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July 2, 2021

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

Attention: Mr. Patrick Wruck, Commission Secretary

Dear Mr. Wruck:

Re: FortisBC Energy Inc. (FEI)

**Application for Additional Demand Side Management (DSM) Expenditures for
2021 to 2022 – Residential and Low Income**

Pursuant to section 44.2 of the *Utilities Commission Act*, FEI hereby applies to the British Columbia Utilities Commission for acceptance of the attached updated DSM Expenditures covering the period from 2021 to 2022

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Diane Roy

Attachments

cc (email only): Registered parties in the FEI 2019-2022 DSM Expenditures Plan proceeding



FORTISBC ENERGY INC.

Application for Additional Demand Side Management Expenditures for 2021 and 2022 – Residential and Low Income

Volume 1 - Application

July 2, 2021

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1. INTRODUCTION

1.1 OVERVIEW

In this Application, FortisBC Energy Inc. (FEI) is seeking acceptance pursuant to section 44.2 of the Utilities Commission Act (UCA) of changes to the 2021 and 2022 accepted Demand Side Management (DSM) budgets for the Residential and Low Income Program Areas for additional expenditures of \$24.982 million in 2021 and \$7.200 million in 2022, which will allow FEI to meet customer demand in the Residential and Low Income Program Areas.

FEI is in the final two years of its 2019-2022 Demand Side Management Plan (2019-22 DSM Plan or Plan), which was accepted by the British Columbia Utilities Commission (BCUC) on January 17, 2019 by Order G-10-19 (Decision). Based on FEI's experience in executing the Plan to date and more current information as further described in this Application, the impacts of the COVID-19 pandemic and FEI's COVID-19 customer support initiatives have caused increased customer demand within FEI's Residential and Low Income Program Areas that was not foreseen at the time FEI developed the Plan. As a result, FEI is forecasting more DSM spending in these program areas and requires additional DSM funding to respond to this customer demand. Specifically, FEI is requesting BCUC acceptance to increase funding in the Residential and Low Income Program Areas, as shown in Table 1-1 below. FEI is bringing this Application forward now (as opposed to earlier this year) as time was needed to assess participant uptake before being able to determine definitive forecast values.

Table 1-1 below sets out the 2021 and 2022 approved DSM Plan expenditures for the Residential and Low Income Program Areas, revised forecasts, proposed new DSM Plan budgets, and resulting variances. Table 1-1 also sets out the total incremental funding required to address increased demand for Residential and Low Income DSM programs in 2021 and 2022. FEI is requesting incremental expenditures to the total portfolio expenditures in 2021 and 2022 to reflect the increased budgets for the Residential and Low Income Program Areas.

Table 1-1: 2021-2022 DSM Plan Versus Updated Expenditures

Program Area	Total Utility Expenditures (\$000s)*					
	2021			2022		
	DSM Plan (A)	Proposed New Budget (B)	Variance (B - A)	DSM Plan (A)	Proposed New Budget (B)	Variance (B - A)
Residential	28,476	50,119	21,643	31,383	34,816	3,433
Low Income	6,984	10,323	3,339	7,217	10,984	3,767
Incremental Funding			24,982			7,200

1.2 APPROVALS SOUGHT

FEI is requesting acceptance, pursuant to section 44.2 of the UCA, of a DSM expenditure schedule, as follows:

- a. In 2021, revised DSM expenditure budgets of \$50.119 million for the Residential Program Area and \$10.323 million for the Low Income Program Area, which results in an overall portfolio incremental funding increase of \$24.982 million; and
- b. In 2022, revised DSM expenditure budgets of \$34.816 million for the Residential Program Area and \$10.984 million for the Low Income Program Area, which results in an overall portfolio incremental funding increase of \$7.200 million.

A draft order sought is included as Appendix A to this Application.

1.3 ORGANIZATION OF APPLICATION

In the following sections FEI provides a summary of its consultation with the Energy Efficiency and Conservation Advisory Group (EECAG) (Section 2), a discussion of how FEI's updated DSM Plan continues to satisfy the legal framework for DSM expenditures in British Columbia (Section 3), an overview of updated 2021 and 2022 DSM expenditure forecasts for all program areas (Section 4), and a detailed description of the Residential (Section 5) and Low Income (Section 6) Program Areas and the developments that have led to FEI's request to revise its DSM Plan for the years 2021 and 2022. For the purposed of this application, any expenditures presented as "DSM Plan" or "Revised DSM Plan" are inclusive of any changes approved by the BCUC since the original DSM Plan was submitted.

2. ENERGY EFFICIENCY AND CONSERVATION ADVISORY GROUP (EECAG) CONSULTATION

Input from EECAG members was an important consideration for FEI in assessing alternatives to address the increase in Residential and Low Income Area expenditures. To discuss the proposed changes to the 2019-22 DSM Plan set out in this Application, FEI held a virtual EECAG engagement session on June 3, 2021. FEI's backgrounder document, session notes and presentation materials from the June 3 session are included with this Application as Appendix B.

Advanced preparation for the session included providing members with a backgrounder document explaining the circumstances leading to the increased program participation and resulting expenditures including response to FEI's COVID-19 recovery initiatives, the potential increased funding needed for the Residential and Low Income program areas, and updated expenditure and energy savings projections for all Program Areas for 2021 and 2022.

At the engagement session, FEI presented its proposed increased funding request to meet customer demand, and two alternative approaches to addressing the increased expenditures, as follows:

- Alternative A: Remove programs to stay within the current DSM Plan budget (Remove Residential programs from the market immediately, reinstate in 2022)
 - This option will result in market disruption and confusion for customers and contractors. If FEI removes residential programs immediately, approximately 100,000 GJ of forecast energy savings will not be realized in 2021. This will also negatively affect 2022 energy savings because it will take time to rebuild program momentum. In 2014, FortisBC Inc. reduced electricity program offers and it took several years to relaunch, recover the momentum, and build back contractor and consumer confidence.
- Alternative B: Small reduction to budget increase by reviewing individual program measures such as pausing the furnace offer. For example, ending the furnace rebate on June 30th, 2021– could save \$2.7 million; however, the resulting customer and contractor confusion would be difficult to manage. In addition, these energy savings would not be captured.

Several EECAG members expressed strong support for FEI's proposal to meet customer demand over the other alternatives presented, some of whom stressed that they would not want to see the program suspended temporarily. One member organization explored consideration of another alternative in between those presented by FEI, perhaps continuing with low income incentives, but otherwise did not suggest what that alternative would look like and did not commit to support or oppose FEI's proposal. One member organization indicated support for suspending or slowing down programs related to equipment rebates while maintaining low-income and non-equipment

rebates until analysis was complete to understand how gas equipment rebates compare to electric heat pumps in terms of cost for GHG reductions and customer bill impacts.

In response, FEI has explored the implications of only providing increased support to Low Income programs in Section 5.5.

Other questions and comments that FEI received during or after the engagement session are summarized below.

In response to EECAG member questions, FEI clarified that residential programs focused more on single-family homes, while multi-unit residential buildings (MURBs) fall under commercial program offerings with the exception of some in-suite offers such as efficient fireplace rebates for MURBs.

In its presentation, FEI referred to a survey conducted by program partners that informed FEI's COVID-19 response and EECAG members requested more information about the survey and its findings. FEI subsequently, and with the agreement of the program partners, sent the survey findings document along with the draft EECAG session notes to EECAG members. This document is included in Appendix B.

In response to inquiries about other program partner experience in BC, FEI explained that program offers were not easily comparable and that FEI is not in a position to comment on the program results of other organizations.

It was noted by EECAG members that FEI was showing a decrease in energy savings from its residential program even though expenditures have increased substantially. FEI explained that two factors contributing to this trend are that the "Bigger Rebates" offer was designed to spur retrofit activity and, although the incentive was larger, it would not create additional savings per rebate, and that decreasing energy savings in the residential sector is an ongoing trend as more changes to building codes and equipment standards are impacting the residential sector than other sectors since the 2019-2022 DSM Plan was prepared. FEI committed to review the savings calculations and results and provide further clarification on this trend. FEI is providing the results of its review and additional insight into residential and low income energy savings trends to EECAG members in conjunction with this Application and has included the information in Sections 5.4 and 6.4 of this Application.

In response to an EECAG member request to see additional information comparing the various components of the residential program in terms of dollar per GJ saved, FEI explained that those types of assessments will be part of the preparation of the next DSM Plan for 2023 and beyond, and that FEI will engage EECAG and other stakeholders on these issues as part of the work. FEI also explained that while the savings FEI can claim are governed by the current regulatory construct, members should keep in mind that the total energy savings that occur when old, less efficient equipment is replaced with new, high efficiency equipment is higher than reported here.

- 1 For example, FEI is not able to claim the savings that occur to bring the old equipment up to the
2 current standard since we are incenting the customer to install a higher than standard efficiency
3 option.
4
- 5 One other comment received by FEI indicated that furnace rebates continue to provide an
6 important role until more effective cold climate heat pump solutions are available, given the
7 economic burden of electric heat pumps under such conditions.

3. LEGAL FRAMEWORK

FEI's 2019-22 DSM Plan was filed and accepted pursuant to section 44.2(1)(a) of the UCA. The proposed changes to the final two years of the 2019-2022 DSM Plan, as set out below, update the approved 2019-22 DSM Plan to reflect market conditions that were not anticipated at the time of development. The updated 2019-22 DSM Plan for the years 2021 and 2022 continues to meet the criteria for BCUC acceptance set out in section 44.2(5) of the Act as set out below.

- Consistency with British Columbia Energy Objectives

The proposed changes to the final years of the 2019-22 DSM Plan continue to support the applicable energy objectives as set out in Table 3-1 of the 2019-22 DSM Plan (and included herein as Appendix C).

- Consistency with Long Term Gas Resource Plan

FEI's 2017 Long Term Gas Resource Plan (LTGRP) projects that, as part of a long term plan for implementing DSM activities, FEI will continue to perform residential, commercial, industrial, low income, innovative technologies, conservation education and outreach as well as enabling DSM activities. The updates to the 2019-22 DSM Plan remain consistent with the 2017 LTGRP.

- Adequacy pursuant to the DSM Regulation

The updates to the 2019-22 DSM Plan do not impact the adequacy of the Plan pursuant to section 3 of the DSM Regulation. As shown in Table 4-3 below, the DSM Plan remains cost-effective.

- Interests of Persons Who May Receive Service

The proposed updates to DSM expenditures in 2021 and 2022 are in the interests of customers and potential customers as they reflect the current opportunities in the marketplace to encourage energy efficiency and conservation and reduce GHG emissions. These proposed updates are beneficial to the economy and are cost-effective.

4. UPDATED 2021 AND 2022 DSM EXPENDITURES AND SAVINGS

FEI engaged ICF Canada to provide an update to the final two years of FEI's 2019-22 DSM Plan. ICF's DSM Plan 2021-2022 Update Report is provided as Appendix D and a summary of the new forecasts is provided in Table 4-1 below.

Table 4-1: 2021 & 2022 Program Area Expenditures – Plan vs Revised Forecast

Program Area	Total Utility Expenditures (\$000s)*					
	2021			2022		
	Revised DSM Plan**	Revised Forecast	Variance	DSM Plan	Revised Forecast	Variance
Residential	28,476	50,119	176%	31,383	34,816	111%
Commercial	20,735	19,581	94%	19,800	20,837	105%
Industrial	7,913	8,276	105%	8,462	8,516	101%
Low Income	6,984	10,323	148%	7,217	10,984	152%
Conservation Education and Outreach	8,578	6,577	77%	9,433	7,001	74%
Innovative Technologies	5,064	5,092	101%	11,871	9,313	78%
Enabling Activities	9,231	10,016	108%	8,921	8,535	96%
Portfolio Level Activities	1,822	1,400	77%	1,979	1,800	91%
ALL PROGRAMS	88,803	111,384	125%	96,775	101,802	105%

*Includes estimated inflation

**Application for Updated DSM Expenditures for 2021 and 2022

FEI is requesting changes to the Residential and Low Income Program Areas only in this Application. As discussed in Sections 5 and 6 below, the increased forecasts for the Residential and Low Income program areas reflect higher than expected customer demand.

The new forecasts in the other program areas reflect updated forecasts based on program experiences to date and current anticipated market uptake, and the variances from the DSM Plan are minor. Therefore, FEI expects to address any variances above Plan in these areas at the end of each year by transferring from any program areas below Plan. As FEI expects to address the variances through inter-program transfers within the 25 percent threshold of the Funding Transfer Rules, FEI is not seeking acceptance of new expenditures for these other program areas.

Based on the updated forecast expenditures, FEI's updated projected savings for 2021 and 2022 are set out in Table 4-2.

Table 4-2: 2021 & 2022 Program Area Energy Savings – Plan vs Projection

Program Area	Incremental Annual Gas Savings, Net (GJ)					
	2021			2022		
	DSM Plan	Revised Forecast	Variance	DSM Plan	Revised Forecast	Variance
Residential*	300,891	272,112	90%	328,860	238,323	72%
Commercial	418,482	442,533	106%	478,288	471,200	99%
Industrial	316,955	467,328	147%	316,955	534,268	169%
Low Income	77,141	57,547	75%	77,707	64,128	83%
Conservation Education and Outreach	Savings Not Estimated			Savings Not Estimated		
Innovative Technologies	Savings Not Estimated			Savings Not Estimated		
Enabling Activities	Savings Not Estimated			Savings Not Estimated		
Portfolio Level Activities	Savings Not Estimated			Savings Not Estimated		
ALL PROGRAMS	1,113,469	1,239,520	111%	1,201,809	1,307,919	109%

*Includes update DSM values for Commercial and Industrial per the recent application approval

Table 4-3 shows that, with the requested funding increases for Residential and Low Income, the Portfolio is projected to remain cost effective.

Table 4-3: 2021 & 2022 Portfolio Level Cost Effectiveness Based on Revised Expenditure Projections

Portfolio	2021 Projected		2022 Projected	
	TRC	MTRC	TRC	MTRC
All Programs / Expenditures*	1.0	1.5	1.1	1.6

The additional \$24.982 million in 2021 and \$7.200 million in 2022 would result in an incremental delivery rate impact of 0.44 percent and 0.11 percent for 2022 and 2023, respectively.

5. RESIDENTIAL PROGRAM AREA

5.1 BACKGROUND

The Residential Program Area consists of three overarching programs that enable FEI customers to reduce their home energy consumption and support industry in improving overall home performance:

1. **Home Renovation Program:** This program promotes energy-efficiency home retrofits in collaboration with Utility Partners (BC Hydro and FortisBC Inc.), as well as federal, provincial, and municipal governments. In addition to rebates, initiatives include capacity building for trades, ensuring high quality installations and providing opportunities to promote home labeling through EnerGuide home evaluations.
2. **New Home Program:** This program provides financial incentives in support of energy-efficient building practices for the Residential sector. The program supports the BC Energy Step Code, and educates builders and consumers about the benefits of energy-efficient new homes.
3. **Rental Apartment Efficiency Program:** 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 FortisBC. 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. All of the in-suite related expenses are included in the Residential Program Area, while the common area related expenses, including the energy assessment, implementation support, and common area upgrades, are included in the Commercial Program Area.

