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March 31, 2023

British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC
V6Z 2N3

Attention: Sara Hardgrave, Acting Commission Secretary

Dear Sara Hardgrave:

Re: FortisBC Inc. (FBC)
Electricity Demand Side Management (DSM) – 2022 Annual Report

Attached please find the Electricity DSM Program 2022 Annual Report for FBC (the Annual Report)

If further information is required, please contact Sarah Commander, Regulatory Projects Manager at (250) 469-6081.

Sincerely,

FORTISBC INC.

Original signed:

Sarah Walsh

Attachment



FortisBC Inc.

**Electricity
Demand-Side Management Programs
2022 Annual Report**

March 31, 2023

Table of Contents

- 1. REPORT OVERVIEW..... 1**
 - 1.1. Portfolio Level Results..... 1
 - 1.2. Meeting Adequacy Requirements 2
 - 1.3. Funding Transfers and Carryover 3
 - 1.4. Collaboration & Integration 5
 - 1.5. Portfolio Summary 5

- 2. RESIDENTIAL PROGRAM AREA 6**
 - 2.1. Overview 6
 - 2.2. Home Renovation 6
 - 2.3. New Home 7
 - 2.4. Residential Lighting 7
 - 2.5. Rental Apartment..... 8
 - 2.6. Selected Highlights 8

- 3. LOW INCOME PROGRAM AREA 9**
 - 3.1. Overview 9
 - 3.2. Self Install 9
 - 3.3. Direct Install..... 9
 - 3.4. Social Housing Support10
 - 3.5. Selected Highlights10

- 4. COMMERCIAL PROGRAM AREA 11**
 - 4.1. Overview11
 - 4.2. Custom Program11
 - 4.3. Prescriptive Program11
 - 4.4. Selected Highlights12

- 5. INDUSTRIAL PROGRAM AREA 13**
 - 5.1. Overview13
 - 5.2. Custom Program13
 - 5.3. Prescriptive Program14
 - 5.4. Selected Highlights14

- 6. CONSERVATION EDUCATION AND OUTREACH..... 15**
 - 6.1. Overview15
 - 6.2. Residential Education15
 - 6.3. Residential Customer Engagement Tool15
 - 6.4. Commercial Education.....16
 - 6.5. School Education16
 - 6.6. CEO Highlights16

- 7. SUPPORTING INITIATIVES 18**
 - 7.1. Overview18
 - 7.2. Commercial Energy Specialist Program.....18
 - 7.3. Community Energy Specialist Program.....19
 - 7.4. Trade Ally Network19
 - 7.5. Codes and Standards.....19
 - 7.6. Reporting Tool & Customer Application Portal.....20

- 8. PORTFOLIO EXPENDITURES 21**
 - 8.1. Overview21
 - 8.2. Program Evaluation Activities21
 - 8.3. DSM Studies26
 - 8.4. Innovative Technologies.....26

- 9. DEMAND RESPONSE 27**
 - 9.1. Overview27
 - 9.2. Kelowna Area Demand Response Pilot27

- 10. SUMMARY 28**

List of Appendices

Appendix A Detailed Benefit-Cost Ratios

- A-1** DSM Programs Cost and Savings Summary Report For 2022
- A-2** Historical Summary of DSM Cost and Energy Saving Results (2017 – 2021)

Index of Tables and Figures

Table 1-1: DSM Portfolio Summary Results for 2022	2
Table 1-2: 2022 DSM Funding Transfers and Carryover Amounts (\$000s)	4
Table 2-1: 2022 Residential Program Area Results Summary	6
Table 3-1: 2022 Low Income Program Results Summary	9
Table 4-1: 2022 Commercial Program Results Summary	11
Table 5-1: 2022 Industrial Program Results Summary	13
Table 6-1: 2022 Conservation and Outreach Results Summary	15
Table 7-1: 2022 Supporting Initiatives Results Summary	18
Table 8-1: 2022 Portfolio Expenditures Results Summary	21
Table 8-2: Inventory of DSM Program Evaluation and Research Activities	23
Table 9-1: 2022 Demand Response Results Summary	27

1. REPORT OVERVIEW

This Demand-Side Management (DSM) Annual Report (the Report) provides highlights of FortisBC Inc.'s (FBC or the Company) DSM programs for the year ended December 31, 2022, and provides a summary of results achieved in 2022. The Report reviews the progress of FBC's DSM programs in meeting the approved 2019-2022 DSM Plan¹ (Plan) by educating and incenting FBC's customers to conserve energy and improve the energy efficiency of their homes, buildings, and businesses.

Section 1.1 contains a statement of financial results (Table 1-1), including the Total Resource Cost (TRC) benefit/cost ratio cost-effectiveness test results by Program Area for 2022. Section 1.2 sets out how FBC's DSM programs met the requirements of the British Columbia Demand-Side Measures Regulation (DSM Regulation) enacted under the Utilities Commission Act (UCA). Sections 2 through 9 of the Report provide an overview of DSM program activities in 2022 by Program Area, including program-level comparisons of actual energy savings and costs to Plan.

Consistent with previous DSM annual reports, additional details on 2022 program results, cost-effectiveness test results and levelized costs, as well as historical DSM program costs and energy savings are included in Appendix A-1 and Appendix A-2, respectively.

Throughout the Report, any difference in the totals between the DSM Portfolio Overview and Program Area tables are due to rounding. Where "zero" values occur, they may reflect rounding to the nearest \$000 expenditure level when expenditures were under \$500.

1.1. PORTFOLIO LEVEL RESULTS

Table 1-1 provides an overview of FBC's 2022 energy savings, expenditures and TRC cost-effectiveness test results for all DSM programs, by Program Area and at the portfolio level. FBC achieved an overall portfolio TRC of 1.7 on DSM expenditures of \$10.6 million. Electricity savings totalled 35.9 GWh, an increase of 6.2 GWh compared to 2021. All FBC DSM programs passed the TRC test at the Program Area-level.

¹ 2019-2022 DSM Plan expenditures were accepted by the Commission pursuant to Order G-47-19.

1 **Table 1-1: DSM Portfolio Summary Results for 2022**

Program Area	2022 Plan Savings (kWh)	2022 Actual Savings (kWh)	2022 Plan Including Carryover (\$000s)	2022 Actual (\$000s)	Benefit/Cost TRC
Residential	6,511,590	6,830,722	\$ 2,654	\$ 2,513	1.5
Low Income	1,255,346	895,095	\$ 930	\$ 853	1.2
Commercial	15,471,447	10,689,409	\$ 2,927	\$ 2,833	1.2
Industrial	10,076,281	17,453,752	\$ 1,549	\$ 1,622	3.8
Education and Outreach	-	-	\$ 666	\$ 514	-
Supporting Initiatives	-	42,414	\$ 1,069	\$ 1,107	-
Portfolio	-	-	\$ 956	\$ 953	-
Demand Response	-	-	\$ 240	\$ 215	-
Total	33,314,664	35,911,393	\$ 10,991	\$ 10,610	1.7

2
3 FBC's actual 2022 DSM expenditures were 97 percent of 2022 Plan including carryover and the
4 DSM energy savings were 108 percent of Plan. While savings exceeded Plan in the Residential
5 and Industrial Program Areas, they were lower than expected in the Commercial and Low Income
6 Program Areas.

7 **1.2. MEETING ADEQUACY REQUIREMENTS**

8 The 2019-2022 DSM Plan complies with the adequacy requirements of the DSM Regulation,
9 including the most recent amendments that came into effect on March 24, 2017. The DSM
10 Regulation adequacy requirements are as follows:

11 A public utility's plan portfolio is adequate for the purposes of Section 44.1 (8) c of the
12 Act only if the plan portfolio includes all the following:

- 13 a) a demand-side measure intended specifically to either (i) assist residents of low-
14 income households to reduce their energy consumption, or (ii) reduce energy
15 consumption in housing owned or operated by a local government, specified
16 societies and associations, or a governing body of a first nation, if the benefits of
17 the reduction primarily accrue to low-income households occupying the housing,
18 the prescribed housing providers or the first nation governing body if the households
19 in its housing are primarily low-income;
- 20 b) a demand-side measure intended specifically to improve the energy efficiency of
21 rental accommodations;
- 22 c) an education program for students enrolled in schools in the public utility's service
23 area;

- 1 d) an education program for students enrolled in post-secondary institutions in the
2 public utility's service area;
- 3 e) one or more demand-side measures to provide resources as set out in paragraph
4 (e) of the definition of "specified demand-side measure", representing no less than
5 (i) an average of 1% of the public utility's plan portfolio's expenditures per year
6 over the portfolio's period of expenditures; and
- 7 f) One or more demand-side measures intended to result in the adoption by local
8 governments and first nations of a step code or more stringent requirements within
9 a step code.

