum and average capacity savings from the 2020 DR commercial pilot were not used to inform the estimated demand savings of the future commercial and industrial DR program. To clarify, the estimated maximum capacity savings achieved by the proposed commercial and industrial DR program are cumulative, not incremental. The dispatchable capacity will begin at 1.9 MW in the program's first year, grow to 3.0 MW in its second year, and reach a maximum of 4.3 MW in 2027.

Instead, FBC used cost effectiveness inputs from a study prepared for FBC by Generac Grid Services (previously Enbala) in 2018. FBC's estimates for participation and capacity savings (at the meter) are shown in the table below:

Year	2023	2024	2025	2026	2027
Commercial Sites	0	0	13	22	31
Industrial Sites	0	0	5	7	10
Total Sites	**0**	**0**	**18**	**29**	**41**
Commercial (kW)	0	0	1,040	1,775	2,515
Industrial (kW)	0	0	700	980	1,400
Total (kW)	**0**	**0**	**1,740**	**2,755**	**3,915**
Total (MW)	**0**	**0**	**1.7**	**2.8**	**3.9**

Eighteen sites are estimated to participate in 2025 as it is expected that eight to ten pilot participants during the year 2024 will continue to participate in the permanent program in 2025 onwards.

8.5.3 If not confirmed, please clarify whether the next phase of the commercial DR program scheduled for 2023 and 2024 is a DR pilot. If yes, please confirm whether the criteria FBC provided to measure the success of the 2020 commercial DR pilot will be reused to measure the success of this commercial DR program. If not, please explain why not.

Response:

The phases of the commercial DR program are discussed in the response to BCUC IR1 8.1. FBC intends to measure the success of this program using the same metrics as discussed in the response to BCUC IR1 8.4.

8.6 Please provide additional details for the next phase of the DR commercial program including scope, planned number of participants, method of response (i.e. voluntary, utility controlled,) incentive mechanisms, and scheduled dates for pilot completion and evaluation of results.

Response:

The next phase of developing the Commercial and Industrial DR program will be the Automated commercial and industrial Demand Response pilot in 2024. The scope of the pilot is to test the feasibility of connecting commercial thermostats and fleet vehicles to an automated DR dispatch software, and investigation into control of large industrial loads.

The number of pilot participants will be dependent on the proposed method of automated control to ensure that the proposed solution is able to work with the variety of building types and building automation systems across the FBC service territory. The method of response will be utility controlled, with an option for customers to opt out of individual events.

The incentive mechanism has not been finalized but FBC is currently considering the following options:

1. Enrolled capacity and event participation payment. In this scenario, customers must meet a minimum level of enrolled capacity (to be determined) to participate in the DR program, and if the customer participates in a DR event they will receive a fixed incentive (estimated $500) per event.

2. Enrolled capacity and event performance payment. In this scenario, there will be no minimum level of enrolled capacity. The customer will receive an incentive (estimated $40 per kW) based on their enrolled capacity, provided they participate in a set number of events and achieve a certain threshold of capacity reduction based on their enrolled capacity.

FBC will be soliciting feedback from potential vendors and other utilities with commercial and industrial DR programs about the incentive mechanisms.

The anticipated date for pilot completion is Q2 2025. FBC will evaluate pilot results using a combination of internal measurement and verification using AMI meter data, the successful proponent's demand response reporting tool, and a third-party evaluator. If successful, FBC plans to transition the pilot into a permanent program.

8.7 Please explain how the DR pilots completed by FBC inform program assumptions for the new demand response programs.

Response:

The DR pilots completed by FBC inform program assumptions for the DR Program Area and subsequent programs. Various pilot results and how they are used as program inputs are as follows:

- Following the evaluation of the Kelowna commercial/industrial DR pilot, FBC determined that manually dispatched DR was not a reliable approach to DR. This prompted FBC to investigate automated DR which is a more common deployment used in other utilities and is the basis of the upcoming automated Commercial and Industrial DR pilot.
- The current residential peak saver pilot will be evaluated to determine the actual magnitude of demand reduction by event on a per-device basis during summer and winter events.
- Both pilots have informed costs associated with the proposed permanent demand response offers, including platform costs, labour, and incentives.
- The current residential peak saver pilot supports both Bring-Your-Own-Device appliances (such as electric vehicles and thermostats) and devices that require direct installation of third-party controllers (such as hot water tanks and pool pumps). Through the pilot, FBC identified challenges involved with deploying the third-party controllers which has led to FEI's decision not to pursue these devices as part of the permanent residential DR program.
- Both pilots have provided FBC with information regarding customer engagement and satisfaction, including marketing and communications requirements for recruitment, opt-out rates during events, and the types of customers willing to participate in DR programs.
- Based on the above customer information, both pilots have informed scalability based on potential for similar customers to be recruited into the pilot, how much FBC effort is required to onboard new customers, and ability for DR platforms to handle volumes of customers.

9.0 Reference: DSM PLAN AND PROPOSED EXPENDITURES

Exhibit B-1, Section 4.4.1, pp. 16, 19; FBC 2021 LTERP Proceeding, Volume 2, p. 13

DSM Scenario Development

On page 16 of the Application, FBC states that the "forecasted savings from the proposed DSM Plan exceed the Market Potential outlined in the Base DSM Scenario of the Conservation Potential Review."

Further, on page 19 of the Application, FBC states:

> The DSM Plan savings forecast exceeds the market potential largely due to newly anticipated activity in cannabis production facilities in FBC's service area and other differences between the DSM Plan and the LT DSM Plan discussed in Section 3.2.

9.1 Please clarify if the projected savings result from existing FBC cannabis customers, or explain otherwise.

Response:

The projected savings are the result of observed DSM activities from both existing FBC indoor agricultural customers (primarily cannabis) and also from newly constructed cannabis facilities. Based on previous participation in the Industrial Performance Program, FBC projected participation and savings that are split equally between existing customers and new customers.

On page 13 of Volume 2 of the 2021 LTERP in the 2021 LTERP Proceeding, FBC states:

> FBC developed five different DSM scenarios including Low, Base, Medium (Med), High and Maximum (Max) cases that were subsequently tested with various supply-side resource options in the Resource Planning portfolio analyses (Section 11 of the LTERP).
>
> The DSM program scenarios FBC considered are based on incenting ever larger proportions of the DSM measures' incremental costs. The same DSM measures were included in all scenarios, and the uptake was based on the market potential.
>
> …
>
> The DSM program scenarios represent FBC paying levelized incentives6 to cover 50, 62, 72, 84 and 100 percent of incremental measure costs respectively. The CPR model estimates the additional take-up and timing of measure installations based on the proportion paid by FBC. The non-linear response to the increasing incentive levels paid results in relatively small incremental savings at significantly higher portfolio costs (see Table 3.1).