5.2 RECENT DEVELOPMENTS

The Home Renovation Rebate Program is experiencing much higher than anticipated customer response to the time-limited Bigger Rebates offer. The Bigger Rebates offer was launched in the fall of 2020 as part of FEI's COVID-19 recovery offers that were planned in support of the 2020 BC Restart Plan. Due to the higher home renovation activity associated with COVID-19 purchase behaviour, final participation counts from the 90-day promotional code registration period will likely exceed 2019's full year of participation for the measures where Bigger Rebates were offered.

When the 2019-2022 DSM Plan was developed, FEI forecasted a modest, year-over-year increase in residential expenditures. With the onset of the COVID-19 pandemic, however, a Home Performance Stakeholder Council survey conducted at the time indicated that the pandemic had negatively impacted contractor business activity. New rebates or enhanced rebates were suggested solutions to help alleviate these impacts.

1
2 In response, FEI's Home Renovation Rebate Program, in collaboration with Program Partners
3 FortisBC Inc., BC Hydro, and the CleanBC Better Homes Program, launched a time-limited Bigger
4 Rebates offer. The offer doubled space heating and select energy efficiency rebates, and a bonus
5 was also included for customers who selected a Program Registered Contractor to upgrade their
6 insulation.

7
8 To participate, customers had the opportunity to register for a promotional code during a 90-day
9 window. Eligible installations were required to be completed between October 1, 2020 and March
10 31, 2021. The installation deadline was subsequently extended to June 30, 2021 to enable high
11 quality installations and to address equipment shortages related to COVID-19 supply chain
12 interruptions. (Note that the extended installation period did not allow for new entrants to the offer
13 as promotional code registrations were closed.)

14
15 Participation in the time-limited Bigger Rebates offer was higher than anticipated for FEI. Over
16 25,000¹ promotional codes were registered within the 90-day window compared to original
17 forecasts of 15,000. Over 40 percent of these were registered during December 2020, the final
18 month of the 90-day registration period. In particular, customer upgrades to a high-efficiency
19 natural gas furnace have been the key driver to this increase in participation. At the time of writing,
20 over 10,000 Bigger Rebates for a natural gas furnace have already been redeemed by customers.
21 Overall, this increase in participation predominantly impacts 2021 expenditures, with a smaller
22 increase required in 2022. While not part of the time-limited Bigger Rebates offer, tankless water
23 heater rebate participation is also a contributing factor to an increased budget requirement in 2021
24 and 2022 due to the growing adoption of this technology.

25 **5.3 RESIDENTIAL PROGRAM AREA FUNDING**

26 Table 5-1 presents the forecast expenditures from 2021 to 2022 by program, including both
27 incentive and non-incentive expenditures. Non-incentive expenditures include expenses related
28 to rebate administration and customer support, communications, evaluation and labour.
29

¹ The "over 25,000" promotional code count is based on a refined dataset that removed duplicate entries and other data anomalies. One promo code can be redeemed for multiple Bigger Rebate eligible upgrades.

Table 5-1: 2021-2022 Residential Program Area Expenditures by Program

	Residential Utility Expenditures (\$000s)*		
	DSM Plan	New Forecast	% Variance
	Total	Total	
Program	2021		
Home Renovation Rebate Program	18,478	41,387	224%
New Home Program	8,680	8,001	92%
Rental Apartment Efficiency Program	439	430	98%
Non-Program Specific Expenses	879	300	34%
ALL PROGRAMS	28,476	50,119	176%
Program	2022		
Home Renovation Rebate Program	20,125	25,770	128%
New Home Program	9,815	8,252	84%
Rental Apartment Efficiency Program	443	443	100%
Non-Program Specific Expenses	1,001	350	35%
ALL PROGRAMS	31,383	34,816	111%

*Includes estimated inflation

5.4 RESIDENTIAL PROGRAM AREA ENERGY SAVINGS

Table 5-2 below lists the new savings estimates relating to the requested funding amount and how they compare to what was approved in the 2019-2022 DSM Plan.

Table 5-2: 2021-2022 Residential Program Area Energy Savings by Program

Program Area	Incremental Annual Gas Savings, Net (GJ)					
	2021			2022		
	DSM Plan	Revised Forecast	Variance	DSM Plan	Revised Forecast	Variance
Residential*						
Home Renovation Rebate Program	220,524	221,854	101%	241,839	186,682	77%
New Home Program	56,682	26,323	46%	63,336	27,706	44%
Rental Apartment Efficiency Program	23,685	23,935	101%	23,685	23,935	101%
TOTAL	300,891	272,112	90%	328,860	238,323	72%

As shown in Table 5-2, savings estimates for the Home Renovation Rebate Program have decreased relative to the 2019-2022 DSM Plan. This is primarily attributed to the following:

- Furnace gross annual energy savings is 174 percent of Plan in 2021 due to the increased participation driven by the Bigger Rebates offer. In 2022, furnace gross annual energy savings are forecast to be 81 percent of Plan due to lower energy savings on a per unit basis. This is primarily due to the higher minimum energy performance standard that is in place now, compared to the minimum energy performance standard at the time the Plan was developed. This impacts the post-early replacement portion of the measure's energy savings. Savings were also revised to reflect the findings of an impact evaluation conducted by Sampson and Associates in 2020, which resulted in lower energy savings compared to previous evaluations. This can be attributed to factors such as the efficiency of the replaced furnace as well as improved building envelope and conservation behaviours on the part of the participant. Further evaluation activities are currently underway to explore energy savings associated with quality installation best practice requirements implemented over the past few years which may identify additional energy savings attributable to this measure.
- Fireplace gross annual energy savings are forecast to be 53 percent and 60 percent of Plan in 2021 and 2022, respectively, due to lower than forecast participation.
- Insulation gross annual energy savings are forecast to be 65 percent and 59 percent of Plan in 2021 and 2022, respectively, due to lower than forecast participation. The implementation of the mandatory Program Registered Contractor requirement, which came into effect April 1, 2021, may also curb growth in participation. As insulation installation is a largely unregulated trade, program partners set this requirement to ensure that insulation contractors are trained in best practices and to ensure program compliance. Natural Resources Canada's (NRCan) recently announced Canada Greener Homes Grant also includes an insulation offer, but at the time of writing, the impact to 2021 and 2022 program participation is not yet known.
- Connected thermostat gross annual energy savings are forecast to be 61 percent and 34 percent of Plan in 2021 and 2022, respectively, due to revised energy savings on a per unit basis reported in the Smart Learning Thermostat pilot evaluation conducted by Apex Analytics and Demand Side Analytics in 2019. Participation levels in 2022 are also forecasted to follow the trajectory prior to the Bigger Rebates offer, which was lower than forecasted in the Plan.

As shown in Table 5-2, savings estimates for the New Home Program have also decreased relative to the 2019-2022 DSM Plan primarily due to lower than anticipated adoption of the Step Code by municipalities and builders. As a result:

- Gross annual energy savings for Step Code incentives are forecast to be 54 percent and 47 percent of Plan in 2021 and 2022, respectively.
- Gross annual energy savings for high efficiency natural gas equipment measures are forecast to be 45 percent of Plan in both 2021 and 2022.

In this filing, FEI has not included the anticipated additional savings attributable to the influence that the program has had on advancing the BC Building Code. Claiming these savings is in accordance with the BC DSM Regulation. FEI anticipates that the timing of the new code requiring new homes to be 20 percent more efficient than current code (i.e. equivalent to Step Three of the BC Energy Step Code)² will result in FEI claiming these savings in 2022 or 2023. FEI will report the attribution of savings in the appropriate DSM Annual Report. Because this type of attribution is typically a one-time claim, rather than ongoing savings that can be claimed each year, and since there remains some uncertainty as to when they will be claimed, FEI has not included these savings in Table 5-2.

Additional information on projected energy savings and cost effectiveness for the Residential Program Area is included in Appendices C and D.

5.5 IMPLICATIONS OF NOT INCREASING FUNDING TO MEET CUSTOMER DEMAND

The Residential Program Area enables FEI's customers to reduce their energy consumption and supports industry in improving the overall performance of existing and new homes. The combination of incentives, policy support, contractor and builder outreach and training, and customer education is instrumental in driving market transformation and GHG emission reductions in the residential sector.

The Home Renovation Rebate Program, in its current format, has consistently been available to FEI customers since 2014. If funding is not increased to meet customer demand, the Home Renovation Rebate Program would need to be temporarily removed from market immediately for the remainder of 2021, and return in 2022. Doing so, on short notice, would cause market disruption, impacting customers, industry and program partners, and also negatively impact the program's ability to achieve energy savings and GHG emission reductions in the future.

Anticipated impacts include:

Customers

With funding no longer available for rebates, including outstanding Bigger Rebate commitments, customers who have already made the decision to invest in energy efficiency upgrades with the rebate in mind would no longer have the opportunity to access the rebate to help buy-down their initial investment. Customers would be left with a financial burden that they had originally intended to be partially covered by the rebate. Furthermore, the temporary removal of FEI's program would lead to greater confusion in the marketplace, as natural gas customers would be excluded from rebate offers, while program partners would continue to offer rebates to their target market.

² <https://www2.gov.bc.ca/gov/content/industry/construction-industry/building-codes-standards/energy-efficiency>

Industry

Contractors are a key stakeholder of the program, playing the role as the program's biggest sales force. FEI rebates are an important sales tool for contractors when selling high-efficiency natural gas equipment. As such, removing the rebate from market would negatively impact contractor businesses and customers could delay their purchase expecting rebates to return in 2022.

Program partners

Program partners include BC Hydro, FortisBC Inc., BC Ministry of Energy, Mines & Low Carbon Innovation, NRCan and local governments.

- BC Hydro's online rebate application portal currently allows customers to apply for Home Renovation Rebate Program and CleanBC Better Homes rebates offered by all program partners. FEI's temporary pause of the Home Renovation Rebate Program would require BC Hydro to commit time and resources to deploy an IT change to its application portal to reflect the temporary removal of natural gas rebates and subsequently, reflect its return to market in January 2022.
- The Province currently contributes \$200 towards FEI's highest efficiency furnace rebate as well as bonus rebates. A temporary pause would limit the province's ability to continue to provide these offers and realize the associated energy savings and GHG emission reductions.
- NRCan's recently launched Canada Greener Homes Grant program would be impacted. FEI's program going in and out of market would contribute to confusion amongst customers and Energy Advisors. Energy Advisors, who are the main drivers for the NRCan program, may also experience delayed EnerGuide evaluation participation as customers may wait until FEI rebates return in 2022.
- Local government partners would have a difficult time maintaining momentum in their community retrofit programs without FEI incentive support.

Future of the program

The disruption outlined in the points above will cause FEI to lose momentum that the Home Renovation Rebate Program has been gaining over the years. If the offers were removed from market, FEI would experience a delayed ramp-up when they were reinstated, as it will take time to build back customer and industry trust. FortisBC Inc. experienced this after a number of its offers were removed in 2014 and required three years of rebuilding to finally achieve its DSM Plan targets. This also means that energy savings will not be fully captured in 2021, and possibly over 2022.

The impacts listed above for temporarily removing the Home Renovation Program would be mirrored if FEI were to pause the New Home Program. It might be even more challenging to administer a temporary pause to New Home incentive availability due to the long duration from

1 project inception to completion, including multi-year developments. The decision to incorporate
2 energy efficiency is made in the early design stages of a project many months prior to the
3 submission of a program application. As such, significant market disruption for customers,
4 builders, the trades, communities and energy advisors would result.

5
6 The New Home program offers many benefits to customers. Incentives align with the five tiers of
7 the BC Energy Step Code for Part 9 Buildings, as directed in the 2017 Amendment to the DSM
8 Regulation. The program supports communities and builders with Step Code adoption across BC.
9 With upcoming amendments to the BC Building Code scheduled for 2022, it is critical that FEI's
10 program remain in market to support BC's market transformation to the construction of high
11 performance homes through the BC Energy Step Code.

6. LOW INCOME PROGRAM AREA

6.1 BACKGROUND

The Low Income Program Area consists of four main programs that assist Low Income individuals, social housing societies and Indigenous communities to save energy. These programs include:

1. **Self Install Program:** Participants that have the capabilities to perform basic installations on their own can receive a bundle of basic energy efficiency measures delivered to their home address.
2. **Direct Install Program:** Recognizing that some Low Income customers do not have the expertise and/or physical capabilities to install energy efficient measures, these programs aim to remove that barrier by having a program delivery agent/contractor perform the installation.
3. **Prescriptive Program:** The prescriptive program is to enable a straight forward path towards a rebate for income-qualified customers and non-profit housing societies.
4. **Support Program:** Support program measures seek to enhance energy efficiency retrofit skills, provide assistance to social housing societies seeking to enhance the energy efficiency of their housing complexes, and motivate behavioural change through education and engagement.

6.2 RECENT DEVELOPMENTS

The programs that are experiencing higher than expected investments are the Direct Install Program and the Prescriptive Program.

The Direct Install Program is seeing higher than expected investments in 2021 primarily due to two factors: 1) the backlog of measure installations (e.g. insulation, furnaces, etc.) that was created when the Program was temporarily out of market in the early days of the COVID-19 pandemic, and 2) opportunities in manufactured homes.

Beginning in March of 2020, in the early days of the COVID-19 pandemic impacts in BC, BC Hydro (a program partner), FortisBC and the Direct Install Program contractors felt it was most prudent not to go in to customers' homes while best practices were still being developed with respect to reducing risk of transmission. Further, many key customer segments, such as Non-Profit Housing Societies and Indigenous communities were focused on ensuring safety of their members and tenants and energy efficiency was not their priority during this time. Being out of market for approximately six months created a backlog of measure installations that flowed into 2021 and has accelerated investments in the program this year.

While the backlog of work has largely been addressed, it is coinciding with an increase in work being performed in manufactured homes. Manufactured homes were contemplated during the creation of the 2019-2022 DSM Plan; however, FEI did not, at the time, have as much information as is available today about the opportunities in this building archetype and FEI underestimated the energy saving opportunities in manufactured homes. Investments in the manufactured home archetype are expected to be sustained throughout the remainder of the 2019-2022 DSM Plan.

The Prescriptive Program is also seeing higher than expected participation in 2021. Similar to the Residential program area, this has been primarily driven by the time-limited Bigger Rebates offer, which was brought to market as part of FEI's COVID-19 recovery offers and in conjunction with the 2020 BC Restart Plan. Enhanced interest in this program has continued even beyond the expiry of the Bigger Rebates offer. It is likely that the general increased interest in FEI rebates during the Bigger Rebates offer has increased awareness and participation amongst contractors which has resulted in sustained participation in the Prescriptive Program even with the standard rebate offer.