10 In later sections of the Report, FBC provides further details on how its 2022 DSM activities meet
11 these adequacy requirements. Section 3 of the Report discusses programs and incentives for
12 low-income customers, including Direct Install Program, the Self Install Program and the Social
13 Housing Support Program. With regards to rental apartment buildings, FBC's offers include the
14 Rental Apartment Efficiency Program (RAP), detailed in Section 2.5. Tenants can also access the
15 Direct Install and Self Install offers available to qualifying rental properties.

16 FBC has taken a wide range of initiatives to support K-12 students, such as Energy Leaders,
17 Energy is Awesome, and Energy Champions. In mid-2022, FBC and FEI have collaborated to
18 conduct a review and revamp of the programs to ensure the content is up-to-date and relevant.
19 Additionally, FBC has funded post-secondary student education initiatives, including the UBC
20 Okanagan Smart Energy Chair, and the UBC Okanagan and Okanagan College Green
21 Construction Research and Training Centre's Wilden Living Lab 2 project.

22 FBC provided resources indicated by clause (e) for Codes and Standards (Section 7.5), which
23 are fulfilled through third party funding arrangements. A total of \$110 thousand was invested,
24 which represents 1 percent of the overall Plan for 2022.

25 FBC supported BC Energy Step Code (the "Step Code") adoption through its New Home Program
26 (Section 2.3), new construction offers in the Commercial Custom Program (Section 4.2) and
27 provided progressive rebates to align with the Step Code. It also provided funding for Community
28 Energy Specialists to support energy conservation behaviour campaigns (organizational and
29 community-based) and to promote the Step Code to municipal building inspection staff and local
30 builders and developers (Section 7.3).

31 ***1.3. FUNDING TRANSFERS AND CARRYOVER***

32 BCUC Decision and Order G-47-19 accepting FBC's 2019-2022 DSM Plan Application also
33 approved the continuation of FBC's funding transfer rules that allow transfers between Program
34 Areas of up to 25 percent without prior BCUC approval and also allows FBC to carryover unspent
35 Plan amounts to the subsequent Plan year.

1 The funding transfer rules and carryover rules allow FBC to maximize the use of its total approved
2 portfolio expenditure amount while managing the uncertainties and external factors that can
3 impact program development and delivery.

4 Order G-47-19 directs FBC “to continue filing DSM annual reports with the BCUC in the manner
5 and form of previous years, but to also include information that clearly identifies all funding
6 transfers that occur between Program Areas within a year, and the amounts to be rolled over to
7 the following year for each Program Area”. Furthermore, “[Only] In cases where a proposed
8 transfer into or out of an approved Program Area is greater than twenty five percent of that
9 Program Area’s accepted expenditures for the year in question, prior BCUC approval is required.”

10 In 2021, FBC experienced higher than anticipated demand for its residential, commercial, and
11 industrial program that resulted in a \$526 thousand over expenditure (as outlined in Table 1-2 of
12 the 2021 FBC DSM Annual Report). FBC sought approval from the BCUC to allocate the 2021
13 over expenditure into 2022. In Order G-184-22, the BCUC granted approval, as follows:

14 FBC is approved to carry over \$526 thousand of 2021 over expenditures into
15 2022, as outlined in Table 1-2 of the 2021 FBC DSM Annual Report. The over
16 expenditures will be allocated as follows: \$141 thousand reduction in the
17 Residential Program Area, \$119 thousand reduction in the Commercial
18 Program Area, and \$265 reduction thousand in the Industrial Program Area
19 for the year 2022.

20 The following Table 1-2 shows the 2022 Approved Plan Expenditures (including the carryover
21 approved in Order G-184-22) and 2022 funding transfers between Program Areas. FBC notes
22 that all funding transfers completed in 2022 are within the prescribed 25 percent of Program Area
23 threshold. As 2022 is the final year of the four-year Plan, there are no carryovers of expenditures
24 into 2023.

25 **Table 1-2: 2022 DSM Funding Transfers and Carryover Amounts (\$000s)**

A	B	C	D	E	F
Program Area (Sector)	2022 Approved Plan Expenditures (incl. 2021 Carryover)	2022 Actual Expenditures	2022 Actual Less Plan Expenditures (incl. 2021 Carryover)	2022 Funding Transfer Amount in (out)	Transfer as a percent of Approved Plan (E/B)
Residential	2,654	2,513	-141	-	-
Low Income	930	853	-77	-	-
Commercial	2,927	2,833	-94	-	-
Industrial	1,549	1,622	73	73	5%
Conservation, Education and Outreach	666	514	-152	-111	-17%
Supporting Initiatives	1,069	1,107	38	38	4%
Portfolio	956	953	-3	-	-
Demand Response	240	215	-25	-	-
Total	10,991	10,610	-381	-	

26

1 **1.4. COLLABORATION & INTEGRATION**

2 FBC continues to collaborate and integrate DSM programming among BC's large energy utilities,
3 as well as with other entities such as governments and industry associations. The Company
4 recognizes that doing so will maximize program efficiency and effectiveness.

5 FBC, FortisBC Energy Inc. (FEI), and British Columbia Hydro and Power Authority (BC Hydro)
6 (collectively, the BC Utilities) continued to collaborate on various programs and projects through
7 their voluntary Memorandum of Understanding (MOU), the purpose of which is to develop
8 enhanced utility integration in support of government legislation, policy, and direction.

9 The BC Utilities also continue to experience cost efficiencies from their collaboration efforts,
10 including streamlined application processes for customers, extended program reach, and
11 consistent and unified messaging intended to improve energy literacy.

12 FBC, FEI and the British Columbia Ministry of Energy, Mines and Low Carbon Innovation (EMLI)²,
13 continued to collaborate in 2022. FBC's collaboration with EMLI on CleanBC initiatives includes
14 administering incentives and enabling applications for CleanBC rebates through FBC's
15 application processes to provide a streamlined customer experience.

16 Although collaborative activities are captured in Program Area sections, the tables contained
17 throughout the Report include only expenditure and savings information for FBC's expenditure
18 portfolio.

19 **1.5. PORTFOLIO SUMMARY**

20 FBC's DSM portfolio met the goal of cost effectiveness, with a portfolio level TRC Benefit/Cost
21 ratio of 1.7 in 2022. FBC believes that both energy savings accounted for in the portfolio and the
22 resulting TRC are conservative, thus likely understated.

23 In addition to the direct energy benefits accounted for in the TRC, benefits from additional
24 activities, such as CEO, Supporting Initiatives and Demand Response, play an important role in
25 supporting the development and delivery of programs, while helping facilitate market
26 transformation in British Columbia.

² Formerly known as the Ministry of Energy, Mines and Petroleum Resources (MEMPR).

2. RESIDENTIAL PROGRAM AREA

2.1. OVERVIEW

The Residential Program Area achieved aggregate electricity savings of 6.8 GWh and an overall TRC of 1.5. Approximately \$2.5 million was invested in Residential energy efficiency programs in 2022, compared to \$2.9 million in 2021, and 77 percent of those expenditures were incentives to customers. The energy savings achieved from Residential programs were 105 percent of Plan.

The Residential Program Area predominantly includes residential customers living in detached dwellings, townhomes, mobile homes, and rental apartments. Program offers include both retrofit and new home offers. Residential programs, in combination with education and outreach activities, play an important role in driving the culture of conservation in British Columbia.

Table 2-1 summarizes the actual expenditures for the Residential Program Area in 2022 compared to Plan, including incentive and non-incentive spending, and annual electric savings.