…

Despite the increase of incentive dollars spent across the various portfolios, the cumulative energy savings differentials are not very substantial between the various scenarios, especially within the first five years of the plan. In the final year, 2040, there is a modest 15 percent savings differential between the Max and Base DSM scenarios.

9.2 Please explain which DSM scenario was used to develop the 2023-2027 DSM Plan.

Response:

The 2023-2027 DSM Plan was developed from the Base DSM scenario (62 percent of incremental measure cost) in the 2021 LTERP.

9.3 Please provide additional information on the average level of incentive being offered in the Application, and compare to the incentive levels in the LTERP DSM scenarios.

Response:

The average level of incentive as a percentage of incremental cost for each program area in the DSM Plan is shown in the table below:

	DSM Incentive as a percentage of Measure Incremental Cost		
Program Area	**2023-2027 DSM Plan**	**2021 LTERP (2023-2027 only)**	**2021 LTERP**
Commercial	34%	56%	43%
Industrial	57%	67%	64%
Residential	57%	99%	98%
Low Income	96%		
Total	**57%**	**67%**	**62%**

Compared to the DSM program scenarios presented in the LT DSM plan, the total incentive cost as a percentage of incremental cost in the DSM plan is 57 percent, which is most similar to the Base scenario (average of 62 percent of incremental cost) of the LT DSM plan.

10.0 Reference: COST EFFECTIVENESS APPROACH

Exhibit B-1, Section 5.1.2, p. 21, Table 5-1, p. 22; Appendix A, p. 37; Appendix D, Table 24

Cost-Effectiveness

On pages 21 to 22 of the Application, FBC states:

> The amount of the NEBs which may be allowed by the Commission under s. 4(1.1)(c) is based on either evidence from the utility or by using a deemed 15 percent increase to the benefits side of the DSM expenditure portfolio of which the measure is a part. FBC uses the latter approach in its mTRC calculations. Section 4(1.5) limits this use of NEBs to a maximum of 10 percent of the total expenditures in an electricity DSM expenditure portfolio.
>
> The measures contained in the DSM Plan all passed the standard TRC test, without requiring the use of the 15 percent NEB adder; hence, there are no expenditures falling into the 10 percent mTRC cap.
>
> Table 5-1 on page 22 of the Application, shows the overall portfolio level cost effectiveness results:

Table 5-1: Portfolio Level Cost Effectiveness Results

	TRC	mTRC	UCT	PCT	RIM
Total Portfolio	1.3	1.4	1.8	3.2	0.5

Exhibit 20 on page 37 of Appendix A to the Application includes a list of detailed benefit cost ratios.

10.1 Please explain why the mTRC results differ from the TRC results, given that FBC states that the measures contained in the DSM Plan all passed the TRC without requiring the use of the non-energy benefit (NEB) adder.

Response:

The mTRC value presented in Table 5-1 reflects the cost test results obtained by increasing the portfolio TRC benefits by the non-energy benefit adder of 15 percent. For FBC, since all program areas pass the TRC without the use of the non-energy benefit adder, there is no blending of TRC and mTRC benefits across the portfolio as prescribed in the BC Demand-side Measures Regulation. Rather, the mTRC value as described above for the entire portfolio is presented for informational purposes only.

10.2 Given the TRC results for the Commercial and Industrial DR programs and RAP were below 1.0 (as outlined in IR 4 and IR 8 above), please clarify if FBC used the mTRC for these programs, or explain otherwise.

Response:

FBC did not use the mTRC for the Commercial and Industrial DR Programs or the Rental Apartment Efficiency Program. The overall FBC portfolio is forecast to be cost-effective, thus, FBC does not need to use the mTRC for the overall portfolio to pass.

If FBC were to use the mTRC for the Commercial and Industrial DR program and RAP, their mTRC test results would be 1.0 and 0.4, respectively, representing 3 percent of total portfolio expenditures.

Table 24 of Appendix D shows a summary of benefit to cost ratios across the 2020 to 2040 Horizon:

Table 24. Benefit-to-Cost Ratios across 2020-2040 Horizon (ratio)

Sector	Total Resource Cost Test	Utility Cost Test	Participant Cost Test	Rate Impact Measure Test
Commercial	2.45	3.95	3.37	0.80
Industrial	2.91	4.39	3.15	0.97
Residential*	2.26	2.33	4.68	0.63
Portfolio	2.05	2.62	3.65	0.73

Source: Lumidyne

**Note: the residential sector relied on a modified Total Resource Cost (mTRC) test.*

10.3 Please explain the lower benefit to cost ratio results at the overall portfolio level seen in Table 5-1 above for the 2023-2027 DSM Expenditures, relative to the CPR results shown in Table 24. Please discuss any key changes which resulted in this variance.

Response:

The 2023-2027 DSM Plan has lower benefit to cost ratio results at the portfolio level than the 2021 CPR for the following key reasons:

1. The DSM Plan included additional expenditures in non-incentive program areas such as Conservation, Education and Outreach, Innovative Technologies, Enabling Activities and Portfolio. This includes an all-electric deep energy retrofit focused on Indigenous communities that was proposed by EECAG. These additional non-incentive expenditures were not reflected in the flat 21 percent non-incentive expenditure assumption of the 2021 CPR and is more in line with recent program experiences. This results in increased cost with no direct energy benefits, lowering the overall portfolio cost-benefit ratio.

2. FBC has proposed including a demand response program area that was not evaluated in the 2021 CPR that has a lower estimated cost benefit ratio than the 2021 CPR average cost benefit ratio. Additional details regarding the cost-effectiveness of the demand response program area are included to the response to BCUC IR1 8.2.

3. FBC has included additional expenditures to support Indigenous and low-income customers based on EECAG feedback. These additions have increased expenditures and savings, but the savings do not proportionally increase with expenditure, lowering the benefit-cost ratios.

4. Detailed program design resulted in differing measures assumptions than the more generalized assumptions included in the CPR. This is particularly true for the residential and commercial program areas. In particular, those program areas included some lighting screw-in lamp measures that are being phased out due to newly changing efficiency standards not reflected in the 2021 CPR at that time. This resulted in lower savings in the residential and commercial program areas, lowering the benefit-cost ratios.