6.3 LOW INCOME PROGRAM AREA FUNDING

Table 6-1 below lists the new expenditure amounts proposed for consideration to take advantage of the opportunities identified and how they compare to what was approved in the 2019-2022 DSM Plan.

Table 6-1: 2021-2022 Low Income Program Area Expenditures by Program

	Low Income Utility Expenditures (\$000s)*		
	DSM Plan	New Forecast	% Variance
	Total	Total	
Program	2021		
Direct Install Program	2,324	4,999	215%
Self Install Program	503	558	111%
Prescriptive Program	3,109	4,255	137%
Support Program	823	249	30%
Non-Program Specific Expenses	225	262	117%
ALL PROGRAMS	6,984	10,323	148%
Program	2022		
Direct Install Program	2,439	5,305	217%
Self Install Program	512	661	129%
Prescriptive Program	3,156	4,430	140%
Support Program	835	285	34%
Non-Program Specific Expenses	275	302	110%
ALL PROGRAMS	7,217	10,984	152%

*Includes estimated inflation

6.4 LOW INCOME PROGRAM AREA ENERGY SAVINGS

Table 6-2 below lists the new savings estimates relating to the requested funding amount and how they compare to what was approved in the 2019-2022 DSM Plan.

Table 6-2: 2021-2022 Low Income Program Area Energy Savings by Program

Program Area	Incremental Annual Gas Savings, Net (GJ)					
	2021			2022		
	DSM Plan	Revised Forecast	Variance	DSM Plan	Revised Forecast	Variance
Low Income*						
Direct Install Program	11,000	8,553	78%	11,440	10,971	96%
Self Install Program	35,100	26,568	76%	35,100	28,080	80%
Prescriptive Program	31,041	22,426	72%	31,167	25,077	80%
TOTAL	77,141	57,547	75%	77,707	64,128	83%

The overall savings for the Low Income portfolio relative to the 2019-2022 DSM Plan are lower. There are three primary factors that explain the lower savings: participation in the Direct Install

Program, varying participant types in the Self Install Program, and varying participant behaviour in the Non-Profit measures of the Prescriptive Program.

The Direct Install Program is seeing higher investments and higher savings per participant; however, the cost of energy savings is increasing and the number of participants in 2021 is expected to be lower than anticipated in the 2019-2022 DSM Plan. There are a number of factors that are impacts the cost of energy savings, including:

1. While the costs of furnace installations remain fairly stable, the savings claimed is reduced (see Residential Program Area Energy Savings section for reduced furnace savings discussion).
2. Additional costs due to COVID-19 safety protocols put in place such as systems for contact tracing, additional COVID-19 screening of participants and contractors, PPE, sanitizing high touch areas, etc.
3. The energy saving opportunities in manufactured homes are not as cost effective as some of the more simple conventional measures. For example, the costs relative to savings of items such as draft-proofing and furnaces in manufactured homes are much higher than simple items such as faucet aerators and showerheads.
4. The reduced participant count is a key factor in the reduced savings that the program claims. The reduction in participants is primarily due to participants being less eager to have contractors come into their homes during a pandemic. Participation is starting to recover; however, there are still lingering sentiments that are impacting program uptake.

The Self Install program is another area that is currently forecasting energy savings below the 2019-2022 DSM Plan. The savings per kit is a factor of average savings from several different types of kits. The kits that participants receive are based on household characteristics such as number of showers, number of bathroom sinks, etc. This level of forecasting is difficult and the variance in savings is a result of a variance in participation relative to assumptions around the household characteristics of forecasted participants. The energy savings variance on a per kit basis is approximately 0.5 GJ; however, because of the large number of participants in this program, the impact on overall forecasted savings for the Low Income portfolio is significant.

The Prescriptive Program, and more specifically the Non-Profit (Bundled) measure is the other area where there is a significant variance between the current forecast savings and the savings that were anticipated in the DSM Plan. Originally FEI anticipated that non-profit housing societies would install several measures as recommended by the energy studies. In reality, many participants are installing only one measure (most often a boiler or water heating system).

Additional details on projected energy savings relative to the 2019-2022 DSM Plan for the Low Income Program Area are included in Appendix E.

6.5 *IMPLICATIONS OF NOT INCREASING FUNDING TO MEET CUSTOMER DEMAND*

Not funding customer demand in our Low Income programs would be contrary to the expectations of key stakeholders for this customer segment. The DSM Plan budget levels were set based on anticipated customer demand and the fact that demand is greater than anticipated is a reflection of customer need.

To curb investment in the Direct Install Program FEI would need to consider slowing the pace, and could lose efficiency, of expansion of energy saving opportunities in manufactured homes. For example, FEI has been working with program contractors to build contractor capacity to better serve energy saving opportunities in manufactured homes for over a year. To slow expansion at this point in time would likely result in losing some of that capacity and training which would need to be built up again at a later date.

Additionally, FEI would need to consider reducing or removing rebates in the Prescriptive Program for income qualified customers and non-profit housing providers. This again would lead to inefficiencies in gaining participation in our programs in the future. Due in part to the Bigger Rebates offer, there is greater awareness amongst contractors of our rebate offerings, especially for income qualified rebate offers. To make any reductions to these offers could cause market confusion, which may be difficult to reverse. And, because the Province currently contributes to some Low Income rebates, a reduction in demand for rebates would reduce the Province's investments in GHG reducing initiatives. There could also be adverse impacts to non-profit housing providers who are used to seeing consistency in FEI rebate amounts and housing societies may be in the midst of projects that are based on an expectation of receiving a specific rebate amount. Altering or removing rebates could result in a heavier than expected financial burden to housing societies.

7. CONCLUSION

FEI submits that its requested changes to the final two years of the 2019-22 DSM Plan are required due to the impacts of the COVID-19 pandemic and FEI's COVID-19 customer support initiatives which have driven higher than expected customer demand within FEI's Residential and Low Income Program Areas. FEI has demonstrated that the changes to its 2021 and 2022 DSM expenditure levels are in response to market demand and still result in a cost-effective DSM Portfolio. Finally, FEI has discussed these proposed changes with EECAG, considered their feedback in preparing this Application and believes there is general support from EECAG members. For these reasons FEI submits that its proposed DSM expenditure schedule is in the public interest and should be accepted by the BCUC.



ORDER NUMBER

G-xx-xx

IN THE MATTER OF
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

FortisBC Energy Inc.
2019-2022 Demand Side Management Expenditures Plan –
Request for Acceptance of Industrial Expenditures Budget Transfer for 2020

BEFORE:

[Panel Chair]
Commissioner
Commissioner

on **Date**

ORDER

WHEREAS:

- A. On January 17, 2019, the British Columbia Utilities Commission (BCUC) issued its decision by way of Order G-10-19 in the FortisBC Energy Inc. (FEI) Application for Acceptance of 2019-2022 Demand Side Management (DSM) Expenditures Plan (2019-22 DSM Plan) proceeding, approving, among other things, FEI's request that funding transfers follow the same process as was established in the FEI 2012 and 2013 Revenue Requirements and Natural Gas Rates Decision;
- B. On July 2, 2021, FEI filed an application to update DSM forecasts and request changes to the approved expenditure budgets for the Residential and Low Income Program Areas for the final two years of the 2019-22 DSM Plan (the Application).
- C. The Application requests acceptance of revised DSM expenditure budgets for 2021 of \$50.119 million for the Residential Program Area and \$10.323 million for the Low Income Program Area, resulting in an overall portfolio funding increase of \$24.982 million. The Application also requests revised 2022 DSM expenditure budgets of \$34.816 million for the Residential Program Area and \$10.984 million for the Low Income Program Area, resulting in an overall portfolio incremental funding increase of \$7.200 million.
- D. The BCUC has reviewed the Application and finds that approval is warranted.

NOW THEREFORE, pursuant to section 44.2 of the *Utilities Commission Act*, the BCUC orders as follows:

1. The revised 2021 expenditure budgets for the Residential Program Area of \$50.119 million and the Low Income Program Area of \$10.323 million, resulting in an overall portfolio incremental funding increase of \$24.982 million are accepted.
2. The revised 2022 expenditure budgets for the Residential Program Area of \$34.816 million and the Low Income Program Area of \$10.984 million, resulting in an overall portfolio incremental funding increase of \$7.200 million are accepted.

DATED at the City of Vancouver, in the Province of British Columbia, this (XX) day of (Month Year).

BY ORDER

(X. X. last name)
Commissioner

Appendix B

ENERGY EFFICIENCY AND CONSERVATION ADVISORY GROUP CONSULTATION SESSION, BACKGROUNDER, PRESENTATION AND NOTES

May 28, 2021

Dear EECAG Members,

**Re: Backgrounder:
Proposed 2021 & 2022 Program Area Funding Increase for the Residential and Low Income Program Areas**

Overview

FortisBC Energy Inc. ("FEI" or "Company") has the following agenda planned for the June 3rd, 2021 Energy Efficiency and Conservation Advisory Group ("EECAG") meeting and is looking forward to hearing feedback from the EECAG on the following topics.

June 3, 2021 EECAG Meeting Draft Agenda

9:00 am	Welcome, Introductions & Agenda Overview
9:30 am	Presentations: <ul style="list-style-type: none">• Residential DSM Program Area 2021-2022 Funding Increase (Jennifer Shum)• Low Income DSM Program Area 2021-2022 Funding Increase (Ned Georgy)
10:00 am	Options discussion
10:45 am	Next steps
11:00 am	Adjourn

FEI would like feedback from the EECAG regarding unexpected increased levels of customer participation in the Residential program area and the Low Income program area. EECAG input is important to FEI and will inform the Company's anticipated application to the British Columbia Utilities Commission ("BCUC") to increase funding for the Residential and Low Income program areas.

The opportunity to increase Residential and Low Income expenditures is primarily due to the following developments since the COVID-19 pandemic was declared:

Residential Program Area

- As part of FortisBC's COVID-19 recovery offers and in conjunction with the 2020 BC Restart Plan, the Home Renovation Rebate and CleanBC Better Homes Program Partners launched a time-limited offer in October of 2020 that doubled the rebate amounts for eligible space heating equipment and select other energy efficient equipment.
- To participate in the time-limited offer, interested homeowners had the opportunity to register for a promotional code during a 90-day window. The number of registered promotional codes exceeded initial forecasts, which were developed based on participation in previous time-limited offers.

Low Income Program Area

- In the early days of the COVID-19 pandemic, FortisBC, its program contractors and many of FortisBC's customers felt it best to discontinue work that involved going into customers' homes. This resulted in the Direct Install Program being out of market from mid-March until August. This then resulted in a backlog of work. Addressing the backlog of work began in 2020 and continued in 2021, which has accelerated our investment of 2021 budget.
- The Direct Install Program is also making progress in developing greater energy saving opportunities for manufactured homes. The opportunity for energy efficiency in manufactured homes is significant and is expected to create a sustained demand for higher investment in the Direct Install Program through the end of the Plan period and beyond.
- The time-limited Bigger Rebates offer in the fall had a positive impact on building awareness amongst contractors of the Low Income Prescriptive Program and drove higher than anticipated participation in this Program.

Further background regarding the Residential and Low Income program areas and the unexpected increased levels of customer participation within each is included in the "Residential Area – Further Background" and "Low Income – Further Background" sections later in this document.

To address the above noted increase in customer participation, FEI projects that the expenditures and energy savings for each program area as compared to the approved 2019-2022 DSM Plan ("Plan") amounts will be impacted as listed below in Table 1 and Table 2 respectively. Note that Table 1 highlights in grey those areas that FEI is proposing increased funding. Other program areas listed propose no new changes to Plan and simply display revised forecasts based on current anticipated market uptake.

Table 1: 2021 & 2022 Program Area Spending – Plan vs Projection as at May 28, 2021

Program Area	Total Utility Expenditures (\$000s)*						
	2021			2022			
	DSM Plan**	New Forecast	Variance	DSM Plan**	New Forecast	Variance	
Residential	28,476	49,717	175%	31,383	34,541	110%	
Commercial	20,735	20,270	98%	19,800	19,800	100%	
Industrial	7,913	8,276	105%	8,462	8,516	101%	
Low Income	6,984	10,203	146%	7,217	11,509	159%	
Conservation Education and Outreach	8,578	6,577	77%	9,433	7,001	74%	
Innovative Technologies	5,064	5,092	101%	11,871	9,313	78%	
Enabling Activities	9,231	9,779	106%	8,921	8,535	96%	
Portfolio Level Activities	1,822	1,400	77%	1,979	1,800	91%	
ALL PROGRAMS	88,803	111,314	125%	99,065	101,015	102%	
*Includes estimated inflation							
*Includes updated DSM Plan values for Commercial, Industrial, and Innovative Technologies per the recent application approval							

Table 2: 2021 & 2022 Program Area Energy Savings – Plan vs Projection as at May 28, 2021

Program Area	Incremental Annual Gas Savings, Net (GJ)					
	2021			2022		
	DSM Plan*	Revised Forecast	Variance	DSM Plan*	Revised Forecast	Variance
Residential	300,891	239,636	80%	328,860	215,019	65%
Commercial	388,041	385,093	99%	381,421	361,770	95%
Industrial	458,769	467,328	102%	466,317	534,268	115%
Low Income	77,141	55,900	72%	77,707	62,420	80%
Conservation Education and Outreach	Savings Not Estimated			Savings Not Estimated		
Innovative Technologies	Savings Not Estimated			Savings Not Estimated		
Enabling Activities	Savings Not Estimated			Savings Not Estimated		
Portfolio Level Activities	Savings Not Estimated			Savings Not Estimated		
ALL PROGRAMS	1,224,841	1,147,957	94%	1,254,305	1,173,477	94%

**Includes updated DSM Plan values for Commercial and Industrial per the recent application approval*

Table 3 shows that with these changes, the Portfolio is projected to remain cost effective.

Table 3: 2021 & 2022 Portfolio Level Cost Effectiveness Based on Revised Expenditure Projections

Portfolio	2021 Projected		2022 Projected	
	TRC	MTRC	TRC	MTRC
All Programs / Expenditures	1.0	1.6	1.1	1.6

Note that expenditures above the approved Portfolio amount will require approval from the BCUC. FEI, at the workshop, will seek EECAG feedback regarding the value of pursuing additional funding to address the above noted increased customer participation and whether or not FEI should discontinue or significantly limit program offers to stay within the existing approved DSM Plan portfolio budget.

We look forward to meeting with you on June 3rd.