Table 2-1: 2022 Residential Program Area Results Summary

Program	Savings (kWh)		Plan (\$000s)	Actual Expenditures (\$000s)		
	Plan	Actual	Total	Total	Incentive	Non-Incentive
Home Renovation	4,752,296	4,201,473	\$ 1,661	\$ 1,185	\$ 1,177	\$ 8
New Home	778,285	613,449	\$ 430	\$ 637	\$ 620	\$ 17
Lighting	832,816	2,015,800	\$ 122	\$ 116	\$ 114	\$ 2
Rental Apartment	148,193	-	\$ 54	\$ 27	\$ 26	\$ 1
Labour and Expenses	-	-	\$ 527	\$ 548	-	\$ 548
Total	6,511,590	6,830,722	\$ 2,795	\$ 2,513	\$ 1,936	\$ 577
Plan including 2021 carryover of (\$141)			\$ 2,654			

2.2. HOME RENOVATION

The Home Renovation Rebate (HRR) program encourages customers to take a whole home approach to their energy efficiency upgrades by consolidating space heating, water heating, and building envelope measures into an overarching program.

In 2022, the HRR program was a collaboration between the BC Utilities and EMLI's CleanBC Better Homes program.

Notable highlights for the year include the following:

- Heat pump adoption remained strong with over 460 participating customers. To drive market transformation, FBC and its program partners increased the efficiency requirements for Tier 2 Central Ducted and Ductless mini split heat pumps.

- 1 • FBC and program partners continued to support the evolving Home Performance industry
2 through trades outreach, training, and development of contractor accreditation initiatives
3 such as the Home Performance Contractor Network (HPCN).
 - 4 • In addition to site visits for program compliance and quality installation, FBC and its
5 program partners integrated HPCN accreditation as an HRR program requirement for
6 Heat Pumps to drive the market adoption of best practice installation. These activities
7 provide value to customers through increased performance and longevity of installed
8 equipment and improved comfort of their homes. Funding for these activities is outlined in
9 Section 7.4 Supporting Initiatives, Trade Ally Network.
 - 10 • FBC saw lower than anticipated participation in its heat pump water heater incentives due
11 to reduced heat pump water heat availability due to supply chain issues and a shortage of
12 experienced contractors. FBC continues to work with program partners to increase training
13 opportunities for contractors to increase the adoption of heat pump water heaters.
- 14 Point-of-sale retail rebates were also captured under the HRR Program Area. This included a
15 comprehensive suite of measures including weatherization, water savers, communicating
16 thermostats and bathroom fans. Lighting measures were also included in this campaign and are
17 described in Section 2.4.

18 **2.3. NEW HOME**

19 FBC's new home incentives align with the five tiers of the BC Energy Step Code for Part 9
20 Buildings, as directed in the 2017 Amendment to the DSM Regulation. The Amendment supports
21 the BC Utilities' ability to provide incentives for builders who adopt and comply with the Energy
22 Step Code in municipalities across BC.

23 The New Home Program saw participants advancing to Step 3 and Step 4 of the BC Energy Step
24 Code and further uptake of appliance incentives. Additionally, FBC collaborated with FEI, BC
25 Hydro, EMLI, and BC Housing to provide education to builders and energy advisors, and to
26 support policy regarding the construction of High Performance Homes in BC.

27 In fall 2020, the New Home program provided enhanced incentives of \$2,000 per Step Code level.
28 The improved incentives drove additional participation and will remain in market into 2023
29 allowing builders to plan for the incorporation of energy efficient measures and execute plans over
30 the life of the project.

31 **2.4. RESIDENTIAL LIGHTING**

32 Point-of-sale rebates for lighting and other qualifying retail products were offered during a spring
33 campaign. The initiative resulted in exceeding planned savings by over 140 percent. The spring
34 campaign marked the end of residential LED lightbulb rebates due to increased minimum
35 efficiency requirements for directional and general service lamps (GSL) sold in British Columbia
36 that now make high-efficiency bulbs the baseline.

1 **2.5. RENTAL APARTMENT**

2 There are three components to the Rental Apartment program (RAP):

- 3 1. To provide direct install in-suite energy efficiency measures for occupants (renters) in multi-
4 family rental properties;
- 5 2. To provide rental building owners and/or property management companies with energy
6 assessments recommending building level energy efficiency upgrades, such as common area
7 lighting upgrades; and
- 8 3. To provide support in implementing the recommended upgrades and applying for rebates.

9 The RAP is offered jointly by FEI and FBC in the shared service territory (SST) and by FEI outside
10 the SST. Participation in 2022 was lower than anticipated due to several factors including
11 continuing COVID-19 restrictions and a decreasing number of qualifying buildings. To address
12 lower than anticipated participation in the RAP, FEI and FBC plan to begin a program redesign in
13 2023 to incorporate recent findings from program evaluation.

14 **2.6. SELECTED HIGHLIGHTS**

15 The Residential Program Area delivered 6.8 GWh of energy savings with expenditures of \$2.5
16 million, generating a TRC of 1.5. In 2022, the Home Renovation and Lighting programs
17 contributed the most to the Program Area's energy savings. By offering financial incentives, policy
18 support, contractor outreach, and education, FBC's Residential programs enabled customers to
19 upgrade their lighting, appliances, and homes to capture ongoing energy savings and supported
20 on-going market transformation in the residential sector.

3. LOW INCOME PROGRAM AREA

3.1. OVERVIEW

FBC collaborates with FEI and BC Hydro to deliver programs under the Low Income Program Area. This Program Area serves low income customers, Indigenous housing, co-operative housing, non-profit housing, and charities that aid low income customers. In 2022, FBC invested \$853 thousand, an increase from the \$842 thousand invested in 2021, and achieved 0.9 GWh in energy savings. The TRC achieved for 2022 was 1.2.

Table 3-1 summarizes the actual expenditures for the Low Income Program Area in 2022 compared to Plan, including incentive and non-incentive spending, and annual electric savings.

Table 3-1: 2022 Low Income Program Results Summary

Program	Savings (kWh)		Plan (\$000s)	Actual Expenditures (\$000s)		
	Plan	Actual	Total	Total	Incentive	Non-Incentive
Self Install (ESK)	249,401	196,402	\$ 74	\$ 28	\$ 28	\$ -
Direct Install (ECAP)	896,265	494,436	\$ 728	\$ 406	\$ 295	\$ 111
Social Housing Support	109,680	204,257	\$ 60	\$ 246	\$ 230	\$ 16
Labour and expenses	-	-	\$ 68	\$ 174	\$ -	\$ 174
Total	1,255,346	895,095	\$ 930	\$ 853	\$ 553	\$ 300

3.2. SELF INSTALL

The Self Install Program provides energy savings to low income participants through the provision of an Energy Saving Kit (ESK). The ESK includes energy saving measures, a manual with step-by-step installation instructions, as well as access to online “How-To” videos for easy installation. This program makes energy efficient measures accessible and easy to install for the participants.

The Self Install Program achieved 38 percent of Plan expenditures and 79 percent of Plan savings. In addition to the standard ESKs provided to customers, FBC re-engaged past participants to offer them additional energy saving measures such as window film, patio door film, and caulking. The Program was promoted through on-line digital promotions, bill inserts, customer contract centre referrals, as well as through a partnership with the Ministry of Social Development and Social Innovation. Despite promotional activities being consistent with prior years, participation in 2022 was lower than anticipated. This could be due to shifting customer priorities, as a result of the recent COVID-19 pandemic or competing offers in the market which offered higher incentives for various measures and upgrades.

3.3. DIRECT INSTALL

The Direct Install Program, a collaborative effort between FEI and BC Hydro, provides low income participants with an in-home visit from a contractor to assess their home's energy efficiency and

1 install basic measures (e.g., LED lighting, high efficiency showerheads, etc.) as well as offer
2 energy efficiency coaching. Additionally, some participants may qualify to receive more
3 comprehensive upgrades, like fridges and insulation.

4 In 2022, after several years in market, the Direct Install Program achieved less than the expected
5 Plan expenditures and savings due to decreasing opportunities with non-profit housing providers
6 in the region. Participation in 2022 was similar to that achieved in 2020 and 2021. Additionally,
7 although the program completed more work in manufactured homes, there were fewer overall
8 opportunities for the installation of comprehensive measures, such as insulation and fridges, for
9 participants in other housing types. Given these challenges, the Program was primarily promoted
10 to individual low income customers through community outreach efforts, partner referrals,
11 customer contact centre referrals, and direct mail campaigns to past participants of the Self Install
12 Program.