11.0 Reference: DSM EXPENDITURE SCHEDULE

Exhibit B-1, Section 6.2, p. 24; FBC 2019-2022 DSM Expenditure Schedule Proceeding, Exhibit B-1, p. 27

Spillover and Free Riders

In Table 6-1 on page 24 of the Application, FBC provides free-ridership and spill-over rates for each program.

Table 6-1: FBC Program Free-Rider and Spill-Over Rates

Program Area	Free-rider	Spill-over	Source of Justification
Residential			
HRR – Home Improvement	63%	0%	Evergreen Economics, 2015
HRR – Heat Pumps, Incentive	36%	4%	Evergreen Economics, 2020
HRR – Heat Pumps, Loans	25%	4%	Evergreen Economics, 2020
HRR – Heat Pump Water Heaters	13%	55%	Evergreen Economics, 2020
HRR – Retail Lighting	50%	15%	Evergreen Economics, 2019
HRR - Appliances	39%	17%	Evergreen Economics, 2019
New Home Program	26%	0%	Mazzi Consulting, 2022
Low Income			
Self Install Program	0%	0%	as per BC Hydro
Direct Install Program	0%	0%	as per BC Hydro
Prescriptive Program	0%	0%	(To be evaluated in the future)
Performance Program	0%	0%	(To be evaluated in the future)
Commercial			
Performance Program – Custom Efficiency	69%	0%	Evergreen Economics, 2018
Performance Program – New Construction	0%	0%	(To be evaluated in the future)
Performance Program – Continuous Optimization	0%	0%	FortisBC Business Case, 2020
Prescriptive Program - Lighting	27%	43%	Mazzi Consulting, 2019
Prescriptive Program – Non-lighting	30%	12%	Sampson Research, 2012
Rental Apartment Efficiency Program	10%	4%	Cohesium Research, 2022
Industrial			
Performance Program – Custom Efficiency	12%	0%	Sampson Research, 2013
Performance Program – Strategic Energy Management	20%	0%	FortisBC Business Case, 2018
Prescriptive Program	30%	12%	Sampson Research, 2012
Demand Response			
Residential Demand Response	0%	0%	(To be evaluated in the future)
Commercial and Industrial Demand Response	0%	0%	(To be evaluated in the future)

In Table 7-1 on page 27 of the FBC 2019-2022 DSM expenditure application, FBC presented free-ridership rates of:

- 20% for the Residential Home Improvement Program;
- 24% for the Commercial Building Improvement Program;
- 30% for the Commercial Building and Process Improvement Program; and
- 25% for the Commercial Building Improvement New Program.

In Table 6-1 above, FBC presents updated free-ridership rates of:

- 63% for the Residential Home Improvement Program; and

- 69% for the Commercial Performance Program – Custom Efficiency.

In Table 6-1 on page 24 of the Application, FBC provides updated free-rider assumptions for the Residential Heat Pump Programs, ranging from 13% to 36%, and including a spill-over rate of 55% for the Residential Heat Pump Water Heater Program.

11.1 Please discuss if, in FBC's view, there is a threshold level of free-ridership, beyond which it no longer advisable to implement the program. If yes, please provide that threshold.

Response:

The stated free-rider rate for the Commercial Performance Program - Custom Efficiency program in Table 6-1 is in error and should be 31 percent.

FBC is not aware of an industry guideline that identifies a specific threshold level of free-ridership that would be the deciding factor on whether or not to implement a program. Similarly, FBC does not have its own deciding guideline. FBC applies free-ridership and spillover values as inputs in its cost-effectiveness calculations, which may impact FBC's decision to implement a program.

11.2 Please explain the differences between the following residential heat-pump programs, namely (i) Heat Pumps, Incentive, (ii) Heat Pumps, loans, (iii) Heat Pump Water Heaters. In the response please explain what these programs entail and why the free-rider and spill-over estimates (and any other assumptions affecting the net to gross ratio) differ between the programs.

Response:

The current heat pump offers provide customers who use electricity for space and/or water heating to upgrade the efficiency of their equipment while benefiting from the resulting energy savings. The Heat Pump, Incentive and Heat Pump, Loan offers include both central and ductless mini or multi-split air source heat pumps (ASHP).

The table below provides a brief summary of the heat pump offers, offer specific eligibility, heat pump upgrade minimum requirements (heating seasonal performance factor (HSPF), seasonal energy efficiency ratio (SEER), and type of compressor), and their respective rebate amounts.

Offer Type	Upgraded Measure	Offer Specific Eligibility[10]	Heat Pump Upgrade Minimum Requirements	Rebate Amount
Heat Pump, Incentive	Tier 1 Central ASHP	Must have an existing hard-wired electric heating system such as electric baseboards, radiant ceiling, radiant floors or a forced-air furnace.	HSPF 8.5, SEER 15	$1,200
	Tier 2 Central ASHP		HSPF 9.3, SEER 16, variable speed compressor	$2,000
	Tier 1 mini-split (single head) ASHP		HSPF 10, SEER ≥16, variable speed compressor	$1,200
	Tier 2 multi-split (multiple head) ASHP		HSPF 9.3, SEER 16, variable speed compressor	$2,000
Heat Pump, Loan	(Same measures, eligibility and heat pump minimum requirements as Heat Pump, Incentive)			Full cost of the upgrade up to $6,500, at a 1.9% fixed interest rate.
Heat Pump Water Heater	Heat Pump Water Heater	Must have an existing standard electric storage tank and is in working order.	Tier 2 or higher on the NEEA Advanced Water Heater Specification	$1,000

Free ridership and spill-over vary as they are not just a factor of the measure and incentive, but also the program design itself. Free-ridership and spill-over are calculated during program evaluation. They are determined based on an analysis of participant surveys that investigate how impactful the program was on customer purchasing decisions (both on the measure itself and other measures implemented in tandem).

11.3 Please explain the higher free-ridership rates for the Residential home improvement program and Commercial Performance Program-Custom Efficiency in the 2023-2027 DSM Plan.

Response:

The stated free-rider rate for the Commercial Performance Program - Custom Efficiency program in Table 6-1 is in error and should be 31 percent.