Sincerely,
FortisBC Conservation & Energy Management Team

Residential Program Area – Further Background

The Residential Program Area consists of three overarching programs that enable FEI customers to reduce their home energy consumption and support industry in improving overall home performance:

- 1. Home Renovation Program:** This program promotes energy-efficiency home retrofits in collaboration with Utility Partners (BC Hydro and FortisBC Inc.), as well as federal, provincial, and municipal governments. In addition to rebates, initiatives include capacity building for trades, ensuring high quality installations and providing opportunities to promote home labeling through EnerGuide home evaluations.
- 2. New Home Program:** This program provides financial incentives in support of energy-efficient building practices for the Residential sector. The program supports the BC Energy Step Code, and educates builders and consumers about the benefits of energy-efficient new homes.
- 3. Rental Apartment Efficiency Program:** 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 FortisBC. 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. All of the in-suite related expenses are included in the Residential Program Area, while the common area related expenses, including the energy assessment, implementation support, and common area upgrades, are included in the Commercial Program Area.

The Home Renovation Rebate Program in particular is experiencing higher than anticipated participation in 2021.

When the 2019-2022 DSM Plan was developed, FEI forecast a modest, year-over-year increase in residential expenditures. With the onset of the COVID-19 pandemic however, a potential significant slow down in contractor work became evident. A Home Performance Stakeholder Council survey conducted at the time indicated that the pandemic had negatively impacted contractors. New rebates or enhanced rebates were suggested solutions to help alleviate these impacts.

In response, FEI's Home Renovation Rebate Program, in collaboration with Program Partners FortisBC Inc., BC Hydro, and the CleanBC Better Homes Program, launched a time-limited Bigger Rebates offer. The offer doubled space heating and select energy efficiency rebates, and a bonus was also included for customers who selected a Program Registered Contractor to upgrade their insulation.

To participate, customers had the opportunity to register for a promotional code during a 90-day window. Eligible installations were required to be completed between October 1, 2020 and March 31, 2021. The installation deadline was subsequently extended to June 30, 2021 to enable higher quality installations and to address equipment shortages related to COVID-19 supply chain interruptions. (Note that the extended installation period did not allow for additional promo code registrations.)

Participation in the time limited Bigger Rebates offer has been higher than anticipated for FEI. Over 25,000 promo codes were registered within the 90-day sign-up window compared to original forecasts of 15,000 promo code registrations. In particular, customer upgrades to a high-efficiency natural gas furnace have been the key driver to this increase in participation. Tankless water heater rebates, while not part of the time-limited Bigger Rebates offer, have also grown due to increased awareness generated around rebates, as well as growing adoption of this technology.

Overall, the time limited Bigger Rebates offer played a key part of FortisBC's COVID-19 recovery offers. The increase in expenditures due to its higher than expected uptake is forecast to predominantly impact 2021, with a lower increase in expenditures required in 2022 to account for Bigger Rebate applications submitted in late 2021 and continued growth in tankless water heater rebate participation.

Table 4 presents the forecast expenditures from 2021 to 2022 by program, including both incentive and non-incentive expenditures. Non-incentive expenditures include expenses related to labour, measurement and verification, evaluation, travel, and office expenses.

Table 4: 2021-2022 Residential Program Area Expenditures by Program

	Residential Utility Expenditures (\$000s)*		
	DSM Plan	New Forecast	% Variance
	Total	Total	
Program	2021		
Home Renovation Rebate Program	18,478	41,140	223%
New Home Program	8,680	7,846	90%
Rental Apartment Efficiency Program	439	430	98%
Non-Program Specific Expenses	879	300	34%
ALL PROGRAMS	28,476	49,717	175%
Program	2022		
Home Renovation Rebate Program	20,125	25,605	127%
New Home Program	9,815	8,143	83%
Rental Apartment Efficiency Program	443	443	100%
Non-Program Specific Expenses	1,001	350	35%
ALL PROGRAMS	31,383	34,541	110%

*Includes estimated inflation

Low Income Program Area – Further Background

The Low Income Program Area consists of four main programs that assist Low Income individuals, Social Housing and Indigenous Communities to save energy. These programs include:

1. **Self Install Program:** Participants that have the capabilities to perform basic installations on their own can receive a bundle of basic energy efficiency measures delivered to their home address.
2. **Direct Install Program:** Recognizing that some Low Income customers do not have the expertise and/or physical capabilities to install energy efficient measures, these programs aim to remove that barrier by having a program delivery agent/contractor perform the installation.
3. **Prescriptive Program:** The prescriptive program is to enable a straight forward path towards a rebate for specific residential and commercial energy efficiency measures.
4. **Support Program:** Support program measures seek to enhance energy efficiency retrofit skills, provide direction to Non-Profit Housing providers seeking to enhance the energy efficiency of their housing complexes, and motivate behavioural change through education and engagement.

The Programs that are experiencing higher than expected participation and investments are the Direct Install Program and the Prescriptive Program.

The Direct Install Program is seeing higher than expected investments in 2021 primarily due to the backlog of work that was created when the Program was out of market in the early days of the COVID-19 pandemic. Both FortisBC and FortisBC contractors felt it was most prudent to not go in to customer's homes while best practices were still being developed with respect to reducing risk of transmission. Further, many key customer segments, such as Non-Profit Housing Societies and Indigenous communities were focused on ensuring safety of their members and tenants and energy efficiency was not their priority during this time. Being out of market for approximately six months created a backlog of work that flowed into 2021 and has accelerated investments in the program this year.

While the backlog of work has largely been addressed at this point, it is coinciding with an increase in work being performed in manufactured homes. Manufactured homes were contemplated during the creation of the 2019-2022 DSM Plan however, FEI did not at the time have as much information as we do today about the opportunities available in this building archetype and FEI underestimated the opportunities available for investments in energy saving opportunities. At this point FEI is taking a regional approach to targeting this archetype and building contractor capacity. Investments in this archetype are expected to be sustained throughout the remainder of the 2019-2022 DSM Plan.

The Prescriptive Program is also seeing higher than expected participation in 2021. Similar to the Residential program area, this has been primarily driven by the time-limited Bigger Rebates offer which was brought to market as part of FortisBC's COVID-19 recovery offers and in conjunction with the 2020 BC Restart Plan. Enhanced interest in this program has continued even beyond the expiry of the Bigger Rebates offer. It is likely that the general increased interest in FortisBC rebates during the Bigger Rebates offer has increased awareness and participation amongst contractors which has resulted in sustained participation in the Prescriptive Program even with the standard rebate offer.

Table 5 below lists the new expenditure amounts proposed for consideration to take advantage of the opportunities identified and how they compare to what was approved in the 2019-2022 DSM Plan.

Table 5: 2021-2022 Low Income Program Area Expenditures by Activity Area

	Low Income Utility Expenditures (\$000s)*		
	DSM Plan	New Forecast	% Variance
	Total	Total	
Program	2021		
Direct Install Program	2,324	4,948	213%
Self Install Program	503	592	118%
Prescriptive Program	3,109	4,153	134%
Support Program	823	251	30%
Non-Program Specific Expenses	225	259	115%
ALL PROGRAMS	6,984	10,203	146%
Program	2022		
Direct Install Program	2,439	5,538	227%
Self Install Program	512	674	132%
Prescriptive Program	3,156	4,651	147%
Support Program	835	338	41%
Non-Program Specific Expenses	275	307	112%
ALL PROGRAMS	7,217	11,509	159%

*Includes estimated inflation

FortisBC Energy Efficiency & Conservation Advisory Group

June 3, 2021

Agenda

1. Welcome & Introductions
2. Updates since last meeting
3. Residential program area status
4. Low Income program area status
5. Options discussion
6. Next steps

FortisBC Participants



Danielle Wensink
Director, Conservation &
Energy Management



Colin Norman
Manager, Portfolio &
Marketing Strategies



Ned Georgy
Manager, C&EM Programs



Beth Ringdahl
Manager, C&EM Programs



Jennifer Shum
Program Manager,
Residential



Tanya Rumak
Program Manager, Residential



Ken Ross
Manager, Integrated Resource
Planning and DSM Reporting

2021-2022 Funding Increase Request

Residential & Low Income Programs

Colin Norman, Manager, Portfolio & Marketing Strategies

Jenn Shum, Program Manager, Program Management & Development

Ned Georgy, Manager, Program Management & Development

June 3, 2021

Updates Since Last Meeting



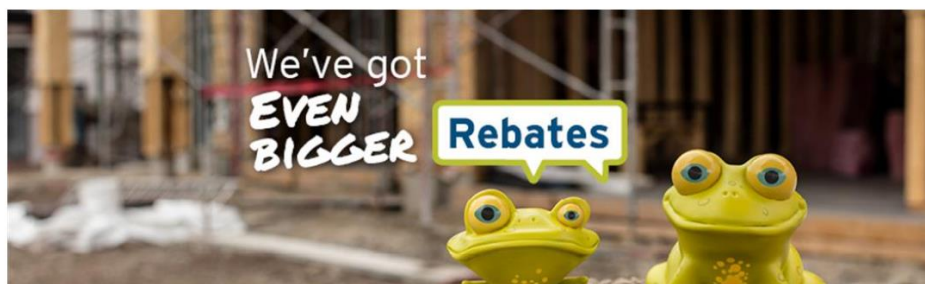
2020 COVID-19 Recovery Objectives

- Meet C&EM's approved plan targets
- Coincide with the BC Restart Plan
- Support customers and health of energy efficiency industry
- Work with program partners
- Ready for market by summer/early fall

Recovery Initiatives Overview

A key part of ensuring DSM Plan objectives could be achieved

Program sector	Recovery initiatives
Commercial/ Industrial	<ul style="list-style-type: none">Bigger rebates and modified payment structures to further support capital projects for both Prescriptive and Performance paths.
Residential	<ul style="list-style-type: none">New Home: Bigger rebates of an additional \$2,000 per Step Code level.Home Renovation: Double rebates on space heating and select energy efficiency products.
Low Income	<ul style="list-style-type: none">Bigger rebates on Income Qualified space heating rebates.
Conservation Education and Outreach	<ul style="list-style-type: none">Energy Leaders school program adapted to support distance learningFree energy savings support for small businesses



Residential Program Area Status

Jenn Shum, Program Manager, Program Development and Management

June 3, 2021

Residential Program Area

An overview

Program	Description
Home Renovation	<ul style="list-style-type: none">• Partnership with FortisBC Inc., BC Hydro, municipal, provincial and federal governments.• Promotes a whole home approach, capacity building for trades, high quality installations and home labeling (EnerGuide)
New Home	<ul style="list-style-type: none">• Supports market transformation to high performance homes• Supports BC Energy Step Code
Rental Apartment Efficiency	<ul style="list-style-type: none">• Direct install of in-suite energy upgrades• Energy assessments and support of measures in common areas

Home Renovation Rebate Program

Bigger Rebates offer – Greater uptake than expected

- In partnership with BC Hydro and the Province, rebates were doubled on space heating and select energy efficiency equipment.
- Promo code registration period open for 90 days
- Installations to be completed between October 1, 2020 and March 31, 2021 (*Date has since been extended to June 30, 2021*)
- Participation in the time-limited offer was higher than anticipated. The majority of this increase in expenditures is expected to impact 2021 only, with a smaller increase in 2022.

We're working together to help B.C. save energy



We've got *double* **Rebates**



Home Renovation Rebate Year Over Year Participation

Majority of increase in expenditures impacts 2021 only due to Bigger Rebates

Measure	Rebate	2019	2020	2021*	2022*
Measures included in Bigger Rebate offer					
Furnace	Standard rebate	9,301	8,748	7,820	8,000
	Bigger rebate		2,492	8,570	680
Connected thermostats	Standard rebate	2,271	3,785	5,130	5,200
	Bigger rebate		258	3,430	275
Boiler	Standard rebate	448	244	200	300
	Bigger rebate		61	200	30
Combination systems	Standard rebate	392	738	665	900
	Bigger rebate		173	870	90
Fireplace	Standard rebate	4,828	4,379	1,940	5,700
	Bigger rebate		867	3,870	420
Measures excluded from Bigger Rebate offer					
0.67 EF storage tank		1,907	1,446	1,500	2,000
Tankless water heater		3,519	4,421	6,000	7,000
Condensing storage water heater		113	92	100	100
Insulation		2,274	2,531	2,100	2,100

Legend:

- ***New forecast**
- Bigger Rebate participation driving 2021 expenditure increase
- Tankless water heater participation gaining momentum

Home Renovation Rebate Year Over Year Participation

2021-2022 Plan vs. New forecast participation

Measure	2021 Plan	2021 New forecast	2022 Plan	2022 New forecast
Measures included in Bigger Rebate offer				
Furnace	7,000	16,390	8,000	8,680
Connected thermostats	5,600	8,560	6,400	5,475
Boiler	500	400	500	330
Combination systems	610	1,535	650	990
Fireplace	8,190	5,810	8,410	6,120
Measures excluded from Bigger Rebate offer				
0.67 EF storage tank	4,450	1,500	4,900	2,000
Tankless water heater	2,060	6,000	2,260	7,000
Condensing storage water heater	640	100	700	100
Insulation	3,460	2,100	3,820	2,100

2021-2022 Residential Program Area

Expenditures by Program

	Residential Utility Expenditures (\$000s)*		
	DSM Plan	New Forecast	% Variance
	Total	Total	
Program	2021		
Home Renovation Rebate Program	18,478	41,140	223%
New Home Program	8,680	7,846	90%
Rental Apartment Efficiency Program	439	430	98%
Non-Program Specific Expenses	879	300	34%
ALL PROGRAMS	28,476	49,717	175%
Program	2022		
Home Renovation Rebate Program	20,125	25,605	127%
New Home Program	9,815	8,143	83%
Rental Apartment Efficiency Program	443	443	100%
Non-Program Specific Expenses	1,001	350	35%
ALL PROGRAMS	31,383	34,541	110%

*Includes estimated inflation

Questions for Clarification?



Low Income Program Area Status

Ned Georgy, Manager, Program Development & Management

June 3, 2021

Low Income Program Area

An overview

Program	Description
Self Install	Basic energy efficiency measures delivered to their home address
Direct Install	Program delivery agent performs installations and energy coaching
Prescriptive Rebate	Enhanced rebates for specific residential and commercial energy efficiency measures
Support	Energy efficiency retrofit training, energy studies, and behavioural change initiatives

Low Income: Direct Install (ECAP)

- **Program was out of market due to COVID-19:** ECAP was out of market from March to August 2020. This created a backlog of work extending in to 2021.
- **Manufactured Homes:** New type of Low Income housing was added to the program in 2021.
 - Pilots completed and installation specifications developed for underbelly insulation, furnaces, draftproofing and duct sealing.
 - Regional approach to expanding manufactured homes services currently being planned
 - There are many manufactured homes in BC that would be great prospects for Direct Install

Low Income: Prescriptive Program

- **“Bigger Rebates” campaign in fall 2020**
- **New Prescriptive Program measures:**
 - Increasing awareness and participation in our income qualified rebates in general
 - Prescriptive Program measures have been repackaged specifically for Indigenous communities and this is adding to participation in these programs

2021-2022 Low Income Program Area

Expenditures by Program

	Low Income Utility Expenditures (\$000s)*		% Variance
	DSM Plan	New Forecast	
	Total	Total	
Program	2021		
Direct Install Program	2,324	4,948	213%
Self Install Program	503	592	118%
Prescriptive Program	3,109	4,153	134%
Support Program	823	251	30%
Non-Program Specific Expenses	225	259	115%
ALL PROGRAMS	6,984	10,203	146%
Program	2022		
Direct Install Program	2,439	5,538	227%
Self Install Program	512	674	132%
Prescriptive Program	3,156	4,651	147%
Support Program	835	338	41%
Non-Program Specific Expenses	275	307	112%
ALL PROGRAMS	7,217	11,509	159%

*Includes estimated inflation

Questions for Clarification?