13 **3.4. SOCIAL HOUSING SUPPORT**

14 The Social Housing Support Program (SHSP) provides rebates, implementation support, funding
15 for energy studies, training to housing providers, as well as prescriptive rebates for measures
16 such as lighting and heat pump heating systems. Furthermore, Indigenous communities receive
17 additional measures for health and safety, ventilation, air sealing, insulation, and appliance
18 maintenance. In 2022, the SHSP exceeded its Plan expenditures and Plan savings by 312 and
19 86 percent respectively. These results can be attributed to the uptake of the residential heat pump
20 offer by low income customers and the continued uptake of offers by Indigenous communities for
21 both retrofit and new construction projects. The variance between expenditures and savings is
22 partly due to the number of support incentives provided, such as energy studies, which do not
23 claim savings and the uptake of more residential rebates over commercial rebates. This program
24 was mainly promoted through one-to-one outreach efforts and partner referrals.

25 **3.5. SELECTED HIGHLIGHTS**

26 The Low Income Program Area achieved 92 percent of Plan expenditures and 71 percent of Plan
27 savings, generating a TRC of 1.2. Participation in the Self Install and Direct Install Programs,
28 which typically account for a large portion of the Low Income Program Area expenditures and
29 savings, was lower than expected; however, the uptake of the residential heat pump offer for low
30 income customers and the participation of Indigenous communities in offers has sustained the
31 positive performance of the SHSP, helping to make up the shortfall in the other programs.

4. COMMERCIAL PROGRAM AREA

4.1. OVERVIEW

Commercial DSM programs have successfully encouraged commercial customers, including institutions and government, to reduce their electricity consumption and associated energy costs. The Commercial programs have achieved an overall TRC of 1.2 in 2022 and produced aggregate electricity savings of nearly 10.7 GWh. Expenditures for the Commercial programs totalled \$2.8 million, of which 72 percent was in the form of incentives.

Table 4-1 summarizes the actual expenditures for the Commercial Program Area in 2022 compared to Plan, including incentive and non-incentive spending, and annual electric savings.

Table 4-1: 2022 Commercial Program Results Summary

Program	Savings (kWh)		Plan (\$000s)	Actual Expenditures (\$000s)		
	Plan	Actual	Total	Total	Incentive	Non-Incentive
Commercial Custom	6,804,000	4,230,269	\$ 1,097	\$ 717	\$ 706	\$ 11
Commercial Prescriptive	8,667,447	6,459,140	\$ 1,059	\$ 1,527	\$ 1,333	\$ 194
Labour and expenses	-	-	\$ 891	\$ 589	\$ -	\$ 589
Total	15,471,447	10,689,409	\$ 3,047	\$ 2,833	\$ 2,039	\$ 794
Plan including 2021 carryover of (\$119)			\$ 2,927			

4.2. CUSTOM PROGRAM

FBC and FEI provide incentives to encourage participants to pursue a performance based approach to achieve electricity savings in new and existing commercial buildings. The program encourages detailed analysis of integrated energy saving measures to help identify all technically feasible and cost effective energy savings, and then follows up by providing support for the implementation of those measures. For new buildings, FBC and FEI offered custom program pathways for support of both BC Energy Step Code-aligned buildings and non-aligned buildings.

FBC, FEI, and BC Hydro also jointly operate the Continuous Optimization recommissioning offer, which identifies building operational improvements.

4.3. PRESCRIPTIVE PROGRAM

This program provides rebates for the installation of high efficiency electric equipment in various applications including lighting, space heating, commercial kitchen, commercial laundry, and refrigeration. Simple rebates are provided for equipment that meets specific performance standards, as opposed to the Custom Program, which requires more detailed analysis of measures as installed. The program makes use of midstream and downstream rebate delivery approaches, as warranted by the specifics of each appliance type and the market it is intended to

1 serve. In 2022, FBC focused on revamping the commercial heat pump offer, which rolled out in
2 March 2023.

3 **4.4. SELECTED HIGHLIGHTS**

4 The Commercial Program Area enabled commercial and institutional customers to conduct both
5 simple and comprehensive energy efficiency upgrades at their buildings in 2022, resulting in
6 nearly 10.7 GWh of energy savings, generating a TRC of 1.2.

7 The Commercial Program Area achieved nearly 93 percent of Plan expenditures and 69 percent
8 of Plan savings in 2022. The difference between Plan expenditures and savings can be attributed
9 to the higher than expected number of energy studies that were completed, which do not result
10 in annual electric savings but will likely result in increased savings in the Performance program in
11 the future. Additionally, a high percentage of new construction projects were completed, which
12 typically have a lower incentive to savings ratio than retrofit projects.

5. INDUSTRIAL PROGRAM AREA

5.1. OVERVIEW

Industrial DSM programs successfully encouraged industrial customers to consume electricity more efficiently, resulting in actual savings surpassing Plan in 2022. The DSM program in the industrial sector proved highly effective, resulting in 17.5 GWh of electricity saved, exceeding the 2021 savings by 8.8 GWh. The 2022 expenditures totalled \$1.6 million of which 88 percent was offered as incentives, leading to a TRC of 3.8.

Table 2-1 summarizes the actual expenditures for the Industrial Program Area in 2022 compared to Plan, including incentive and non-incentive spending, and annual electric savings.

Table 5-1: 2022 Industrial Program Results Summary

Program	Savings (kWh)		Plan (\$000s)	Actual Expenditures (\$000s)		
	Plan	Actual	Total	Total	Incentive	Non-Incentive
Industrial Custom	8,226,000	7,500,763	\$ 1,308	\$ 605	\$ 600	\$ 5
Industrial Prescriptive	1,850,281	9,952,989	\$ 308	\$ 832	\$ 830	\$ 3
Labour and expenses	-	-	\$ 199	\$ 185	\$ -	\$ 185
Total	10,076,281	17,453,752	\$ 1,815	\$ 1,622	\$ 1,430	\$ 193
Plan including 2021 carryover of (\$265)			\$ 1,549			

The Industrial Program Area is characterized by large intermittent projects that occur less frequently and take much longer to complete, and the realization of energy savings may shift to the following year(s).

5.2. CUSTOM PROGRAM

This program provides incentives to encourage participants to pursue a performance-based approach to achieve electricity savings in new and existing industrial facilities. The program encourages detailed analysis of integrated energy saving measures to help identify technically feasible and cost-effective energy savings, and then follows up by providing support for the implementation of those measures.

Additionally, in 2022, FBC continued its Strategic Energy Management (SEM) pilot that extended the FEI SEM cohort offer to seven customers in the FBC service territory. The SEM cohort provided industrial participants with consultant support in energy modelling, energy efficiency coaching, and strategic planning to pursue a performance-based approach to electricity savings in existing industrial facilities.

1 **5.3. PRESCRIPTIVE PROGRAM**

2 This program provides rebates for the installation of high efficiency electric equipment in various
3 applications including lighting, space heating, irrigation, variable speed drives and certain
4 compressed air equipment. Simple rebates are provided for equipment that meets specific
5 performance standards, as opposed to the Custom Program, which requires more detailed
6 analysis of measures as installed. The program makes use of midstream and downstream rebate
7 delivery approaches, as warranted by the specifics of each appliance type and the market it is
8 intended to serve.

9 In January 2022, a prescriptive rebate for horticultural LED lighting was launched to meet
10 increasing demand for indoor agricultural LED lighting projects, particularly for the cannabis and
11 traditional greenhouse sectors. Participation in the new horticultural LED lighting rebates were a
12 significant driver of 2022 expenditures and savings, resulting in higher than anticipated cost-
13 effectiveness.

14 **5.4. SELECTED HIGHLIGHTS**

15 The Industrial Program Area activity in 2022 enabled industrial customers to conduct both simple
16 and comprehensive energy efficiency upgrades at their buildings, resulting in 17.5 GWh of annual
17 energy savings, generating a TRC of 3.8.

18 The Industrial Program Area achieved more than 89 percent of Plan expenditures and significantly
19 exceeded the Plan savings by more than 73 percent in 2022. This was primarily due to higher
20 than forecast Prescriptive projects (particularly LED indoor agricultural lighting) completing and
21 receiving incentive payment in 2022.