The HRR – Home Improvement category in Table 6-1 includes the following electric measures:

- Insulation (electrically heated homes)

[10] Full eligibility requirements including Terms and Conditions are available at: https://www.fortisbc.com/rebates-and-energy-savings/rebates-and-offers

- Windows (electrically heated homes)
- Doors (electrically heated homes)
- Draft-proofing (electrically heated homes)
- Showerheads (electrically heated domestic hot water)

The HRR - Residential Home Improvement free-ridership rate of 63 percent is a direct result of the self-reported free-ridership among participants surveyed in 2015. The survey responses were averaged to calculate free-ridership and net-to-gross adjustment factors for the program. According to the Evergreen 2015 evaluation study, the low net-to-gross ratio is a direct result of the participants' responses to questions regarding purchasing motivations. The survey results show that for insulation and window/door measures in particular, many participants would have made the measure purchase even in the absence of the incentive program. This result drove a higher free-ridership rate for the overall program.

12.0 Reference: FBC 20223-2027 DSM PLAN REPORT

Exhibit B-1, Appendix A, p. 32

Residential Program Area

FBC outlines some key updates in the Residential Program Area on page 13 of Appendix A to the Application, including the following:

- Air conditioners and air sealing added as new measures under the Home Renovation Rebate program.
- Connected home bundle added as a new measure under the New Home program.
- LED bulbs removed from the Lighting (under Home Renovation Program). LED controls and fixtures remain.

12.1 As an example of how FBC evaluates new measures, please provide the underlying assumptions and cost-effectiveness results for the new measures listed above.

Response:

Assumptions and cost effectiveness results for air conditioners, air sealing, and the connected home bundle are listed as follows:

Measure	Incentive	Annual Electricity Savings (kWh)	Electricity Demand Savings (kW)	Measure Life	Measure TRC	Reference
Residential Central Air Conditioner	$500	217	0.76	15	2.1	Air Conditioner Rebate Study (Posterity Group, 2021)
Air Sealing	$500	1749	0	20	0.8	Air Sealing: Home Energy Rebate Offer (HERO) - Quantitative Analysis (Dunsky, 2016)
Connected Home Bundle	$500	1031	0	10	4.3	Connected Homes Prefeasibility Study TRMs (Posterity Group, 2021)

12.2 Please discuss the criteria used by FBC to evaluate when to remove specific measures, such as the LED bulbs.

Response:

FBC considers the current state of market adoption, codes and standards, energy savings potential, and cost-effectiveness when determining whether to remove a specific DSM measure.

FBC removed LED bulbs as a DSM measure in its programs as they have reached market maturity. Provincial regulation (BC Reg 14/2015 Part 7) increased the efficiency requirements for directional and general service lamps (GSL) and makes high-efficiency bulbs the baseline. FBC will continue to focus on market transformation for LED controls and energy efficient fixtures.

12.3 Please discuss any assumptions regarding the current level of penetration of air-conditioning within FBC's service territory.

Response:

FBC's most recent Residential End Use Survey in 2017 indicated that the penetration of any type of air conditioning among FBC customers (including indirect customers) was 78 percent.

12.3.1 Please discuss whether FBC considers there is potential for increasing load among customers who do not currently have air-conditioning, as opposed to reducing existing demand, as a result of DSM incentives for air conditioning.

Response:

No, FBC does not consider this measure to have the potential for increasing load among customers who do not currently have air-conditioning. The eligibility for this measure will be for a participant to have an existing air conditioning system and who is pursuing a like-for-like, high-efficiency replacement. Customers who do not currently have air conditioning will not be eligible for this measure.

13.0 Reference: FBC 20223-2027 DSM PLAN REPORT

Exhibit B-1, Appendix A, p. 23; BC Hydro F2020 to F2021 Revenue Requirements Proceeding, Exhibit B-12, BCUC IR 276.1.1

Low Income Program Area

Exhibit 13 on page 23 of Appendix A to the Application includes TRC values of 3.2 for the Self Install program, and 0.7 for the Direct Install Program.

British Columbia Hydro and Power Authority (BC Hydro) stated in response to BCUC 276.1.1 of the F2020 to F2021 Revenue Requirements Proceeding that it assumes a percentage of Energy Savings Kits measures will not be installed and reduces its initial energy savings by this percentage.

13.1 Please explain the factors and key assumptions underlying the different TRC results for the Self Install and Direct Install Programs.

13.1.1 If not already provided above, please provide the installation rate assumption used for the Self Install program.

Response:

A key factor in the differing TRC results for the Self Install and Direct Install programs is the non-incentive expenditure costs associated with the programs. Over the course of the DSM Plan, the Self Install program has a total of $94 thousand in non-incentive expenditures, whereas the Direct Install Program has a total of $810 thousand. These costs reflect the level of involvement required to facilitate the installation of measures for participants, as well as the additional program components unique to the Direct Install Program, such as dedicated community outreach and quality assurance.

The Direct Install Program contains all measures included in the Self Install Program, along with more comprehensive measures, such as insulation and programmable thermostats. In the Direct Install Program, FBC assumes a 100 percent installation rate because an approved program contractor installs all the eligible measures. In the Self Install Program, FBC assumes a 54 percent average installation rate to account for participants installing the measures themselves.

14.0 Reference: FBC 20223-2027 DSM PLAN REPORT

Exhibit B-1, Appendix A, p. 32

Innovative Technologies

On page 32 of Appendix A to the Application, FBC states that for this DSM Plan, the major focus of the Innovative Technologies team and budget will be demand and capacity resources and a pilot project for deep retrofits.

14.1 Please discuss how FBC plans to evaluate the pilot project for deep retrofits, and what the pilot intends to include.

Response:

Over 2023 and 2024, FBC plans to conduct a limited pilot targeting three Part 9 Indigenous homes to conduct deep energy retrofits for electrically heated homes. Energy use reductions are attributed to a combination of mechanical upgrades such as installing an air-source heat pump (ASHP) and a heat pump water heater as well as envelope upgrades such as replacing windows and adding insulation.

Although at the time of writing, the scope of the pilot has not yet been fully defined, the pilot will be designed to investigate costs and energy savings to assess cost effectiveness as well as monitoring customer acceptance and identifying barriers. Evaluation will be conducted by a third-party contractor to assess energy savings as well as conducting both a contractor and customer survey to gauge customer acceptance and installation experience. Results will be used to further assess the feasibility of launching a larger scale incentive program.