Portfolio Impacts of Meeting Customer Demand / Options Discussion

Portfolio Impacts of Meeting Customer Demand

FEI (Gas) Forecast Expenditures vs. 2021-2022 Approved Plan

Program Area	Total Utility Expenditures (\$000s)*					
	2021			2022		
	DSM Plan**	New Forecast	Variance	DSM Plan**	New Forecast	Variance
Residential	28,476	49,717	175%	31,383	34,541	110%
Commercial	20,735	20,270	98%	19,800	19,800	100%
Industrial	7,913	8,276	105%	8,462	8,516	101%
Low Income	6,984	10,203	146%	7,217	11,509	159%
Conservation Education and Outreach	8,578	6,577	77%	9,433	7,001	74%
Innovative Technologies	5,064	5,092	101%	11,871	9,313	78%
Enabling Activities	9,231	9,779	106%	8,921	8,535	96%
Portfolio Level Activities	1,822	1,400	77%	1,979	1,800	91%
ALL PROGRAMS	88,803	111,314	125%	99,065	101,015	102%
<i>*Includes estimated inflation</i>						
<i>*Includes updated DSM Plan values for Commercial, Industrial, and Innovative Technologies per the recent application approval</i>						

Portfolio Impacts of Meeting Customer Demand

FEI (Gas) Forecast Energy Savings vs. 2021-2022 Approved Plan

Program Area	Incremental Annual Gas Savings, Net (GJ)					
	2021			2022		
	DSM Plan*	Revised Forecast	Variance	DSM Plan*	Revised Forecast	Variance
Residential	300,891	239,636	80%	328,860	215,019	65%
Commercial	388,041	385,093	99%	381,421	361,770	95%
Industrial	458,769	467,328	102%	466,317	534,268	115%
Low Income	77,141	55,900	72%	77,707	62,420	80%
Conservation Education and Outreach	Savings Not Estimated			Savings Not Estimated		
Innovative Technologies	Savings Not Estimated			Savings Not Estimated		
Enabling Activities	Savings Not Estimated			Savings Not Estimated		
Portfolio Level Activities	Savings Not Estimated			Savings Not Estimated		
ALL PROGRAMS	1,224,841	1,147,957	94%	1,254,305	1,173,477	94%

**Includes updated DSM Plan values for Commercial and Industrial per the recent application approval*

Portfolio Impacts of Meeting Customer Demand

Additional funding request that would be required:

Program Area	Total Utility Expenditures (\$000s)*							
	2021				2022			
	DSM Plan (A)	Revised Forecast (B)	Proposed New Budget (C)	Variance (C - A)	DSM Plan (A)	Revised Forecast (B)	Proposed New Budget (C)	Variance (C - A)
Residential	28,476	49,717	49,717	21,241	31,383	34,541	34,541	3,158
Low Income	6,984	10,203	10,203	3,219	7,217	11,509	11,509	4,292
Incremental Funding				24,460				7,450

* Includes estimated inflation

Rate Impact

- 0.43% in 2022 and 0.11% in 2023
- Equivalent to approximately an additional \$0.22 per month on a typical residential customer bill in 2022 and \$0.06 per month in 2023

Portfolio Impacts of Meeting Customer Demand

TRC/MTRC

Portfolio	2021 Projected		2022 Projected	
	TRC	MTRC	TRC	MTRC
All Programs / Expenditures	1.0	1.6	1.1	1.6

Overall Impacts of Meeting Customer Demands



- No market disruption
- Business as usual for customers, contractors, administrators and program partners



- Rate impact

Alternatives to Meeting Customer Demand

- **Alternative A: Remove programs to stay within current DSM Plan budget**
 - Remove Residential programs from market immediately, reinstate in 2022
 - Forego remaining Bigger Rebate commitments
 - Remove Low Income rebates reduced or removed from market. Manufactured homes expansion delayed. Reinstall for limited time in 2022.
 - Potential reductions required from other program areas

Remove Programs to Stay Within Current DSM Plan Budget (Alternative A)

Overall Impacts



- No incremental rate impact



- Residential and Low Income programs would need to be pulled out of market to reduce 2021 expenditures
- Short notice and disruptive for customers, contractors, administrators and program partners
- Market disruption will cause delayed ramp up when back in market in 2022
- Less energy savings / GHG emission reductions

Alternatives to Meeting Customer Demand

- **Alternative B: Small reduction to budget increase – i.e. Pause furnace offer**
 - Limit furnace rebate to only be available for installations completed by June 30, 2021
 - Customers have 6 months to submit their rebate application
 - Continue to honour all remaining Bigger Rebate commitments
 - Re-launch furnace rebate in 2022

Small Reduction to Budget Increase - i.e. pause furnace offer (Alternative B)

Overall Impacts



- Saves approximately \$2.7 million from overall budget increase required to otherwise meet customer demand



- Still requires significant incremental funding across Residential and Low Income program areas
- Short notice and disruptive for customers, contractors, administrators and program partners
- Less energy savings / GHG emission reductions

Discussion/Feedback



Next steps

- Draft session notes from today's meeting out to members during the week of **Monday June 7, 2021**. Please review for errors or omissions.
- Please provide any additional feedback by **Monday June 14, 2021**:
 - ken.ross@fortisbc.com or call 604-576-7343
- Your feedback will inform FortisBC's application to the BC Utilities Commission (BCUC) for adjustments to the portfolio of natural gas DSM programs in 2021 and 2022.
- Regulatory proceeding and schedule will be determined by BCUC.
- Upcoming EECAG session: Discuss ideas for the next DSM Plan.

EEC Advisory Group Meeting Notes

June 3, 2021

Proposed 2021 & 2022 Program Area Funding Increase for the Residential and Low-Income Program Areas

June 3, 2021 EECAG Meeting Agenda

9:00 am Welcome, Introductions & Agenda Overview

9:30 am Presentations:

- Residential DSM Program Area 2021-2022 Funding Increase
(Colin Norman & Jennifer Shum)
- Low Income DSM Program Area 2021-2022 Funding Increase
(Ned Georgy)

10:00 am Options discussion

10:45 am Next steps

11:00 am Adjourn

Meeting Attendees

FortisBC Representatives:

Danielle Wensink
Colin Norman
Jennifer Shum
Ned Georgy
Tanya Rumak
Ken Ross
Beth Ringdahl

EECAG Members:

Conor Reynolds, Metro Vancouver
Nicole Chan, Metro Vancouver
Carmen Proctor, City of Nelson
Phil Stallard, British Columbia Utilities Commission (regulatory observer)
Brian Jung, BC Non-Profit Housing Association
Malcolm Bradbury, JSA Sales
Jefferey Fisher, Urban Development Institute
Trevor Billy, Pembina Institute
Katherine Muncaster BC Ministry of Energy, Mines and Low Carbon Innovation
Peter Love, Love Energy Consultants
Thomas Hackney, Sustainable Energy Association



Pat Caraher, Aboriginal, Housing Management Association
Leigha Worth, BC Non-Profit Housing Association
Steven Groves, BC Ministry of Energy, Mines and Low Carbon Innovation
David Craig, Commercial Energy Consumers
Fabian Navarro, BC Housing
Aaron Kirkhus, National Energy Equipment

Facilitation / Note-Taking:

Bob Purdy, Fraser Basin Council

Tom Welfare, Fraser Basin Council

9:00 am Welcome, Introductions & Agenda Overview

Bob Purdy, Fraser Basin Council

Introduced Fraser Basin Council and provided a territorial acknowledgement. Bob expressed deep sadness and support on behalf of Fraser Basin Council for the families and communities of the 215 Indigenous children whose remains were found at the former Kamloops residential school.

Welcomed and introduced organizational representatives attending the meeting and provided an overview and agenda for this call.

Danielle Wensink, FortisBC

FortisBC shares Bob's sentiments with regards to the discovery of the former Kamloops residential school site, a tragedy that touches all of us.

Welcomed everyone and introduced herself and the FortisBC team, including Colin Norman, Jenn Shum, Ned Georgy, Tanya Rumak, Beth Ringdahl and Ken Ross.

9:30 am Presentations

Colin Norman, FortisBC

In terms of why FortisBC did not include the Residential and Low Income funding ask within the recent Industrial and Innovative Technologies funding ask:

- Predicting ten months into the future following only two months of implementation was challenging and increasingly so due to unpredictable and ongoing COVID-19 impacts.
- Certain areas in the market reacted much differently than would have been predicted a year ago when FortisBC's program teams and program partners were starting to develop recovery offers. Examples that come to mind include renovations increasing and the skyrocketing real estate markets. It has been difficult to forecast in what is a one in 100 year event.
- Now that we have five months of data, we are able to better forecast what expenditures will be required to meet customer demand for 2021 and 2022.
- During the early stages of the pandemic, we saw a slow down of program uptake, which together with contractor feedback, we didn't expect to see the market coming back to normal

activity. To meet our energy savings targets, we put together a plan in support of the BC Restart Plan, and in line with COVID-19 safety protocols to allow work to be done safely in customer's homes and commercial sites.

- We discussed preliminary ideas with program partners to try and find new and better ways to support energy efficiency in this evolving environment. Most of our 'Bigger Rebates' went live over the summer months with the Residential Double Rebates offer going live October 1, 2020.
- We presented a summary of our recovery initiatives at the October 1, 2020 ECCAG meeting
- For the residential sector, an April – May industry survey was developed by the Home Performance Stakeholder Council, the results of which were shared with the Province and Home Renovation program partners. Industry findings suggested that 90% of businesses reported that COVID-19 had a significant impact on their business and 30% experienced layoffs or near complete work stoppage. In support of recovery, the industry survey results indicated in June, 2020 that enhanced and expanded rebates would be beneficial in accelerating retrofits.

Residential DSM Program Area 2021-2022 Funding Increase (Jennifer Shum) – Presentation Summary

Jennifer Shum, FortisBC

- As part of FortisBC's COVID-19 recovery offers and in support of the BC Restart Plan, the Home Renovation Rebate and CleanBC Better Homes Program Partners launched a time-limited offer in October of 2020. This offer doubled the rebate amounts for eligible space heating equipment and select other energy-efficient equipment.
- To participate in the time-limited offer, interested homeowners had the opportunity to register for a promotional code during a 90-day window. The number of registered promotional codes exceeded initial forecasts, which were developed based on FortisBC's previous time-limited offers.
- A decision was made to extend the installation period from the original date of March 31st 2021, to June 30, 2021, to allow contractors to perform quality installations and address equipment shortages due to supply chain issues associated with the pandemic. (Note no new participants were allowed for the FortisBC offer in this extension.)
- Our initial forecast expected 15,000 promotional code requests during the 90-day window, based on previous iterations of our time limited furnace offer. At the end of the 90 days, FortisBC received over 25,000 promo codes (based on removing duplicate entries).

Questions for clarification

Question: Is residential just part 9 or does it include part 3?

FortisBC Response:– Yes, the Home Renovation Rebate Program is primarily focused on single-family homes – There are some in-suite offers such as the fireplace rebate for stratas.

FortisBC categorizes residential primarily as part 9, part 3 is more in the commercial and institutional sector including MURBs .

Question: there was a reference to a survey. I hope this could be circulated with the slides.

Fortis BC Response: The survey was developed by the Home Performance Stakeholder Council with funding from the Federation of Canadian Municipalities. Results were presented to BC government delivered in May and then shared with program partners BC Hydro and FortisBC. We would need permission to share these findings as it was not a FortisBC study to share.

Follow-up Note: FortisBC has confirmed with the survey project partners that survey results can be shared publicly and is sending to EECAG members along with these notes.

Question: The bigger incentives are being carried over to 2022. How does that work?

FortisBC Response: We expect some late submissions for the rebate program, so some spillover into 2022.

Low-Income DSM Program Area 2021-2022 Funding Increase – Presentation Summary

Ned Georgy, FortisBC

- In the early days of the COVID-19 pandemic, FortisBC, its program contractors and many of FortisBC's customers felt it best to discontinue work that involved going into customers' homes.
- This resulted in the Direct Install (ECAP) Program being out of the market from mid-March until August, resulting in a backlog of work. This decision was a collaborative decision made by FortisBC, BC Hydro, and our contractors. Addressing the backlog of work began in August 2020 and continued into 2021, accelerating our investment in the 2021 budget. It took time to reengage our contractors to start to complete projects.
- The Direct Install Program is also making progress in developing greater energy-saving opportunities for manufactured homes. The opportunity for energy efficiency in manufactured homes is significant and is expected to create a sustained demand for higher investment in the Direct Install Program through the end of the Plan period and beyond. We ran many manufactured homes pilot projects and focused a lot of that work on the lower mainland.
- The time-limited Bigger Rebates offer in the fall positively impacted awareness amongst the Low Income Prescriptive Program contractors and drove higher than anticipated participation in this program.
- The other element driving the additional rebates is supporting Indigenous communities to deliver home retrofit and new home programs.
- The direct install program contributes to the vast majority of investments which total just over \$10 Million, or 146% of what we anticipated in the DSM Plan.

Questions for clarification

Question: Did BC Hydro and the Ministry have similar results compared to your programs?

FortisBC Response: On the low-income front, BC hydro doesn't have prescriptive rebate programs for low-income customers; however, their investments in the Direct Install income programs have been substantial.

FortisBC cannot officially comment on the program performance of BC Hydro and CleanBC offers.

Question: Do you have a special initiative to reach out to builders of new manufactured home homes to support them to build energy-efficient new homes?

FortisBC Response: The way our Current New Home Program is structured is that it doesn't discriminate about how a home was constructed. It focuses solely on outcomes of the BC Energy Step Code.

Colin Norman, FortisBC (Presenting)

- FortisBC is faced with portfolio impacts of meeting customer demand, that will result in us going more than 25% over approved expenditures in the Residential and Low Income program areas respectively in 2021. In 2022, the increase over approved expenditures is smaller.
- The energy savings is becoming more costly to obtain, and this is common across North America. When we built the DSM plan in 2017, upcoming codes and standards base lines were not forecasted and therefore energy savings have been reduced accordingly. As well, cost effectiveness inputs, including savings are updated based on new findings in program evaluations.