6. CONSERVATION EDUCATION AND OUTREACH

6.1. OVERVIEW

The Conservation Education and Outreach (CEO) Program Area continued to support the DSM Portfolio goals of energy conservation through a variety of initiatives and campaigns to foster a culture of conservation. FBC ensured these initiatives provided timely and relevant information about behaviour change and customer attitudes on efficiency, while also prioritizing the education of all types of customers and students (who are future customers). In 2022, FBC and FEI collaborated to maximize efficiencies across both utilities, while costs were shared on school, residential, and commercial outreach, as applicable.

Actual expenditures were 77 percent of Plan and are summarized below in Table 6-1.

Table 6-1: 2022 Conservation and Outreach Results Summary

Program	Plan (\$000s)	Actual (\$000s)
Residential Education Program	\$ 234	\$ 278
Residential Customer Engagement Tool	\$ 340	\$ 121
Commercial Education Program	\$ 30	\$ 54
School Education Program	\$ 61	\$ 61
Total	\$ 666	\$ 514

6.2. RESIDENTIAL EDUCATION

FBC leveraged its "We've got rebates" campaign to raise awareness of their rebate programs throughout the heating season. Along with FEI, FBC enhanced the municipal landing page to support municipalities in promoting rebates and energy conservation. To further engage residential customers, FBC organized Fresh Air Cinema Events and outreach activities at South Okanagan food banks, encouraging energy conservation.

6.3. RESIDENTIAL CUSTOMER ENGAGEMENT TOOL

My Energy Use is an enhancement to Account Online which provides customers a better understanding of their home's energy use. The tool launched in June 2021. Through the My Energy Use portal (the Portal), customers can receive personalized insights into their individual home's energy use and earn rewards in the form of a bill credit for completing actions to become more energy efficient. Through the Portal, FBC is able to use the data collected to enhance program recruitment and participation in its programs. In addition to the Portal, FBC sends six home energy reports during the year to approximately 12,000 customers. The reports help customers understand their energy use in comparison to energy used by similar homes and encourages customers to reduce their energy through actionable advice. Lower expenditures

1 than expected can be attributed to the later than anticipated launch date, resulting in fewer reports
2 sent out and fewer customer incentives.

3 **6.4. COMMERCIAL EDUCATION**

4 In collaboration with FEI, FBC funded 24 small- to medium-sized business energy assessments
5 in interior BC communities serviced by FBC, providing customers with advice on saving energy
6 and informing them of rebates on high-efficiency upgrades. After a few years of implementing
7 medium-sized business energy assessments, it was identified that most of the urban centres in
8 the southern interior had already participated in the program. This resulted in lower program
9 participation in 2022 compared to past years. The program also continued to offer information on
10 electricity conservation and energy literacy to customers and the public. To ensure continued
11 support to the business community, FBC worked with its vendor to deliver the program both
12 virtually and in-person. Customers were enrolled in the program through the customer contact
13 centre and by outbound calling by the vendor.

14 FEI and BC Hydro's continuation of their partnership with FBC's commercial education program
15 in 2022 saw increased expenditures to drive program participation and to promote awareness of
16 Commercial rebate programs, particularly for small to medium-sized businesses. This was
17 achieved through collaboration on the Energy Wise Network Program, which helps engage
18 workplaces to save energy through training, peer networking, campaign toolkits, and energy
19 coaching.

20 **6.5. SCHOOL EDUCATION**

21 FBC's Energy Leaders offers curriculum-connected lesson plans and presentations for grades K-
22 12 that focus on energy literacy, conservation, and efficiency. Energy is Awesome delivered
23 conservation messaging for students in the K-5 grades. After six years in market, the educational
24 programs are being redeveloped. Lower than anticipated expenditures were due to the
25 redevelopment process being postponed to 2023.

26 For students enrolled in post-secondary institutions, FBC delivered virtual presentations about
27 demand side management policies and programs in British Columbia, as well as employment
28 opportunities within the energy management sector. It also co-sponsored a UBC Okanagan Smart
29 Energy research chair to study optimal energy use and resilient and green infrastructure, which
30 included sponsorship of the Wilden Living Lab 2 project.

31 **6.6. CEO HIGHLIGHTS**

32 In 2022, FBC and FEI furthered their collaboration with the purpose of maximizing efficiencies
33 across both utilities. They shared costs for school, residential and commercial outreach, as
34 applicable. The Commercial, Residential, and School Education Programs are not incentive-
35 based and therefore, FBC does not attribute direct savings to them. Program expenditures are
36 part of the overall DSM Portfolio cost-effectiveness results. These initiatives were created to
37 encourage a culture of energy conservation through activities and messaging that promote

- 1 conservation awareness, support energy efficiency literacy, and help increase program
- 2 participation.

1 7. SUPPORTING INITIATIVES

2 7.1. OVERVIEW

3 The Supporting Initiatives Program Area actively promotes conservation and energy management
4 goals through co-funding of Energy Specialist positions and organizing energy conservation
5 events in the community. Most Supporting Initiatives activities are non-incentive based and thus
6 FBC has not attributed any direct savings to them. The program costs are included in the overall
7 portfolio cost-effectiveness results, as well as other expenses such as office expenditures and
8 tracking system expenses.

9 Table 7-1 summarizes the actual expenditures for the Supporting Initiatives Program Area in 2022
10 compared to Plan.

11 **Table 7-1: 2022 Supporting Initiatives Results Summary**

Program	Savings (kWh)	Plan (\$000s)	Actual Expenditures (\$000s)		
	Total	Total	Total	Incentive	Non-Incentive
Commercial Energy Specialist	42,414	\$ 64	\$ 163	\$ 163	\$ -
Community Energy Specialist	-	\$ 265	\$ 169	\$ 169	\$ -
Trade Ally Network	-	\$ 212	\$ 104	\$ -	\$ 104
Codes and Standards	-	\$ 123	\$ 110	\$ -	\$ 110
Reporting Tool & Customer Portal	-	\$ 65	\$ 263	\$ -	\$ 263
Labour and Expenses	-	\$ 315	\$ 298	\$ -	\$ 298
Total	42,414	\$ 1,044	\$ 1,107	\$ 331	\$ 775
Plan including 2021 carryover of \$24		\$ 1,069			

12

13 7.2. COMMERCIAL ENERGY SPECIALIST PROGRAM

14 The Commercial Energy Specialist Program is a successful joint venture between FBC and FEI
15 that funds Energy Specialist, Energy Analyst and Thermal Energy Manager positions in large
16 commercial organizations, including institutional and local government customers. FBC and FEI
17 both contribute \$40 thousand per year on an annual contract for these positions, with the purpose
18 of finding and implementing energy-efficiency opportunities for their organizations through FBC's
19 and FEI's DSM programs, as well as other non-program specific initiatives. Eight participants took
20 part in the SST in 2022, and FBC classified this program as an energy management program and
21 a specified demand-side measure, as outlined in the DSM Regulation.

22 This program is funded to encourage activities that result in energy savings and program
23 participation in the Commercial Program Area. Commercial Energy Specialist Program
24 expenditures were higher in 2022 than expected due to more organizations and positions being
25 funded than initially anticipated. An evaluation was conducted in 2022 to quantify savings that

1 were not already captured in the Commercial Program Area. The evaluation study identified an
2 additional 59,711 kWh of energy savings not previously captured in the Commercial Program
3 Area.

4 **7.3. COMMUNITY ENERGY SPECIALIST PROGRAM**

5 The Community Energy Specialist Program funded five positions in local municipal governments
6 and regional districts for 2022, including a participant from the Okanagan Nation Alliance, to
7 facilitate energy efficiency planning activities. These activities include coordinating development
8 of community energy plans, developing and promoting community-level energy policies,
9 marketing initiatives to promote conservation and efficiency at the community level, and adopting
10 energy efficient design practices and policies in government and regional district buildings.

11 **7.4. TRADE ALLY NETWORK**

12 FBC recognizes the important role that contractors, electricians, distributors, and Point of Sale
13 partners play in influencing residential and commercial customers when making energy efficiency
14 decisions. To support and supplement DSM program development and delivery, the Trade Ally
15 Network (TAN) provides FBC with a direct communication channel with these industry
16 stakeholders. TAN also offers co-op funding for advertising and targeted messaging about energy
17 efficiency and FBC's DSM rebate programs, as well as funding for eligible training courses related
18 to energy efficient measures. Through TAN, FBC is advancing energy efficiency messaging and
19 promoting its DSM programs.