B. APPROVALS SOUGHT

15.0 Reference: ADDITIONAL APPROVALS SOUGHT
Exhibit B-1, Section 7.1.1, pp. 25-26
Funding Transfers

On page 25 to 26 of the Application, FBC states that it is proposing the following changes to the funding transfer rules:

> **Remove the requirement for approval of transferred funds into a program area:** FBC is proposing that only the transfer of funds greater than 25 percent out of a program area should be required. This change ensures that the limits on the amount any one program area can lose funding are still in place, but eliminates the limits on how much one program area can gain. FBC submits that the greater concern in executing the portfolio is ensuring that no program area is reduced significantly to the benefit of another program area. FBC would still report on transfers into and out of program areas in its annual reporting to the BCUC. [Emphasis in the original]

15.1 Please discuss why FBC is seeking this change, including any challenges experienced by FBC to date connected to the transfer of funds into a program area. Please provide specific examples if possible.

Response:

FBC is seeking this change to the funding transfer rules in order to simplify the requirements for approval of changes to DSM program area funding, allow for greater flexibility for FBC in responding to market changes that are difficult to forecast in advance, and to ensure that FBC is able to focus on delivering DSM programs to customers without interruption. FBC believes that the change to the transfer funding rules enables FBC to achieve all these things, while still ensuring BCUC oversight of its DSM performance and minimizing the time and resources required of FBC, the BCUC, and stakeholders to prepare, file, and review applications for funding transfers.

The proposed change to the funding transfer rules ensures that no program area will have its funding **reduced** by greater than 25 percent without BCUC approval. This ensures that FBC can react to and meet increased activity in a program area quickly and easily, while still ensuring that no other program area will have its funding reduced drastically as a result.

Although it has not been necessary for FBC to apply for approval for funding transfers in excess of 25 percent into a program area throughout the 2019-22 DSM Plan period, during each year of the DSM Plan period, FBC spends significant time and resources determining strategies to manage increased expenditures due to higher customer demand in a program area given the current transfer rules. The proposed change to the funding transfer rules would simplify FBC's forecasting process and allow more focus on the delivery of programs to customers.

FBC notes that it will continue to report funding transfers into and out of program areas in its annual DSM reporting.

15.2 Please provide an analysis showing the maximum amount of funding that could hypothetically be transferred into a single program area if the above noted change to the funding transfer rules were approved, based on the filed 2023–2027 DSM Expenditure Schedule. Please indicate dollars transferred, and the percentage of funds transferred into that program area.

Response:

FBC provides the requested analysis for the first year of the 2023-2027 DSM Plan (2023) in the below table. FBC notes the following regarding the analysis:

- Although theoretically an amount as high as 700 percent of a program area's funding could be transferred into a program area, such a case would require that all other program areas are seeing lower than forecast activity to the extent that a single program area would benefit from all those excess funds.
- FBC will only transfer funds out of a program area if those funds are not needed in that program area due to lower than forecast activity **and** those funds could be appropriately used in another program area in that year. If a program area has lower expenditures than forecast due to timing, FBC would choose to carry those funds over into the next year to be used in the same program area.
- The expenditure levels for each program area and year of the DSM Plan reflect FBC's best forecasts. It is extremely unlikely that market conditions would change so drastically that FBC would need funds from every other program area to meet market demand.
- FBC's past performance shows that actual DSM spending in each program area mirrors approved budget levels closely. This is evidenced in FBC's annual DSM reporting throughout the 2019-22 DSM Plan period.
- The below table also includes a column setting out the maximum funds that could be transferred out of a program area without approval from the BCUC under the proposed transfer rule change.

Program Area (Sector)	2023 Budget	Maximum Transfer In ($000s)	Maximum Transfer In %	2023 Maximum Transfer Out ($000s)
Residential	$2,946	$2,877	98%	$737
Commercial	$3,129	$2,832	90%	$782
Industrial	$2,119	$3,084	146%	$530

Program Area (Sector)	2023 Budget	Maximum Transfer In ($000s)	Maximum Transfer In %	2023 Maximum Transfer Out ($000s)
Low Income	$1,743	$3,178	182%	$436
Conservation Education and Outreach	$897	$3,390	378%	$224
Enabling Activities	$1,550	$3,226	208%	$388
Innovative Technologies	$485	$3,493	720%	$121
Demand Response	$773	$3,421	442%	$193
Portfolio	$813	$3,411	419%	$203

1

16.0 Reference: ADDITIONAL APPROVALS SOUGHT

Exhibit B-1, Section 7.1.3, p. 27

Total Portfolio Variance Allowance and 2023-27 DSM Expenditure Schedule Deferral Account

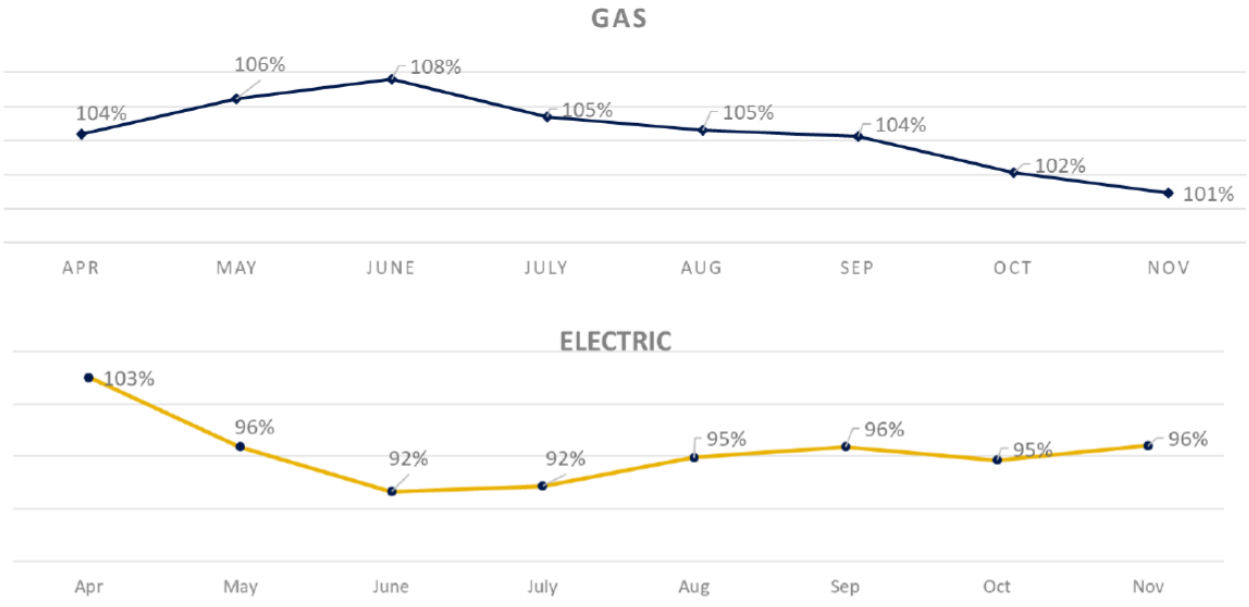
On page 27 of the Application FBC states:

> approval of an allowed variance above the approved DSM expenditure amount for the final year of the 2023-27 DSM Plan without prior approval from the BCUC. FBC is proposing that in the final year of the 2023-27 DSM Plan (i.e. 2027 DSM expenditures), actual DSM expenditures for 2027 may only exceed 2027 approved DSM expenditures (excluding any carryover amounts from prior years) by no more than five percent without prior approval from the BCUC. This means that in the final year of the Plan, FBC has additional flexibility to overspend 2027 approved expenditures by $935 thousand.

16.1 Please provide the basis for the 5 percent overspend figure.

Response:

The basis for the five percent overspend figure is derived from the average variance in forecasting that FBC and FEI (together FortisBC) have experienced over the past four years, shown month-by-month in the figure below. The forecasting of FEI is relevant as the same teams that forecast FEI expenditures also forecast FBC expenditures. The percentages reflect how close the forecast was in a given month to the actual expenditures at the end of the year as documented in the annual report.



While FortisBC targets expenditures at 100 percent of plan, it is challenging to arrive at a 100 percent level with certainty, especially in the last year of a multi-year plan. While the maximum forecasting variance for DSM programs is 8 percent, 5 percent is a reasonable average.

The 5 percent overspend figure allows FBC to continue to provide programs targeting 100 percent of plan expenditures while reflecting reasonable challenges in forecast accuracy.

16.2 Please provide the rate impact of this proposed variance, in the event that FBC exceeds the approved expenditures by the full 5 percent.

Response:

Please refer to Table 1 below which shows that the rate impact in 2027 and 2028 would be 0.01 percent and 0.03 percent, respectively if the 2027 expenditures are overspent by 5 percent (i.e., approximately $935 thousand) when compared to the FBC's 2023 proposed revenue requirement. For a typical residential customer[11], this is equivalent to a respective bill impact of approximately 10 cents for 2027 and 53 cents for 2028.

Table 1: Rate Impact of 5% overspend in 2027 Expenditure

Line	Particular	Reference	2027	2028
1	**Rate Base DSM Deferral Account**			
2	Opening ($000s)	Prior Year, Line 7	-	683
3	Gross Additions		935	-
4	Tax	-Line 3 x 27%	(253)	-
5	Net Additions	Line 3 + Line 4	683	-
6	Amortization	Amortization Period @ 10 years	-	(68)
7	Closing ($000s)	Line 2 + Line 5 + Line 6	683	615
8				
9	Mid-Year Rate Base ($000s)	(Line 2 + Line 7) / 2	341	649
10				
11	**Incremental Revenue Requirement**			
12	Amortization	-Line 6	-	68
13	Earned Return	Line 9 x FBC's Rate Base Return @ 6.50% (2023 Proposed)	22	42
14	Income Tax Expense	(Line 9 x 9.15% x 40% + Line 12) / (1 - 27%) x 27%	5	34
15	Total ($000s)	Sum of Line 12 to 14	27	144
16				
17	2023 Proposed Revenue Requirement ($000s)	2023 Annual Review (August 5, 2022)	426,208	426,208
18	Incremental Rate Impact (%)	Line 15 / Line 17	0.01%	0.03%

For clarity, FBC's rates are set on a forecast basis. Therefore, during the 2027 rate setting process, FBC will forecast additions to the rate base DSM deferral account based on the 2027 approved DSM expenditure level. Consistent with variances between actual and forecast in FBC's other deferral account, any variance between the actual and forecast will be trued-up in

[11] 2023 Forecast of average residential UPC of 9.95 MWh per year (FBC 2023 Annual Review).

subsequent years with adjustment made to the annual amortization amount to reflect the actual 2027 DSM expenditures.

16.3 Please explain the proposed accounting treatment of the 5 percent variance in the event of an overspend, along with supporting rationale.

Response:

Please refer to the response to BCUC IR1 16.2.

16.4 Please clarify if this $935,000 could in theory be applied to a single program, or discuss otherwise.

Response:

Yes, in theory $935 thousand could be applied to a single program. However, since 2019, FBC has never experienced an overage in just one program or program area and it is more likely in a multi-year plan that some program areas will be slightly above plan and some slightly below. If FBC is required to use the 5 percent variance in program expenditures, it would likely be a result of the sum of several programs and program areas exceeding their respective DSM Plan expenditures.

16.5 Please discuss if FBC considered increasing the expenditure forecast by 5 percent for the 2027 DSM Expenditures, as an alternative to the variance account.

Response:

No, FBC did not consider increasing the expenditure forecast by 5 percent to account for variances. As shown in the response to BCUC IR 1 16.1, forecasting variances can be both greater or lower than plan. FBC will manage its DSM programming based on its plan expenditures and would therefore not expect to spend the additional $935 thousand unless it is required.

16.5.1 Please explain in the response what the rate impact would be of increasing the expenditure forecast for 2027 by 5 percent.

Response:

The rate impact of increasing the 2027 expenditure by 5 percent would be the same as shown in the response to BCUC IR1 16.2. The only difference is that if the 2027 expenditure level is higher by 5 percent (i.e., scenario of this information request), then the extra spending will be included in the forecast as part of the 2027 rate setting and therefore included in 2027 rates. In contrast, as explained in BCUC IR1 16.2, if there is a 5 percent variance in the 2027 DSM expenditure, the amortization of the spending will be a true-up in a subsequent year. In other words, the impact would be the same between the two approaches, except one will be in the rates of the current year (i.e., 2027) while the other one will be in the following year (i.e., 2028).

17.0 Reference: ADDITIONAL APPROVALS SOUGHT

Exhibit B-1, Section 7.2, p. 27, BCUC Regulatory Account Filing Checklist dated May 3, 2017 [12]

2023-27 DSM Expenditure Schedule Deferral Account

On page 27 of the Application, FBC states that it is also seeking approval within this Application of a rate base deferral account to capture the regulatory costs associated with the review of this Application and proposes to amortize the costs over five years starting in 2023 to match the time period that the DSM Plan will be in place.