–Comment: Its critical that FortisBC's presentation includes an evaluation of the noted savings reductions from plan in the application to BCUC. as there will be tough questions as to why the Residential program area level of spending is proposed to increase by 75% in 2021 while savings have been reduced compared to the DSM Plan. I encourage you to delve into this in more detail – I'd be interested in seeing that review before it goes to the regulator – ultimately, we are spending more and saving less.

Comment/Question: I would like to see more information around insulation and comparing this across the other activities that were included in the Double Rebates promotion. What is the magnitude in terms of dollars spent per GHG saved for each of those different programs? I really want to understand what gives you the best bang for your buck. What provides the biggest impact with the smaller the costs. I would love to see more information around the impact of each different measure.

FortisBC Response: As we start to develop our 2023 and beyond DSM Plan these are exactly the kinds of questions we will be evaluating and consulting with you and other stakeholders.

Comment/Question: As homes get better insulated and more airtight, we need to look into heat recovery systems. Is that on the radar for incentives insulation and energy retrofits?

FortisBC Response: This is something that's not currently in the offer but something we will be looking into in our funding envelope in 2023, the next planning cycle.

The savings we claim is through the regulatory construct – this is a conservative estimation of what the market actually achieves

Question: What makes this estimation conservative?

FortisBC Response: DSM savings only capture the incremental savings above a minimum energy performance baseline although the customer experiences the full savings from the old equipment to their new equipment. It's

very much a conversation utilities are having across the whole of North America. There are slimmer DSM savings opportunities over a regulated base line, at the time that building retrofits need to be accelerated in support of climate action initiatives.

Comment/Question: From my understanding, the reduced savings are related to an increased minimum efficiency of the equipment. i.e., if someone is installing a 97% furnace, and the old mandate was a minimum 90%, but has now shifted to 92%, Fortis is now only able to claim the difference between 97% and 92% (5%), vs. 97% and 90%, (7%). Is this correct?

FortisBC Response: That is correct

Colin Norman, FortisBC (Presenting)

Portfolio Impact of Meeting Customer Demand

The customer rate impact associated with this increased budget request to support customer demand is as follows:

- 0.43% in 2022 and 0.11% in 2023
- Equivalent to approximately an additional \$0.22 per month on a typical residential customer bill in 2022 and \$0.06 per month in 2023

Jennifer Shum, FortisBC (Presenting)

Alternatives to Meeting Customer Demand

- **Alternative A:** Remove programs to stay within the current DSM Plan budget (Remove Residential programs from the market immediately, reinstate in 2022)
 - This option will result in market disruption and confusion for customers and contractors. If we remove residential programs immediately, there are about 100,000 GJ of energy savings that would not be realized for activities to close out 2021 as well as a slowdown required to gain momentum back in 2022. In 2014, FortisBC electric utility wound down their programs and it took several years to relaunch, recover the momentum, and build back contractor and consumer confidence in our programs.
- **Alternative B:** Small reduction to budget increase by reviewing individual program measures such as pausing the furnace offer. For example, ending the furnace rebate on June 30th, 2021– could save \$2.7 million however, the resulting customer and contractor confusion would be difficult to manage. In addition, these energy savings would not be captured.

Options discussion

Comment: I don't think either alternative is acceptable compared to asking for more funding. I presume that your asking for more money doesn't affect funding for the next couple of years. Can I confirm you are not looking to reduce the budget in 2023/24?

FortisBC Response: That is correct our Plan covers the period from 2019 – 2022.

Comment: I am in full support of the \$24 million request to the Commission for additional funds.

Comment: In table 1, it looks like you need \$22.511 mil as some areas are lower, not \$24 million.

FortisBC Response: The comment is correct. Our forecasts vary by percentage points monthly, so the table was updated with the most current forecast. We typically don't ask for a budget change per program area unless it exceeds the 25% spending limit per program area. You are correct that it balances out to less than \$24 Million – but for ease of explanation, the ask will focus only on the residential and low-income areas. We would not seek a change to the budget amounts for the other program areas.

Question: (Reference Slide No. 25) What was the predicted TRC for 2021 before this increase?

FortisBC Response: Including the Industrial and Innovative Technologies expenditure adjustments to the DSM Plan approved by the BCUC earlier this year:

In 2021 the forecasted TRC was 1.2 & the MTRC 1.8

In 2022 the forecasted TRC was 1.1 & the MTRC 1.7

Follow-up Note: for convenience the revised forecasted TRC and MTRC for the proposed new adjustments to meet customer demand as presented on slide 25 of the FortisBC presentation is as follows:

Portfolio	2021 Projected		2022 Projected	
	TRC	MTRC	TRC	MTRC
All Programs / Expenditures	1.0	1.6	1.1	1.6

Comment: As counsel for residential ratepayers, particularly for low-income programs, I think the proposal to increase the spending for residential ratepayers is a good one. I'm pleased to see this is the first option you are bringing forward. I don't think taking a step back from the programs is a good one as it will take a long time to get them back up and running. I would need to see all the details; however, I support this and recommend that my clients (depending on the details) do so.

Comment: I support the entire application. Residents are already struggling with complexities around rebates; alternatives would be detrimental all around.

Comment: The BC Non-Profit Housing Association would support the application. An alternative would be catastrophic for all the projects we currently have. We are ramping up our works to help charities get access to retrofitting so that hard work and momentum would be lost. The low-income programs have been revolutionary in the non-profit sector in the last 4 years. Retrofits that were not possible before are now moving forward

Comment: Agree with <previous> comments. And is in support of the full application

Comment: I am supportive of the full application - not options A & B

Comment: Our association supports the increase. We greatly value the support of ECAP, ICCP and SHRSP for our members. From a climate perspective, we need to be more aggressive, not less. And a shout out to BCNPHA for providing ASHRAE L1 audits that I believe are supported by the utilities.

Comment: How does the cost-effectiveness of DSM savings compare to other alternatives for building GHG reduction such as electric ASHP and considering impending regulation such as higher building efficiency standards, rising carbon tax and mandatory step code? Are we committing customers to higher costs (and GHG) in the future due to the longer life of equipment?

FortisBC Response: This is not an analysis we have completed, but as we look forward to our following planning stages, we are very aware of the need to decarbonize and what our future DSM activities can look like to further address decarbonization scenarios.

FortisBC Response: We are looking at many other activities around decarbonization, including renewable gasses, developing a resource plan and transportation activities. The study we have done at a high level shows that the electrification pathway compared to a diverse pathway with renewable gasses alternatives would be the more expensive way to proceed.

Question: Is FortisBC increasing the use of the ZEEA to maintain the cost-effectiveness of the Plan?

FortisBC RESPONSE: We have looked at the MTRC and the MTRC cap and the option we have put forward increases use of the cap. So yes, the changes we have suggested will put the MTRC very close to 40% of the Portfolio expenditures which is right at the MTRC cap.

Question: Have you considered an in-between option? Moving forward with the low-income and stepping away from residential ask?

FortisBC Response: We certainly want to receive feedback from ECCAG for other options/suggestions.

Question: How much would it cost to keep the low-income?

FortisBC Response: It would cost \$2.1 Million in 2021 and \$4.2 million for 202.2

Comment: We have been strong supporters of DSM programs. We would not want to see the program suspended temporarily. It would cause disruption and send the wrong message to the public. We support continuing the offerings.

I have some concern about the reductions achieved. I second <the earlier comment> about getting more of a fuller in-depth explanation of that. I know that FortisBC is looking at a deep retrofit initiative, and does this call into the question the benefit of the deep retrofit initiatives? I would be concerned if this was affected.

Response: The deep energy retrofits initiative is a pilot funded through the Innovative Technologies Program Area to determine costs, energy savings and technical requirements associated with a whole building approach. The pilot is independent of the residential program area.

Comment: We represent 100,000 BC residents and a lot are low-income that live in the FortisBC area. The BCC Residential Rate peer groups might not be on board with a reduction in DSM for Low-income programs. It may leave a large portion of groups being under served by DSM programs.

Comment: The worst thing you could do if you have a successful program is to reduce its exposure. I would be very strongly opposed to cut off your programs and not expand them. I find this proposal in line with the government's GHG commitments. You can't turn a successful program off and on. FortisBC

should be congratulated on implementing a successful program. It is meeting the demand of people in the market. I would like to have more data at hand, but ultimately, these programs are successful and directly contributed to reductions in GHG emissions. The sense I get from this group is the vast majority accept this proposal.

Comment: Our view from the commercial energy sector is the more cost-effective DSM, the better. It assists customers in reducing their bills, provides good customer service and supports climate and economic benefits. We want to be more focused on people's bills and not rates. We favour these kinds of programs, and this is what I am hearing from everyone else. Commercial Energy Consumers is fully supporting this application.

Comment: It's a pretty big ask, and I will need to get back to you on that when I speak to my supervisor.

Question: Are these programs supported by provincial and federal governments? When the total resource cost is being calculated, does the cost includes those grants? Does the proposal impact the utility cost test?

FortisBC Response: In the residential and low-income program area, there are some elements where the provincial government would get top-up funding, but this \$24 million in 2021 is purely FortisBC customer funding through rates.

Further, the TRC we have provided is based on savings related to the FortisBC incentives. The utility cost test is impacted because the utility cost is increasing. The option we are looking at remains cost-effective.

Question: Has increased uptake of the wider residential program due to the upcoming federal Greener Homes program been considered in terms of budget impact? It's a great time to be really driving retrofits with two programs in the market, rather than drawing back, but it will be more costly.

FortisBC Response: No, at this time we don't see the federal offer having an immediate impact on our current programs. However, we are evaluating the federal offer to see how exactly we can integrate their offers with all the existing programs in BC. The Greener Homes program requires Energuide Evaluations to participate, so we will need to see how this may impact our programs in the longer term.

Comment: From the perspective of our regional Climate 2050 strategy, I am supportive of <the earlier> suggestion to slow down or halt programs related to equipment rebates, while maintaining the low-income programs and non-equipment-related rebates. Until the analysis on other energy efficiency alternatives with respect to electric heat pumps is completed, it'll be difficult to express support without understanding whether gas equipment rebates offer the best value to ratepayers in terms of \$/GHG reduction and reducing customer bills. Essentially I'm trying to look at this from the perspective of the energy users. We will need to take it away, but hopefully, we can get back to you soon on this.

FortisBC Response: We need to consider more conversations as we look at 2023 onwards around decarbonization. We want to diversify our approach and provide a diverse pathway to reducing GHG emissions in the province.

Next steps



- Meeting notes will be provided back to EECAG Members the week of June 7.
- Please provide any additional feedback by Monday, June 14, 2021, to ken.ross@fortisbc.com or call 604-576-7343
- Your feedback will inform FortisBC's application to the BC Utilities Commission (BCUC) for adjustments to the portfolio of natural gas DSM programs in 2021 and 2022.
- Regulatory proceedings and schedule will be determined by BCUC.
- Upcoming EECAG session: Discuss ideas for the next DSM Plan.

In response to EECAG member review of the meeting notes, FortisBC received a request from an EECAG member to provide a response to all EECAG members explaining the outcome of FEIs commitment to further review the Residential program savings estimates presented during the session.



HOME PERFORMANCE
STAKEHOLDER COUNCIL

THE PANDEMIC

90%

"COVID19 HAS HAD A
SIGNIFICANT IMPACT ON MY
BUSINESS"

30%

"LAY OFFS OR NEAR COMPLETE
WORK STOPPAGE"

77%

NOTED SIGNIFICANTLY
REDUCED WORK/SALES

*"Sales are down considerably as
homeowners are minding their
expenditures and are afraid to have
people in their home."*

Webinar Participant - May 2020

"FINANCIAL STIMULUS IS
ESSENTIAL"

73%

FAVOUR "SUSTAINED
FINANCIAL SUPPORT"

77%



RESPONSE RECOMMENDATIONS

JUNE 2, 2020

THE HOME RETROFIT INDUSTRY

BC's home energy retrofit industry is essential to meeting GHG reduction targets.

- 70 per cent of buildings standing today will still be in use as of 2050. [Pembina]
- 7 per cent of BC's GHG emissions come from our homes. [Provincial GHG Inventory]
- Every dollar we invest in energy efficiency generates up to four times its value in economic growth. [CleanBC]

This contracting industry is composed of thousands of small and medium sized businesses distributed across almost every community in the province of BC, so the potential of financial stimulus to benefit homeowner and businesses across the province is strong.

The Home Performance Stakeholder Council is a voice for this industry. Here is what our network is saying:

STIMULUS PRIORITIES

- Home energy renovation tax credits
- New rebates
- Enhanced rebates
- Financing programs
- Consumer engagement

ENABLING PRIORITIES

- COVID19 safety guidelines
- Safe residential retrofits consumer campaign

RECOVERY PRIORITIES

- Expanding rebates for programs to medium-income, low income, social housing, market rental housing
- Mass scale regional retrofit programs
- Better integrate energy evaluations into programs
- Mass scale long term national investments
- Training



HOME PERFORMANCE
STAKEHOLDER COUNCIL

TRAINING

"Training without demand or framework to require it for specific industry is difficult for employers to justify/pay for."

Survey Participant - May 2020

"There is a big gap in knowledge with skilled sub trades and I do see this as something that should be an industry focus long term. Training does not help with the enormity of this problem short term."

Survey Participant - May 2020

CONSUMER CONFIDENCE

"The most important thing right now is to create consumer confidence in the industry..."

Survey Participant - May 2020

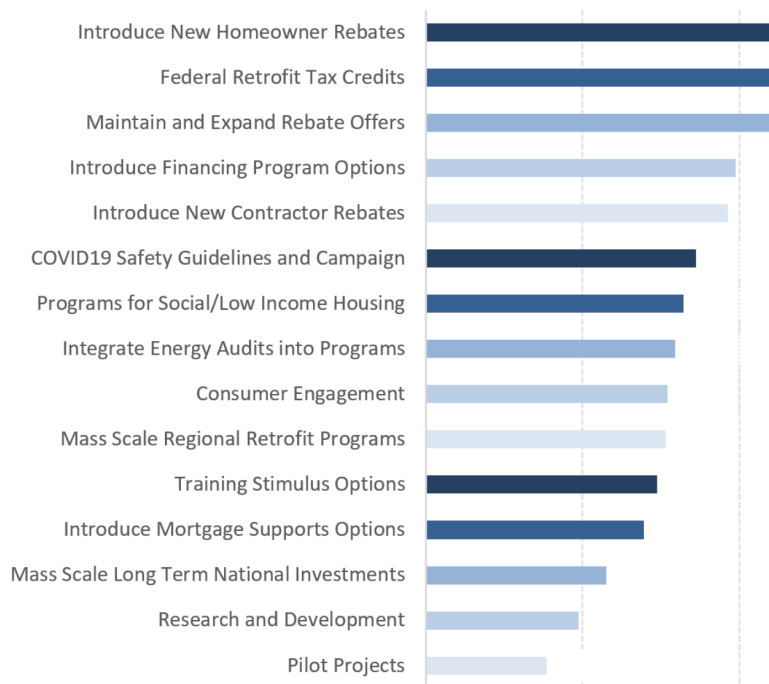
"If there aren't good, clear guidelines on how to work safely in occupied homes, any retrofit stimulus measures will be running uphill."