20 FBC is dedicated to providing training on the best practices for installing high-efficiency electric
21 appliances and educating TAN members to ensure they remain competitive and flexible.
22 Additionally, FBC is partnering with BC Hydro and EMLI's CleanBC Better Homes to launch a
23 contractor accreditation initiative led by the Home Performance Stakeholder Council. This
24 includes contractors participating in best practices training and quality assurance checks. This
25 initiative began with heat pump and insulation contractors and plans to expand to fenestration
26 contractors, HVAC contractors, and Energy Advisors in 2023.

27 **7.5. CODES AND STANDARDS**

28 The Canadian Standards Association (CSA) and FBC completed a three-year funding agreement
29 to support projects related to the review, update and development of codes and standards, such
30 as: CSA C656: Performance standard for split-system and single-package air conditioners and
31 heat pumps; CSA C700: Load-based, climate-specific testing & rating procedure for heat pumps
32 and air conditioners; and CSA EXP-10: Load-based and climate-specific testing and rating
33 procedures for split system air-to-water heat pumps for domestic hot water service. FBC has also
34 been part of several committees, such as CSA Communities and the CSA Technical Committee
35 on Heating Ventilation Air Conditioning and Refrigeration, to contribute to the development of
36 codes and standards. FBC is committed to continuing its participation in these projects and
37 committees in 2023.

1 **7.6. REPORTING TOOL & CUSTOMER APPLICATION PORTAL**

2 In 2020, FBC and FEI jointly launched a reporting tool and customer application portal to track all
3 current DSM programs. Customers can use the online portal to apply for rebates and track a
4 rebate's status. FBC and FEI also benefit from the tracking software, which provides in-depth
5 reporting. Moreover, the tool is fully integrated with other technologies such as Account Online
6 and SAP.

7 Expenditures in this Program Area related to platform licensing, contractor support, and efforts to
8 integrate and maintain DSM programs in the reporting tool and customer application portal. In
9 2022, the Program Area saw increased expenditures associated with streamlining the customer
10 experience and migrating the platform to the Microsoft PowerApps licensing model.

1 8. PORTFOLIO EXPENDITURES

2 8.1. OVERVIEW

3 Portfolio expenditures for 2022 aligned with Plan at slightly below \$1 million. Portfolio
4 expenditures are comprised largely of planning and evaluation activities, as well as staffing costs
5 and consultant fees for the numerous studies and Innovative Technology pilots.

6 **Table 8-1: 2022 Portfolio Expenditures Results Summary**

Program	Plan (\$000s)	Actual (\$000s)
Monitoring and Evaluation	\$ 124	\$ 148
DSM Studies	\$ 32	\$ 57
Innovative Technologies	\$ 212	\$ 195
Labour and Expenses	\$ 588	\$ 553
Total	\$ 956	\$ 953

7 The Energy Efficiency and Conservation Advisory Group (EECAG) engaged with FBC and FEI to
8 provide input on both their electric and natural gas portfolios. EECAG members discussed key
9 topics such as feedback on the draft 2023-2027 FBC DSM Expenditure Plan and an overview of
10 the Kelowna Area Demand Response Pilot during two partial day engagement sessions in 2022.
11 Costs related to engaging EECAG are included in FBC's Portfolio expenses and their insight and
12 feedback on FBC's Portfolio of DSM activities and future DSM planning are invaluable.

13 8.2. PROGRAM EVALUATION ACTIVITIES

14 Primary types of Evaluation, Measurement and Verification (EM&V) activities include the
15 following:

- 16 • Process evaluations, where surveys and interviews of participants and trade allies are
17 used to assess customer satisfaction and program success;
- 18 • Impact evaluations, to measure the achieved energy savings attributable from the
19 program, including free-ridership and spill-over³ impacts; and
- 20 • Measurement & Verification (M&V) activities, to confirm project specific energy savings
21 associated with measures undertaken by customers.

22 In 2022, approximately \$148 thousand was invested in Evaluation activities, 19 percent more than
23 Plan, due to the increased size of some projects. Table 8-2 illustrates the 2022 DSM Program
24 evaluation and research activities conducted by FBC in collaboration with utility partners FEI and

³ Free-ridership refers to participants who would have participated in the absence of the program and spillover refers to additional reductions in energy consumption or demand that are due to program influence.
Reference: National Renewable Energy Laboratory, <https://www.nrel.gov/docs/fy17osti/68578.pdf>

- 1 BC Hydro. The table contains a comprehensive list of the evaluation activities, their respective
- 2 Program Areas, the general types of evaluation activities, and the status updates for each activity.

1 **Table 8-2: Inventory of DSM Program Evaluation and Research Activities⁴**

Program Name / Evaluation Name	Program Area	Type of Evaluation	Evaluation Partners	Evaluation Description and Status
Commercial Product Rebate Program	Commercial & Industrial	Process & Impact	FBC	Evaluation of the program delivery, review of measures and incentive levels, determine free-ridership, and identify opportunities and areas for improvement. To be completed Q1 2023 Consultant: Mazzi Consulting Services
Commercial Energy Specialist Program Evaluation 2021	Supporting Initiatives	Process & Impact	FBC, FEI	The evaluation study includes program and industry stakeholder surveys and an energy savings audit on projects completed in 2021. Completed in 2022 Consultant: Prism Engineering
Commercial Energy Specialist Energy Audit 2022 Update	Supporting Initiatives	Impact	FBC, FEI	The study is an update to an energy savings audit to verify energy savings from projects completed in 2022. To be completed Q2 2023 Consultant: Prism Engineering
Community Energy Specialist Program Evaluation 2021	Supporting Initiatives	Process	FBC, FEI	Program evaluation consisting of a process evaluation and interviews with internal and external stakeholders to gather feedback for future program design. Completed in 2022 Consultant: Prism Engineering
Rental Apartment Program Participant and Building Owner Surveys	Residential	Process	FBC, FEI	Ongoing survey conducted with building owners and tenants to assess customer satisfaction, program awareness, and gather feedback for future program design. 2021 results completed in 2022 2022 results to be completed Q2 2023 Consultant: Cohesium Research
Rental Apartment Program Performance Testing	Residential / Commercial	Process	FBC, FEI.	Ongoing equipment performance testing for RAP participants. Contractor: FRESCo Building Efficiency

⁴ Table 8-2 does not include Prefeasibility Studies. Please refer to the Innovative Technologies section (Section 8.4) for details.

Program Name / Evaluation Name	Program Area	Type of Evaluation	Evaluation Partners	Evaluation Description and Status
Direct Install (ECAP) Quality Assurance	Low Income	Evaluation Study	FBC, FEI, BC Hydro	Ongoing quality assurance to ensure direct install measures are installed according to program policies and procedures. Contractors: Ecofitt, Ecolighten Energy Solutions, It's On Electric Company
Ongoing Direct Install (ECAP) Customer Feedback Surveys	Low Income	Process	FBC, FEI, BC Hydro	Ongoing surveys with Direct Install program participants to gather feedback on their customer experience, satisfaction with the program and the program representatives. Completed Q1 2023 Consultant: Sentis Market Research
Commercial New Construction Program Evaluation	Commercial	Process & Impact	FBC, FEI	Evaluation of the program from design to delivery, including assessment of incentive levels and free-ridership, and understanding the impact of program changes, and identifying opportunities and areas for improvement. Completed in 2022 Consultant: Econoler Inc.
Customer Engagement Tool Service Quality Research	Conservation Education and Outreach	Process	FBC, FEI	Customer experience and satisfaction with the Home Energy Report. Q1 through Q3 reports completed in 2022 Q4 report to be completed Q1 2023 Consultant: Sentis Market Research
Customer Engagement Tool Evaluation - Year 1	Conservation Education and Outreach	Impact	FBC, FEI	Evaluation of the overall program, validation of the treatment and control group selection, and net savings attributed to the distribution of the Home Energy Reports. Completed in 2022 Consultant: Econoler Inc.
Customer Engagement Tool Evaluation - Year 2	Conservation Education and Outreach	Process & Impact	FBC, FEI	Evaluation of the overall program, validation of the treatment and control group selection, and net savings attributed to the distribution of the Home Energy Reports. To be completed Q2 2023 Consultant: Econoler Inc.