On May 3, 2017, the BCUC published a Regulatory Account Filing Checklist to facilitate an efficient review of regulated entities' applications for regulatory accounts (often called deferral accounts).

17.1 Please explain why a rate base account is proposed versus a non-rate base account, in the context of the regulatory costs proposed to be amortized.

Response:

FBC has requested to capture costs associated with this Application in a rate base deferral account as it is consistent with requests and approvals for other similar regulatory proceeding cost deferral accounts.

17.1.1 Please discuss and quantify the impact to the proposed deferral account's carrying costs, if any, if the regulatory costs were captured in a rate base account versus a non-rate base account.

Response:

FBC is proposing a rate base deferral account to capture costs related to this Application. Rate base deferral accounts are included in rate base and therefore, are implicitly financed using the weighted average cost of capital (WACC). Alternatively, if FBC had proposed a non-rate base deferral account, it would have requested the account be financed with a WACC return. Therefore, there would be no difference in the proposed carrying costs between a rate base and non-rate base deferral account.

[12] https://docs.bcuc.com/documents/Guidelines/2017/05-03-2017_RegulatoryAccountFilingChecklist.pdf.

17.2 Please explain why a similar regulatory account was not requested for FBC's 2019-2022 DSM expenditures application and why the previous accounting treatment for the regulatory costs should not be continued.

Response:

Similar regulatory accounts have been requested and approved in the past, for both FEI and FBC, to capture application costs related to DSM expenditures. Specifically, FBC received approval to establish the 2019-2022 DSM Expenditures Application deferral account as part of the Annual Review for 2018 Rates Decision and Order G-38-18, and FEI received approval to establish the 2019-2022 DSM Expenditures Application deferral account as part of the Annual Review for 2019 Delivery Rates Decision and Order G-237-18. Additionally, FBC also had numerous rate base deferral accounts for the purpose of capturing regulatory/application costs, the most recent examples being the 2021 Generic Cost of Capital Proceeding rate base deferral account (G-374-21); the 2021 Long Term Electric Resource Plan rate base deferral account (G-42-21); the Annual Reviews for 2021-2024 rate base deferral account (G-42-21); the 2020 Cost of Service Analysis rate base deferral account (G-42-21); and the BCUC Initiated Inquiries rate base deferral account (G-42-21).

17.3 Please identify any alternate treatments that were considered, including an overview of what the accounting treatment would be in the absence of approval of the request to establish a regulatory account, and explain why these alternate treatments may not be appropriate.

Response:

In the absence of deferral accounts for regulatory proceedings, the costs of regulatory proceedings would have to be forecast as an O&M expense (outside of the MRP formula O&M since regulatory proceeding costs are not included in Base O&M Expense) and trued up annually by way of the Flow-Through deferral account. FBC considers this to be a more cumbersome and less efficient means of accounting for regulatory proceeding costs.

It is accepted regulatory practice to defer the costs of regulatory applications for review and recovery following the regulatory review of the application itself. Review and recovery after the completion of the regulatory process allows for more transparency as the history of the costs is simpler to track and report on.

17.4 Please address the following considerations as set out in the checklist:

a) whether, or to what extent, the item is outside of management's control;

b) the degree of forecast uncertainty associated with the item;

c) the materiality of the costs; and

d) any impact on intergenerational equity.

Response:

FBC provides a discussion of the four considerations set out in the Regulatory Account Filing Checklist as follows:

a. The requested deferral account is a regulatory proceeding cost account. Regulatory proceeding cost accounts are necessary because the number and type of regulatory proceedings can vary significantly by year. Further, once a regulatory proceeding is identified, the costs of that proceeding cannot be accurately forecast by the utility given that they can vary substantially, are not known at the time of making the regulatory account request, are unique to the circumstances for each application, may change as the regulatory review process unfolds, and are dependent on factors not within the utility's control. Factors not within the control of the utility include the regulatory process determined by the BCUC and the degree of involvement of interveners.

b. FBC forecasts additions to the deferral accounts based on the expected type of review process and degree of intervener involvement. Actual costs are recorded in the account so that actual, not forecast, costs are recovered in rates.

c. FBC estimates the total costs of this Application will be $0.245 million (pre-tax) for BCUC costs, intervener costs, external legal fees and consultant costs.

d. Generally, FBC recovers the costs of regulatory proceedings over the period of time related to the application, which serves to match the costs and benefits. There are no intergenerational inequities inherent in this practice. Therefore, FBC is requesting to amortize the costs of this Application over five years starting in 2023 to match the time period that the DSM Plan will be in place.

17.5 Please confirm if the proposed regulatory account is a benefit matching account, or explain otherwise.

Response:

Confirmed. FBC generally classifies regulatory proceeding accounts as benefit matching accounts since the costs are recovered over the period of time related to the applications, which serves to match the costs and benefits of the application.

17.6 Please confirm if the proposed regulatory account is a cash account, or explain otherwise.

Response:

Confirmed. Regulatory proceeding cost accounts are cash accounts.

17.7 Please provide an estimate of the regulatory costs, broken down by type of cost (e.g. consultant/expert fees, external legal counsel fees, administrative costs) that FBC anticipates capturing in the proposed deferral account.

Response:

As discussed in the response to BCUC IR1 17.4 (Item c), FBC estimates that the total regulatory costs to be captured in the proposed deferral account will be approximately $0.245 million (pre-tax), which are detailed by type in the table below.

Type of Cost	Amount $
BCUC	$10,000
Interveners	$75,000
Legal	$60,000
Experts/Consultants	$100,000
Total	**$245,000**

17.8 Please clarify whether FBC is proposing to capture the forecast or actual regulatory costs associated with the review of the Application in the proposed deferral account.

17.8.1 If FBC is proposing to capture the actual regulatory costs, please explain why this is appropriate.

Response:

FBC is proposing to capture the actual costs associated with this Application in the deferral account so that actual, not forecast, costs are recovered in rates. This is consistent with how

FBC has always treated regulatory proceeding costs, and it is appropriate given the actual application costs will be easily attributable to the deferral via invoices received from third parties.

17.9 Please provide any other information FBC considers would support the request, as outlined in the Regulatory Account Filing Checklist.