Survey Participant - May 2020

RESPONSE RECOMMENDATIONS

JUNE 2, 2020

WHAT KIND OF A RESPONSE DO CONTRACTORS WANT TO SEE?



NEW/ENHANCED REBATES

- Incentives for air sealing
- A \$200 Rebate for 1.0 U-Factor window
- Higher rebates for all retrofits, low-medium income homes and deep energy retrofits
- New and improved incentives for electrification
- Incentives for heat pump upgrades, replacing older, less efficient models with R22 refrigerant
- Insulation rebates increased for headers and crawlspace walls
- Rebates for quality installations

CONTACT THE HPSC FOR MORE
INFORMATION ON HOW BEST
TO SUPPORT BC'S HOME
ENERGY RETROFIT INDUSTRY

The content presented was developed using feedback gathered by the HPSC through a survey, three webinars and directly by email and phone. Content may not be representative of all contractors in BC.

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Appendix C

**TABLE 3-1: BC'S ENERGY OBJECTIVES MET BY FEI DSM
ACTIVITY, 2019-2022 DSM PLAN**

1

Table 3-1: BC's Energy Objectives Met by FEI DSM Activity

Energy Objective	FEI DSM Portfolio
(b) to take demand-side measures and to conserve energy, including the objective of the authority reducing its expected increase in demand for electricity by the year 2020 by at least 66%;	FEI's proposed DSM expenditures are designed to implement cost-effective (as defined by the DSM Regulation) demand-side measures and conserve energy as a result. The estimated net present value of natural gas savings (net of free ridership) for the 2019 to 2022 period is projected to be a total of 36,160,900 gigajoules (GJ).
(d) to use and foster the development in British Columbia of innovative technologies that support energy conservation and efficiency and the use of clean or renewable resources;	FEI's Innovative Technologies Program Area, described in Section 8 of Appendix A meets this objective. This program area: evaluates innovative energy saving technologies; conducts pilot studies to validate manufacturers' claims related to equipment and system performance; and assesses actual energy savings and customer acceptance of these newer technologies or systems of technologies. Technologies that successfully emerge from the Innovative Technologies Program Area are considered for inclusion within the applicable sector programs.
(g) to reduce BC greenhouse gas emissions (i) by 2012 and for each subsequent calendar year to at least 6% less than the level of those emissions in 2007, (ii) by 2016 and for each subsequent calendar year to at least 18% less than the level of those emissions in 2007, (iii) by 2020 and for each subsequent calendar year to at least 33% less than the level of those emissions in 2007, (iv) by 2050 and for each subsequent calendar year to at least 80% less than the level of those emissions in 2007, and (v) by such other amounts as determined under the Greenhouse Gas Reduction Targets Act;	FEI's DSM programs will result in substantial natural gas savings. This will in turn lead to commensurate reductions in greenhouse gas emissions of 1,865,902 tonnes CO ₂ e.
(i) to encourage communities to reduce greenhouse gas emissions and use energy efficiently;	All of FEI's DSM programs encourage communities to reduce greenhouse gas emissions and use energy efficiently.
(k) to encourage economic development and the creation and retention of jobs;	FEI's DSM Programs have a broad impact on the provincial economy as measured through employment, gross domestic product (GDP) and industrial output.

2

3 In FEI's view, the Commission's consideration of British Columbia's energy objectives must
4 weigh heavily in favour of FEI's proposal to continue and expand investment in cost effective
5 DSM programs.

Appendix D

ICF CANADA DSM PLAN 2021-2022 UPDATE REPORT



FORTISBC ENERGY INC. DSM PLAN 2021-2022 UPDATE REPORT

Program Description and Cost-Effectiveness Results

June 30, 2021

Submitted to:

FortisBC

Submitted by:

ICF Canada

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1 Introduction

1.1 Background and Objectives

This update to the 2021-2022 period of FortisBC Energy Inc.'s (FEI's) previously approved 2019-2022 Demand Side Management (DSM) Plan for Conservation and Energy Management (C&EM) focuses on proposed budget updates to the following previously approved program areas:

- Residential Energy Efficiency Program Area
- Low Income Energy Efficiency Program Area

This DSM Plan Update covers all of FEI's natural gas service territory. In addition, it provides program details and planned cost-effectiveness results for the above-noted program areas. Other program areas within the previously approved 2019-2022 DSM Plan have also been updated with revised forecasts for the purposes of supporting updates within the Portfolio level Exhibits 1 through 5.

The programs listed in the Residential and Low Income program areas are continuations of programs that FEI is currently operating, and has reported on in its most recent DSM Annual Report.

As with all long-term plans, it should be noted that this DSM Plan is subject to changes in market conditions, customer responses to programs, consultation input from stakeholders, including program partners, and changes in government direction and policy. Therefore, information and forecasts listed in the Program Profiles represent best estimates as of the filing of this DSM Plan Update and are subject to adjustments, as required.

1.2 Approach

The following bottom-up approach was used for the Residential and Low Income program areas, similar to the approach used in previous DSM Plans:

- The detailed Program Profiles that were developed for the 2019-2022 DSM Plan were used as a starting point.
- FEI program area managers updated the Program Profiles to reflect proposed changes in program spending and changes to some of the measure input assumptions based on program performance to date. Individual profiles are included in the body of this report.

A bottom-up approach was used to characterize the other program areas as well, although detailed program profiles were not developed for their programs. Subsequently, the following approach was used to complete the DSM Plan Update:

- Updated input assumptions were fed into the cost-effectiveness model used to complete the DSM Plan Update. Initial results were generated at the level of total DSM program portfolio, program area (e.g., Residential, Commercial, etc.), and individual program.
- The initial results were reviewed collaboratively and revisions were made, as necessary.
- The final results were compiled into the current report.

1.3 Report Organization

The remainder of this report is presented in the following sections:

- Section 2 provides an overview of the **Overall DSM Program Portfolio Results**.
- Section 3 provides a description of the individual programs and cost-effectiveness results for the **Residential Energy Efficiency Program Area**.
- Section 4 provides a description of the individual activity areas and cost-effectiveness results for the **Low Income Energy Efficiency Program Area**.

1.4 Notes

The following general notes apply to all the program areas:

- Totals in Exhibits may not add exactly; any differences are due to rounding.
- All budgets values in this report are in nominal dollars (i.e. including inflation).
- A “Non-Program Specific Expense” line item has been included in Exhibits for each program area. These planned expenditures represent the costs that are attributable to that program area but support multiple programs and, therefore, are not specific to only one program. Generally, these expenditures represent items such as training, travel, marketing materials and consulting services that support the overall program area. The amounts in this plan are based primarily on past reported non-program specific expenses with scaling up factored in as deemed appropriate.

2 Overall DSM Program Portfolio Results

2.1 Introduction

This section provides a summary of the total expenditures, estimated natural gas savings, and associated cost-effectiveness for FEI's proposed portfolio of Demand Side Management (DSM) programs for the 2021-2022 period. The DSM portfolio is organized into the following program areas:

- Residential Energy Efficiency Program Area
- Commercial Energy Efficiency Program Area
- Industrial Energy Efficiency Program Area
- Low Income Energy Efficiency Program Area
- Conservation Education and Outreach Initiatives
- Innovative Technologies Program Area
- Enabling Activities

2.2 Overall Portfolio Results

The overall DSM program results are summarized in the following exhibits:

- Exhibit 1 provides a summary of expenditures.
- Exhibit 2 presents the results for the total DSM program portfolio.
- Exhibit 3 summarizes the annual expenditures for the programs with measures that require the Modified TRC (MTRC) adder and compares these expenses to those for the entire portfolio.
- Exhibit 4 and Exhibit 5 present the results for each individual program area and for the total DSM program portfolio.

Exhibit 1 - Summary of Annual Expenditures

Program Area	Total Utility Expenditures (\$000s)		
	2021	2022	Total
Residential	50,119	34,816	84,935
Commercial	19,581	20,837	40,418
Industrial	8,276	8,516	16,792
Low Income	10,323	10,984	21,307
Conservation Education and Outreach	6,577	7,001	13,578
Innovative Technologies	5,092	9,313	14,405
Enabling Activities	10,016	8,535	18,551
*Portfolio Level Activities	1,400	1,800	3,200
ALL PROGRAMS	111,384	101,801	213,185

*Portfolio Level Activities are those activities for which the costs cannot be assigned to individual DSM programs. It should be noted that these activities are distinct from Enabling Activities. These distinct Portfolio Level Activities include expenditures such as DSM support and portfolio level staff labour, some staff training and conferences, facilities and equipment, some industry association memberships, regulatory work, and EECAG¹ activities.

¹ The Energy Efficiency and Conservation Advisory Group (EECAG) provides insight and feedback on FEI's portfolio of DSM activities and related issues.

Exhibit 2 - Results for the Total DSM Program Portfolio

Indicator	Year	Total
Utility Expenditures, Incentives (\$000s)	2021	83,565
	2022	69,592
	Total	153,157
Utility Expenditures, Non-Incentives (\$000s)	2021	27,819
	2022	32,209
	Total	60,028
Utility Expenditures, Total (\$000s)	2021	111,384
	2022	101,801
	Total	213,185
Net Incremental Annual Gas Savings (GJ/yr.)	2021	1,239,520
	2022	1,307,918
Cumulative Net Annual Gas Savings (GJ)	2021-2022	2,547,438
NPV of Net Gas Savings (GJ)	2021	28,395,299
Benefit/Cost Ratios	TRC	1.0
	Portfolio*	1.5
	Utility	1.0
	Participant	2.3
	RIM	0.4

*Includes the MTRC adder for measures that require it (i.e., TRC/MTRC hybrid).

Exhibit 3 - Summary of the Expenditures for Measures that Require the MTRC Adder*

Program	Total Utility Expenditures (\$000s)		
	2021	2022	Total
Home Renovation Program (Residential)	32,605	18,726	51,330
New Home Program (Residential)	7,647	7,863	15,510
Performance Program - New Buildings (Commercial)	425	205	630
Performance Program - Existing Buildings (Commercial)	1,113	1,398	2,511
Prescriptive Program (Commercial)	513	404	917
Rental Apartment Efficiency Program (Commercial)	260	478	738
ALL MTRC MEASURES	42,562	29,074	71,637
ENTIRE PORTFOLIO	111,384	101,801	213,185
PORTFOLIO UTILIZING MTRC (%)	38.2%	28.6%	33.6%

*With the exception of Low Income measures, all DSM measures having a TRC benefit-cost ratio less than 1.0 and an MTRC benefit-cost ratio greater than 1.0 were classified as MTRC measures. This exhibit displays the total utility expenditures (incentives & non-incentives), by program, for all MTRC measures. Program-level non-incentive expenditures were attributed to individual DSM measures based on their share of the program's total forecasted participants.

Exhibit 4 - Expenditures for Each of the Program Areas and the Total DSM Portfolio

Program Area	Utility Expenditures (\$000s)								
	Incentives			Non-Incentives			Total Expenditures		
	2021	2022	Total	2021	2022	Total	2021	2022	Total
Residential	46,569	32,097	78,666	3,550	2,718	6,269	50,119	34,816	84,935
Commercial	16,891	17,867	34,758	2,690	2,970	5,660	19,581	20,837	40,418
Industrial	7,240	7,650	14,890	1,036	866	1,902	8,276	8,516	16,792
Low Income	8,043	8,362	16,405	2,280	2,622	4,902	10,323	10,984	21,307
Conservation Education and Outreach	0	0	0	6,577	7,001	13,578	6,577	7,001	13,578
Innovative Technologies	1,186	200	1,386	3,906	9,113	13,019	5,092	9,313	14,405
Enabling Activities	3,636	3,416	7,052	6,380	5,119	11,499	10,016	8,535	18,551
Portfolio Level Activities	0	0	0	1,400	1,800	3,200	1,400	1,800	3,200
ALL PROGRAMS	83,565	69,592	153,157	27,819	32,209	60,028	111,384	101,801	213,185

Exhibit 5 - Gas Savings and Cost-Effectiveness Results for Each of the Program Areas and the Total DSM Portfolio

Program Area	Incremental Annual Gas Savings, Net (GJ)		Cumulative Annual Gas Savings, Net (GJ)	NPV Gas Savings, Net (GJ)	Benefit/Cost Ratios				
	2021	2022			TRC	Portfolio*	Utility	Participant	RIM
Residential	272,112	238,323	510,434	6,415,000	0.4	1.5	0.6	1.5	0.3
Commercial	442,533	471,200	913,733	10,447,427	1.4	1.5	1.9	2.7	0.4
Industrial	467,328	534,268	1,001,596	10,253,212	3.1	3.1	4.5	4.9	0.6
Low Income	57,547	64,128	121,675	1,279,659	3.1**	3.1	0.4	2.5	0.2
Conservation Education and Outreach	Savings Not Estimated				Savings Not Estimated				
Innovative Technologies	Savings Not Estimated				Savings Not Estimated				
Enabling Activities	Savings Not Estimated				Savings Not Estimated				
Portfolio Level Activities	Savings Not Estimated				Savings Not Estimated				
ALL PROGRAMS	1,239,520	1,307,918	2,547,438	28,395,299	1.0	1.5	1.0	2.3	0.4

*Includes the MTRC adder for measures that require it (i.e., TRC/MTRC hybrid)

**Section 4 of the BC Demand-Side Measures Regulation, as amended in March 2017, requires the use of the Zero Emission Energy Alternative and a 40% benefit adder in calculating the TRC for Low Income programs.

3 Residential Energy Efficiency Program Area

3.1 Introduction

For the 2021-2022 period of FEI's previously approved 2019-2022 DSM Plan, the customer offerings for the Residential Energy Efficiency Program Area have been organized into the following programs:

- **Home Renovation Program:** This 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 one overarching program.
- **New Home Program:** This program, which is being run in partnership with FortisBC Inc., will support local governments in their adoption of the BC Energy Step Code, as part of an ongoing initiative for market transformation to high performance homes.
- **Rental Apartment Efficiency Program:** This program is supported by both the Residential and Commercial Program Areas and provides participants with direct install in-suite energy efficiency upgrades, energy assessments, and support in implementing the energy efficiency recommendations and applying for rebates. The Residential Program Area includes all of the in-suite related expenses.