Program Name / Evaluation Name	Program Area	Type of Evaluation	Evaluation Partners	Evaluation Description and Status
FortisBC EM&V Framework Review	Portfolio	Process	FBC, FEI	A comprehensive research study including literature review and interviews with key stakeholders to identify key findings and prioritize recommendations to update the EM&V Framework. To be completed Q3 2023 Consultant: TetraTech Inc.
Commercial New Construction Third-Party Energy Model Reviews	Commercial	Measurement & Verification	FBC, FEI	Regular third-party reviews of the inputs and results of energy models employed for incentivized Commercial new construction projects. Consultant: Focal Engineering

1

1 **8.3. DSM STUDIES**

2 DSM studies undertake key research, (e.g., end-use surveys), and support long-term planning
3 such as Conservation Potential Reviews (CPR). The Company's 2022 DSM studies primarily
4 consisted of completing a building electrification study as follow up to the 2016 and 2020 CPRs.

5 **8.4. INNOVATIVE TECHNOLOGIES**

6 Innovative technology funding supports the development, or increased use, of a "technology, a
7 system of technologies, or a building or industrial facility design that could achieve significant
8 reductions of energy usage or significantly more efficient use of energy"⁵. FBC uses innovative
9 technology funding to support feasibility studies, technology pilots, and field studies to assess the
10 potential for these technologies.

11 In 2022, FBC funded several innovative technology studies, including:

- 12 • A field study to investigate the energy impacts of hybrid heating systems (also known as
13 dual-fuel heating systems), in partnership with FEI. The field study will investigate the
14 natural gas and electricity consumption, and peak demand impacts, of hybrid heating
15 systems compared to an electric-only baseline. Customer site selection and installation
16 of measurement equipment began in 2022, and the study will continue with data collection
17 and analysis in 2023.
- 18 • A hydronic additive field study for commercial electric customers. Hydronic additives are
19 chemical additives to non-potable heating systems that improve the system's heat
20 transfer efficiency. Hydronic additives have seen success in natural gas hydronic heating
21 applications in the past, and FEI currently offers a prescriptive rebate for this technology.
22 Due to eligible customer sites, the pilot scope has been adjusted to focus on the impact
23 of hydronic additives improving the efficiency of chilled water systems. Sites have been
24 selected for this pilot, and measurement period will take place during summer 2023.
- 25 • A study investigating energy efficient technologies for electricity savings in small
26 commercial buildings, in partnership with the Centre for Energy Advancement through
27 Technological Innovation (CEATI). The study will investigate emerging technologies
28 suitable for energy and demand savings, focusing on HVAC and lighting controls.

⁵ Technology innovation program defined in the Demand-Side Measures Regulation 326/2008 (amended Mar. 24, 2017).

9. DEMAND RESPONSE

9.1. OVERVIEW

FBC implemented the next pilot phase in its Kelowna demand response pilot, testing the viability of automated demand response for residential customers.

Actual 2022 expenditures of \$215 thousand exceed Plan of \$133 thousand, but the difference was covered with carryover expenditures from previous years. Demand Response expenditures in 2022 were mainly driven by retaining the demand-response implementer, developing pilot-specific marketing materials, and executing the pilot. 2022 expenditures are summarized below in Table 9-1.

Table 9-1: 2022 Demand Response Results Summary

Program	Plan (\$000s)	Actual Expenditures (\$000s)		
		Total	Incentive	Non-Incentive
Demand Response	\$ 133	\$ 215	\$ 20	\$ 195
Plan including 2021 carryover of \$108	\$ 240			

9.2. KELOWNA AREA DEMAND RESPONSE PILOT

In Q2 2022, FBC launched the Kelowna Residential “Peak Saver” Demand Response Pilot. The goal of the pilot was to investigate voluntary demand response interventions for electric space heating, electric water heating, air conditioning, pool pump, and electric vehicle chargers. In 2022, FBC completed a procurement process and hired an implementer to set up the residential demand response back-end software, smart device integration, and demand response controller installation network for hot water and pool pumps. Customers were recruited through a combination of FBC marketing and equipment vendor marketing channels. In total, over 200 customers connected devices to the demand response software and participated in demand response and load shifting events during both summer and winter seasons. Winter demand response events will continue into Q1 2023. In 2022, 15 events were run during the summer season and 8 events were run during the winter.

The pilot is planned to continue until the end of Q1 2023. FBC is currently undertaking an impact and process evaluation to determine customer satisfaction during the pilot and quantify achieved demand savings during demand response events. The results of the evaluation will inform design for the planned demand response program.

1 **10. SUMMARY**

2 In 2022, FBC successfully achieved 97 percent of its approved DSM expenditures and 108
3 percent of its annual energy savings target, as outlined in the 2019-2022 DSM Plan and
4 subsequent BCUC Orders. This result was achieved through a combination of technological
5 advances and energy-saving incentives, resulting in a total energy savings of 35.9 GWh, driven
6 by Industrial savings of 17.5 GWh, Commercial savings of 10.7 GWh, and Residential savings of
7 6.8 GWh. Customer incentives comprised the largest cost component of expenditures, making up
8 59 percent of the overall portfolio.

9 The 2022 Annual Report details how FBC delivered its energy conservation programs in a cost-
10 effective manner, achieving an overall portfolio TRC Benefit/Cost ratio of 1.7. After intra-program
11 transfers, all of which complied with the maximum 25 percent transfer limit, FBC was able to meet
12 Plan expenditure targets and increase energy savings when compared to both Plan forecasts and
13 2021 actuals.

14 The Company continues to offer a robust portfolio of DSM programming accessible to all customer
15 rate classes, while meeting the adequacy requirements of the DSM Regulation and operating
16 according to the Company's DSM Guiding Principles.

Appendix A

DETAILED BENEFIT-COST RATIOS

Appendix A-1

**DSM PROGRAMS COST AND SAVINGS SUMMARY REPORT
FOR 2022**

APPENDIX A - DETAILED BENEFIT-COST RATIOS

Table A-1: FBC DSM Programs Cost and Savings Summary Report For 2022

Program Area	Utility Expenditures (\$000s)				Annual Electricity Savings (MWh)		Cost Effectiveness Tests (Benefit/Cost Ratio)			
	Incentive	Non-Incentive	Total	2022 Plan Including Carryover	Plan	Actual	TRC	UCT	RIM	Levelized cost (¢/kWh)
Residential										
Home Renovation	\$ 1,177	\$ 8	\$ 1,185	\$ 1,577	4,752	4,201	1.2	2.9	0.5	9.2
New Home	\$ 620	\$ 17	\$ 637	\$ 409	778	613	3.6	3.6	1.3	9.9
Lighting	\$ 114	\$ 2	\$ 116	\$ 115	833	2,016	2.6	10.2	0.5	3.5
Rental Apartment	\$ 26	\$ 1	\$ 27	\$ 52	148	-	-	-	-	-
Labour and expenses	\$ -	\$ 548	\$ 548	\$ 500	-	-	-	-	-	-
Residential Total	\$ 1,936	\$ 577	\$ 2,513	\$ 2,654	6,512	6,831	1.5	2.8	0.6	8.9
Low Income										
Self Install (ESK)	\$ 28	-\$ 0	\$ 28	\$ 74	249	196	6.0	4.2	0.6	1.5
Direct Install (ECAP)	\$ 295	\$ 111	\$ 406	\$ 728	896	494	2.7	1.2	0.5	6.2
Social Housing Support	\$ 230	\$ 16	\$ 246	\$ 60	110	204	1.1	0.8	0.4	9.6
Labour and expenses	\$ -	\$ 174	\$ 174	\$ 68	-	-	-	-	-	-
Low Income Total	\$ 553	\$ 300	\$ 853	\$ 930	1,255	895	1.2	1.0	0.4	8.5
Commercial										
Commercial Custom	\$ 706	\$ 11	\$ 717	\$ 1,054	6,804	4,230	1.0	5.2	0.8	9.6
Commercial Prescriptive	\$ 1,333	\$ 194	\$ 1,527	\$ 1,018	8,667	6,459	1.7	3.8	0.8	6.3
Labour and expenses	\$ -	\$ 589	\$ 589	\$ 856	-	-	-	-	-	-
Commercial Total	\$ 2,039	\$ 794	\$ 2,833	\$ 2,927	15,471	10,689	1.2	3.3	0.7	8.3
Industrial										
Industrial Custom	\$ 600	\$ 5	\$ 605	\$ 1,116	8,226	7,501	3.6	9.9	1.0	2.6
Industrial Prescriptive	\$ 830	\$ 3	\$ 832	\$ 263	1,850	9,953	4.3	12.0	1.3	2.1
Labour and expenses	\$ -	\$ 185	\$ 185	\$ 170	-	-	-	-	-	-
Industrial Total	\$ 1,430	\$ 192	\$ 1,622	\$ 1,549	10,076	17,454	3.8	9.8	1.1	2.4
Conservation Education and Outreach	\$ -	\$ 514	\$ 514	\$ 666	-	-	-	-	-	-
Supporting Initiatives	\$ 331	\$ 775	\$ 1,107	\$ 1,069	-	42	-	-	-	-
Portfolio Expenditures	\$ -	\$ 953	\$ 953	\$ 956	-	-	-	-	-	-
Demand Response	\$ 20	\$ 195	\$ 215	\$ 240	-	-	-	-	-	-
Total Portfolio	\$ 6,310	\$ 4,300	\$ 10,610	\$ 10,991	33,315	35,911	1.7	3.1	0.8	6.0