Response:

FBC notes that the requested deferral account is a regulatory proceeding cost account, which is routinely sought by utilities to capture external costs related to the preparation, filing, and regulatory review of applications.

Attachment 1.1

Program Area (Sector)	2019-22 Plan	Expenditures ($000's)						Energy Savings (GWh)						TRC 2023-2027
	Approved 2022	2023	2024	2025	2026	2027	Total	2023	2024	2025	2026	2027	Total	Ratio
Residential	**$2,795**	**$2,946**	**$3,258**	**$3,566**	**$4,015**	**$4,548**	**$18,334**	**5.7**	**6.2**	**6.9**	**7.6**	**8.6**	**35.0**	**1.4**
Home Renovation Rebate Program		$1,940	$2,148	$2,439	$2,767	$3,138	$12,432	5.2	5.7	6.2	6.8	7.6	31.5	1.6
New Construction Program		$435	$518	$521	$626	$765	$2,866	0.5	0.6	0.7	0.8	1.0	3.5	1.0
Labour		$536	$553	$565	$578	$596	$2,828							
Non program specific expenses		$36	$39	$41	$45	$49	$209							
Commercial	**$3,047**	**$3,129**	**$3,416**	**$3,643**	**$3,850**	**$4,012**	**$18,050**	**10.8**	**11.1**	**11.5**	**11.8**	**12.2**	**57.4**	**1.4**
Presciptive Program		$1,131	$1,275	$1,398	$1,508	$1,612	$6,924	5.9	6.1	6.3	6.5	6.7	31.5	1.7
Performance Program		$1,170	$1,288	$1,374	$1,450	$1,484	$6,767	4.7	4.9	5.0	5.1	5.3	25.0	1.1
Rental Apartment Efficiency Program		$45	$46	$46	$47	$48	$232	0.2	0.2	0.2	0.2	0.2	0.8	0.4
Labour		$683	$706	$720	$738	$760	$3,606							
Non program specific expenses		$100	$102	$104	$106	$108	$520							
Industrial	**$1,815**	**$2,119**	**$2,130**	**$2,187**	**$2,196**	**$2,206**	**$10,837**	**8.4**	**8.4**	**8.6**	**8.6**	**8.6**	**42.5**	**2.1**
Presciptive Program		$797	$797	$797	$798	$798	$3,987	5.5	5.5	5.5	5.5	5.5	27.7	2.6
Performance Program		$810	$811	$811	$812	$812	$4,055	2.0	2.0	2.0	2.0	2.0	10.0	1.5
Strategic Energy Management Program		$235	$236	$286	$287	$288	$1,332	0.8	0.8	1.0	1.0	1.0	4.8	1.0
Labour		$277	$286	$292	$299	$308	$1,463							
Non program specific expenses		$0	$0	$0	$0	$0	$0							
Low Income	**$930**	**$1,743**	**$1,730**	**$1,790**	**$1,844**	**$1,934**	**$9,043**	**1.6**	**1.6**	**1.7**	**1.8**	**1.9**	**8.5**	**1.1**
Self Install Program		$61	$61	$68	$68	$75	$333	0.3	0.3	0.4	0.4	0.4	1.7	3.2
Direct Install Program		$680	$660	$663	$668	$671	$3,342	0.4	0.4	0.4	0.4	0.4	2.1	0.7
Presciptive Program		$594	$597	$641	$684	$755	$3,271	0.7	0.8	0.8	0.9	0.9	4.0	1.3
Performance Program		$165	$161	$161	$162	$162	$811	0.1	0.1	0.1	0.1	0.1	0.7	1.6
Labour		$228	$236	$241	$247	$254	$1,206							
Non program specific expenses		$15	$15	$16	$16	$16	$78							
Program sub-total	*$8,587*	*$9,938*	*$10,534*	*$11,186*	*$11,905*	*$12,700*	*$56,264*	*26.5*	*27.3*	*28.7*	*29.8*	*31.3*	*143.4*	*1.5*
Conservation Education and Outreach	**$666**	**$897**	**$978**	**$1,002**	**$1,028**	**$1,163**	**$5,067**							
Customer Engagement Tool		$282	$333	$341	$350	$467	$1,773							
Residential Education		$105	$109	$112	$114	$116	$555							
Commercial Education		$86	$95	$99	$101	$103	$482							
School Education Program		$51	$56	$57	$61	$62	$288							
Labour		$373	$385	$393	$403	$415	$1,970							
Enabling Activities*	**$1,044**	**$1,550**	**$1,600**	**$1,960**	**$1,846**	**$2,046**	**$9,001**							
Trade Ally Network		$166	$187	$153	$162	$165	$833							
Codes & Standards		$422	$510	$643	$744	$927	$3,246							
Reporting Tool & Customer		$95	$84	$317	$88	$89	$673							
Commercial Energy Specialist		$248	$248	$249	$250	$250	$1,245							
Community Energy Specialist		$363	$318	$338	$338	$339	$1,697							
Customer Research		$8	$9	$7	$6	$9	$40							
Labour		$248	$244	$251	$258	$267	$1,268							
Innovative Technologies*		**$485**	**$685**	**$255**	**$318**	**$276**	**$2,019**							
Incentives Costs		$175	$175	$0	$0	$0	$350							
Non-Incentive Costs		$225	$418	$156	$212	$162	$1,174							
Labour		$85	$92	$99	$106	$113	$495							
Demand Response	**$133**	**$773**	**$803**	**$1,316**	**$1,443**	**$1,626**	**$5,962**							**1.0**
Residential Demand Response		$413	$419	$612	$646	$725	$2,815							
Commercial Demand Response		$31	$27	$322	$388	$461	$1,229							
Labour		$330	$357	$382	$409	$440	$1,918							
Portfolio	**$956**	**$813**	**$836**	**$853**	**$872**	**$896**	**$4,270**							
Total	**$11,400**	**$14,455**	**$15,436**	**$16,572**	**$17,412**	**$18,707**	**$82,583**	**27.4**	**27.4**	**28.6**	**29.7**	**31.3**	**143.4**	**1.3**
LT DSM Plan	**$10,600**	**$11,249**	**$11,907**	**$13,139**	**$12,951**	**$14,014**	**$63,259**	**27**	**27.3**	**29.3**	**28.6**	**27.6**	**139.8**	

* Innovative Technologies 2022 budget was included within the Supporting Initiatives Program Area of the approved 2019-22 DSM Plan. Supporting Initatives is now named Enabling Activities, to align with FEI.