Appendix A-2

**HISTORICAL SUMMARY OF DSM COST AND ENERGY
SAVING RESULTS (2017-2021)**

APPENDIX A - DETAILED BENEFIT-COST RATIOS

Table A-2: Historical Summary of DSM Cost and Energy Savings Results (2017-2021)

	Expenditures (\$000s)										Energy Savings (MWh)										
	2021		2020		2019		2018		2017		2021		2020		2019		2018		2017		
	Plan*	Actual	Plan*	Actual	Plan*	Actual	Plan*	Actual	Plan*	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	Plan	Actual	
Residential																					
HRR/Home Improvements	1,505	1,654	1,357	1,348	1,200	1,487	140	136	348	196	4,267	4,083	3,916	3,551	3,264	3,227	301	225	364	187	
Heat Pumps	-	-	-	-	-	-	327	357	298	307	-	-	-	-	-	-	1,297	1,127	781	976	
Residential Lighting	137	219	163	238	157	218	202	141	190	380	965	3,428	1,122	3,401	2,284	3,141	3,337	3,255	2,735	8,125	
New Home Program	308	422	227	215	184	90	76	36	151	61	571	351	439	251	340	112	169	54	126	45	
Appliances	-	-	-	-	-	-	159	204	133	337	-	-	-	-	-	-	215	303	126	494	
Water Heating	-	-	-	-	-	-	25	25	-	-	-	-	-	-	-	-	38	38	-	-	
Low Income (2015-2017)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,739	693	
Behavioral	-	-	-	-	-	-	165	16	200	5	-	-	-	-	-	-	240	67	3,097	20	
Rental Apartment Program	54	59	54	37	54	33	53	19	206	77	148	33	148	-	148	21	306	87	508	295	
Watersavers	-	-	-	-	-	-	-	-	30	1	-	-	-	-	-	-	-	-	17	12	
Labour & Related Expenses	515	542	503	501	491	362	610	468	1,161	529	-	-	-	-	-	-	-	-	-	-	
Residential Total	2,519	2,896	2,304	2,339	2,086	2,190	1,757	1,402	2,717	1,893	5,951	7,895	5,625	7,203	6,036	6,501	5,903	5,156	10,493	10,847	
Low Income (Since 2018)																					
Low Income	-	-	-	-	-	-	731	396	-	-	-	-	-	-	-	-	1,229	687	-	-	
Self Install (ESK)	74	41	74	75	74	143	-	-	-	-	249	93	249	287	249	527	-	-	-	-	
Direct Install (ECAP)	705	413	687	343	665	519	-	-	-	-	872	377	881	224	891	636	-	-	-	-	
Social Housing Support	52	195	46	286	41	60	-	-	-	-	95	264	83	285	72	186	-	-	-	-	
Labour & Related Expenses	67	193	65	114	64	217	-	282	-	-	-	-	-	-	-	-	-	-	-	-	
Low Income Total	898	842	872	818	844	939	731	678	-	-	1,216	734	1,213	796	1,212	1,349	1,229	687	-	-	
Commercial																					
Lighting	-	-	-	-	-	-	1,750	1,751	2,322	2,749	-	-	-	-	-	-	13,620	17,635	10,592	12,580	
Building and Process Improvements	-	-	-	-	-	-	988	247	784	371	-	-	-	-	-	-	5,290	1,763	2,931	605	
Computers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Municipal (Water Handling)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sm Business Direct Install	-	-	-	-	-	-	-	382	-	862	-	-	-	-	-	-	-	3,224	-	2,634	
Irrigation	-	-	-	-	-	-	-	180	25	12	-	-	-	-	-	-	255	249	144	59	
MURB New Construction	-	-	-	-	-	-	32	42	-	29	-	-	-	-	-	-	-	1,073	-	237	
Commercial Custom	1,006	1,081	964	619	980	1,274	-	-	-	-	6,048	5,215	5,346	3,554	4,428	6,588	-	-	-	-	
Commercial Prescriptive	1,177	1,767	1,218	1,513	1,371	1,505	-	-	-	-	9,243	7,107	10,121	7,596	11,114	8,375	-	-	-	-	
Labour & Related Expenses	869	649	848	674	828	606	822	864	-	-	-	-	-	-	-	-	-	-	-	-	
Commercial Total	3,052	3,497	3,030	2,806	3,179	3,385	3,592	3,466	3,131	4,023	15,291	12,322	15,467	11,150	15,542	14,963	19,165	23,944	13,667	16,115	
Industrial																					
Industrial Efficiencies	-	-	-	-	-	-	305	240	309	206	-	-	-	-	-	-	1,188	1,615	1,566	876	
Industrial Custom	1,308	1,841	1,308	1,092	1,288	640	-	-	-	-	8,226	4,829	8,226	4,491	8,226	1,868	-	-	-	-	
Industrial Prescriptive	311	487	290	455	290	282	-	-	-	-	1,888	3,872	1,781	2,304	1,811	1,110	-	-	-	-	
Labour & Related Expenses	195	324	190	220	185	174	72	157	-	-	-	-	-	-	-	-	-	-	-	-	
Industrial Total	1,814	2,652	1,788	1,767	1,763	1,096	377	397	309	206	10,114	8,701	10,007	6,795	10,037	2,978	1,188	1,615	1,566	876	
Programs Total	8,283	9,887	7,994	7,730	7,872	7,610	6,457	5,943	6,157	6,122	32,572	29,652	32,312	25,944	32,827	25,791	27,485	31,402	25,726	27,838	
Supporting Initiatives	1,024	1,093	838	818	1,218	869	742	537	674	674	-	-	-	209	-	-	-	-	-	-	
Planning & Evaluation	-	-	-	-	-	-	743	743	777	994	-	-	-	-	-	-	-	-	-	-	
Conservation Education and Outreach	595	599	497	566	566	575	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Portfolio Expenditures	1,019	793	913	911	776	762	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Demand Response	130	311	324	135	477	264	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	11,051	12,683	10,566	10,160	10,909	10,080	7,942	7,223	7,608	7,790	32,572	29,652	32,312	26,153	32,827	25,791	27,485	31,402	25,726	27,838	

*As filed in the 2017, 2018 and 2019-2022 DSM Plans.

In the 2019-2022 DSM Expenditures Plan, several existing DSM programs were reorganized and/or consolidated into new programs:

Residential: The Residential Home Improvements program name changed to the Home Renovation Rebate (HRR) program. Heat pumps, water heaters and appliances were consolidated into the HRR program.

Low Income: The Low Income program was separated into Self-Install, Direct Install and Social Housing Support.

Commercial: The Commercial Custom and Prescriptive programs both include lighting. MURB New Construction was moved into the Custom program and Building and Process Improvements was moved into the Prescriptive program.

Industrial: The Industrial Efficiencies program was separated into both the Industrial Custom and Prescriptive programs.

Portfolio Expenditures: Planning & Evaluation was moved into this portfolio.