3.2 Selected Highlights

There are no major program changes being proposed to the previously approved programs from the 2019-2022 DSM Plan. Forecasts have been revised to reflect anticipated participation, average incentives, and energy savings.

3.3 Overview of Results

Exhibit 6 and Exhibit 7 provide a summary of the estimated savings, program expenditures, and cost-effectiveness results for each of the programs noted above and for the Residential Energy Efficiency Program Area as a whole.

Exhibit 6 - Summary of Expenditures for the Residential Sector Program Portfolio

Program	Utility Expenditures (\$000s)								
	Incentives			Non-Incentives			Total Expenditures		
	2021	2022	Total	2021	2022	Total	2021	2022	Total
* Home Renovation Rebate Program	39,162	24,345	63,507	2,226	1,425	3,651	41,387	25,770	67,158
* New Home Program	7,158	7,502	14,660	844	750	1,594	8,001	8,252	16,253
Rental Apartment Efficiency Program	250	250	499	181	193	374	430	443	874
Non-Program Specific Expenses	0	0	0	300	350	650	300	350	650
ALL PROGRAMS	46,569	32,097	78,666	3,550	2,718	6,269	50,119	34,816	84,935

* Program includes MTRC measures

Exhibit 7 - Summary of Savings and Cost-Effectiveness Results for the Residential Sector Program Portfolio

Program	Incremental Annual Gas Savings, Net (GJ)		Cumulative Annual Gas Savings, Net (GJ)	NPV Gas Savings, Net (GJ)	Benefit/Cost Ratios				
	2021	2022			TRC	MTRC	Utility	Participant	RIM
* Home Renovation Rebate Program	221,854	186,682	408,537	5,206,225	0.4	2.0	0.6	1.5	0.3
* New Home Program	26,323	27,706	54,028	823,078	0.4	1.7	0.4	1.5	0.2
Rental Apartment Efficiency Program	23,935	23,935	47,869	385,696	3.3	16.5	3.1	12.4	0.4
Non-Program Specific Expenses	Savings Not Estimated				Savings Not Estimated				
ALL PROGRAMS	272,112	238,323	510,434	6,415,000	0.4	1.5**	0.6	1.5	0.3

* Program includes MTRC measures

** Only includes the MTRC adder for DSM measures that require it (i.e., TRC/MTRC hybrid)

3.4 Program Profiles

The following pages provide profiles for each of the programs shown above in

Exhibit 6 and Exhibit 7.

3.4.1 Home Renovation Program

Program Description	The program will promote energy-efficiency home retrofits in collaboration with Utility Partners, as well as federal, provincial, and municipal governments. In addition to rebates, initiatives include capacity building for trades, ensuring high quality installations and providing opportunities to promote home labeling through EnerGuide home evaluations.
Target Sub-Market	Residential
New vs. Retrofit	Retrofit
Partners	BC Hydro, FortisBC Inc., Municipal, Provincial and Federal Government

Forecasted Measure Participation			
Measure	2021	2022	2021-2022
Space Heating			
Furnace	16,393	8,682	25,075
Boiler	400	330	730
Combination System	1,533	990	2,523
Secondary Heating			
EnerChoice Fireplace	5,810	6,121	11,931
Direct Vent Wall Furnace ²	0	0	0
Water Heating			
0.67 EF Storage Tank Water Heater	1,500	2,000	3,500
Condensing Storage Tank Water Heater	100	100	200
Condensing Tankless Water Heater	6,000	7,000	13,000
Building Envelope			
Attic Insulation	1,500	1,500	3,000
Wall Insulation	250	250	500
Crawlspace and Basement Insulation	250	250	500
Other Insulation	100	100	200
Bonus Offers	5,640	2,720	8,360
Retail / Water Conservation			
Aerators & Showerheads	3,500	3,500	7,000
ENERGY STAR Washer	2,000	2,000	4,000
ENERGY STAR Dryer	100	100	200
Draft Proofing	20,000	20,000	40,000
Other			
Appliance Maintenance ³	0	35,000	35,000
Communicating Thermostat	8,557	5,473	14,030
Drain Water Heat Recovery	0	100	100
HVAC Zone Controls ⁴	0	0	0

² Measure not launched due to limited availability of high-efficiency condensing technology.

³ Paused to launch in January 2022 due to contractor feedback regarding program timing.

⁴ Measure not launched as additional evaluation and program development is required.

TOTAL	73,633	96,216	169,849
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Home Renovation Program (cont'd...)

Expenditures (\$000's)			
Expenditure Type	2021	2022	2021-2022
Incentives	\$39,162	\$24,345	\$63,507
Admin	\$720	\$200	\$920
Communication	\$280	\$100	\$380
Evaluation	\$226	\$125	\$351
Labour	\$1,000	\$1,000	\$2,000
TOTAL	\$41,387	\$25,770	\$67,158

Measure Details									
Measure	Incremental Cost (\$)	Incentive (\$)	Contractor Incentive (\$)	Annual Gas Savings (GJ)	Annual Elec. Savings (kWh)	Measure Lifetime (yrs)	Free Rider Rate (%)	Spillover Rate (%)	
Space Heating									
Furnace	\$1,840	\$1,095	\$75	4.6	0	18	0%	0%	
Boiler	\$3,890	\$1,315	\$75	10.0	0	18	0%	0%	
Combination System	\$309	\$1,657	\$75	17.5	0	18	32%	0%	
Secondary Heating									
EnerChoice Fireplace	\$132	\$420	\$50	8.2	0	15	39%	14%	
Direct Vent Wall Furnace	-	-	-	-	-	-	-	-	
Water Heating									
0.67 EF Storage Tank Water Heater	\$428	\$200	\$50	3.0	0	13	26%	0%	
Condensing Storage Tank Water Heater	\$2,661	\$1,000	\$50	6.9	0	13	13%	0%	
Condensing Tankless Water Heater	\$2,858	\$1,000	\$50	9.5	0	20	27%	0%	
Building Envelope									
Attic Insulation	\$1,326	\$669	\$0	8.5	0	30	20%	0%	
Wall Insulation	\$2,714	\$699	\$0	28.9	0	30	20%	0%	
Crawlspace and Basement Insulation	\$838	\$557	\$0	6.6	0	30	20%	0%	
Other Insulation	\$1,167	\$353	\$0	5.7	0	30	20%	0%	
Bonus Offers	\$0	\$205	\$0	0.0	0	-	-	-	
Retail / Water Conservation									
Aerators & Showerheads	\$23	\$4	\$0	1.9	272	10	0%	0%	
ENERGY STAR Washer	\$77	\$37	\$0	1.0	69	14	20%	0%	
ENERGY STAR Dryer	\$50	\$100	\$0	0.7	0	12	0%	0%	
Draft Proofing	\$19	\$3	\$0	0.1	0	6	0%	0%	
Other									
Appliance Maintenance	\$0	\$35	\$0	0.0	0	-	-	-	
Communicating Thermostat	\$250	\$176	\$0	2.6	0	12	25%	0%	
Drain Water Heat Recovery	\$738	\$250	\$0	4.3	0	25	3%	0%	
HVAC Zone Controls	-	-	-	-	-	-	-	-	
Weighted Average per Participant	\$597	\$353	\$21	3.0	13	18	21%	2%	

3.4.2 New Home Program

Program Description	The New Home Program will provide financial incentives in support of energy-efficient building practices for the Residential sector. The program supports the BC Energy Step Code, and educates builders and consumers about the benefits of energy-efficient new homes.
Target Sub-Market	Residential
New vs. Retrofit	New
Partners	BC Hydro, FortisBC Inc., Municipal, Provincial and Federal Government

Forecasted Measure Participation			
Measure	2021	2022	2021-2022
BC Energy Step Code - Whole Home			
STEP 2 (Single Family Dwelling)	150	150	300
STEP 2 (Townhome/Rowhome)	20	20	40
STEP 3 (Single Family Dwelling)	480	500	980
STEP 3 (Townhome/Rowhome)	220	225	445
STEP 4 (Single Family Dwelling)	125	150	275
STEP 4 (Townhome/Rowhome)	185	185	370
Space and Water Heating Systems			
0.67 EF Storage Tank Water Heater	25	25	50
Condensing Storage Tank Water Heater	150	150	300
Condensing Tankless Water Heater	800	810	1,610
Combination System	400	450	850
Secondary Heating			
EnerChoice Fireplace	940	950	1,890
Direct Vent Wall Furnace ⁵	0	0	0
Other			
Drain Water Heat Recovery	100	150	250
Communicating Thermostat	400	500	900
ENERGY STAR Dryer	100	75	175
HVAC Zone Controls ⁶	0	0	0
TOTAL	4,095	4,340	8,435

Expenditures (\$000's)			
Expenditure Type	2021	2022	2021-2022
Incentives	\$7,158	\$7,502	\$14,660
Admin	\$130	\$130	\$260
Communication	\$45	\$45	\$90
Evaluation	\$84	\$25	\$109
Labour	\$585	\$550	\$1,135
TOTAL	\$8,001	\$8,252	\$16,253

⁵ Measure not launched due to limited availability of high-efficiency condensing technology.

⁶ Measure not launched as additional evaluation and program development is required.

New Home Program (cont'd...)

Measure Details								
Measure	Incremental Cost (\$)	Incentive (\$)	Contractor Incentive (\$)	Annual Gas Savings (GJ)	Annual Elec. Savings (kWh)	Measure Lifetime (yrs)	Free Rider Rate (%)	Spillover Rate (%)
BC Energy Step Code - Whole Home								
STEP 2 (Single Family Dwelling)	\$3,186	\$3,000	\$0	7.4	0	30	22%	0%
STEP 2 (Townhome/Rowhome)	\$5,304	\$3,000	\$0	9.6	63	30	22%	0%
STEP 3 (Single Family Dwelling)	\$5,312	\$4,000	\$0	12.0	21	30	12%	0%
STEP 3 (Townhome/Rowhome)	\$6,649	\$4,000	\$0	12.6	-64	30	15%	0%
STEP 4 (Single Family Dwelling)	\$9,280	\$6,000	\$0	20.7	41	30	10%	0%
STEP 4 (Townhome/Rowhome)	\$4,133	\$6,000	\$0	19.6	-125	30	10%	0%
Space and Water Heating Systems								
0.67 EF Storage Tank Water Heater	\$257	\$500	\$0	3.0	0	13	26%	0%
Condensing Storage Tank Water Heater	\$1,597	\$1,000	\$0	6.9	0	13	13%	0%
Condensing Tankless Water Heater	\$1,715	\$1,000	\$0	9.5	0	20	27%	0%
Combination System	\$1,144	\$1,200	\$0	6.4	0	19	32%	0%
Secondary Heating								
EnerChoice Fireplace	\$132	\$500	\$0	5.0	0	15	39%	0%
Direct Vent Wall Furnace	-	-	-	-	-	-	-	-
Other								
Drain Water Heat Recovery	\$580	\$250	\$0	3.4	0	30	5%	0%
Communicating Thermostat	\$250	\$100	\$0	2.6	0	12	25%	0%
ENERGY STAR Dryer	\$50	\$100	\$0	0.7	0	12	0%	0%
HVAC Zone Controls	-	-	-	-	-	-	-	-
Weighted Average per Participant	\$2,166	\$1,738	\$0	8.1	-5	24	19%	0%

3.4.4 Rental Apartment Efficiency Program (RAP)

Program Description	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 FortisBC. 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. All of the in-suite related expenses are included in the Residential Program Area, while the common area related expenses, including the energy assessment, implementation support, and common area upgrades, are included in the Commercial Program Area.
Target Sub-Market	Rental Apartment Buildings
New vs. Retrofit	Retrofit
Partners	N/A

Forecasted Measure Participation			
Measure	2021	2022	2021-2022
Aerators & Showerheads	19,303	19,303	38,606

Expenditures (\$000's)			
Expenditure Type	2021	2022	2021-2022
Incentives	\$250	\$250	\$499
Admin	\$106	\$107	\$213
Communication	\$45	\$46	\$91
Evaluation	\$14	\$24	\$38
Labour	\$16	\$17	\$33
TOTAL	\$430	\$443	\$874

Measure Details									
Measure	Incremental Cost (\$)	Incentive (\$)	Contractor Incentive (\$)	Annual Gas Savings (GJ)	Annual Elec. Savings (kWh)	Measure Lifetime (yrs)	Free Rider Rate (%)	Spillover Rate (%)	
Aerators & Showerheads	\$11	\$13	\$0	1.2	0	9	0%	0%	

4 Low Income Energy Efficiency Program Area

4.1 Introduction

For the 2021-2022 period of FEI's previously approved 2019-2022 DSM Plan, the customer offerings for the Low Income Energy Efficiency Program Area have been organized into the following programs:

- Self Install Program
- Direct Install Program
- Prescriptive Rebate Program
- Support Program

4.2 Selected Highlights

There are no major program changes being proposed to the previously approved programs from the 2019-2022 DSM Plan.

Forecasts have been revised to reflect anticipated participation, average incentives and energy savings.

4.3 Overview of Results

Exhibit 8 and Exhibit 9 provide a summary of the estimated savings, program expenditures and cost-effectiveness results for each of the programs noted above and for the Low Income Energy Efficiency Program Area as a whole.

Exhibit 8 - Summary of Expenditures for the Low Income Sector Program Portfolio

Program	Utility Expenditures (\$000s)								
	Incentives			Non-Incentives			Total Expenditures		
	2021	2022	Total	2021	2022	Total	2021	2022	Total
Direct Install Program	3,386	3,450	6,836	1,613	1,855	3,469	4,999	5,305	10,305
Self Install Program	491	585	1,076	66	76	143	558	661	1,219
Prescriptive Program	3,939	4,067	8,006	316	363	679	4,255	4,430	8,684
Support Program	227	261	487	22	25	47	249	286	535
Non-Program Specific Expenses	0	0	0	262	302	564	262	302	564
ALL PROGRAMS	8,043	8,362	16,405	2,280	2,622	4,902	10,323	10,984	21,307

Exhibit 9 - Summary of Savings and Cost-Effectiveness Results for the Low Income Sector Program Portfolio

Program	Incremental Annual Gas Savings, Net (GJ)		Cumulative Annual Gas Savings, Net (GJ)	NPV Gas Savings, Net (GJ)	Benefit/Cost Ratios				
	2021	2022			TRC*	MTRC	Utility	Participant	RIM
Direct Install Program	8,553	10,971	19,524	186,341	0.8	-	0.1	1.6	0.1
Self Install Program	26,568	28,080	54,648	451,661	26.6	-	2.6	11.8	0.4
Prescriptive Program	22,426	25,077	47,503	641,658	3.6	-	0.5	2.4	0.3
Support Program	Savings Not Estimated				Savings Not Estimated				
Non-Program Specific Expenses	Savings Not Estimated				Savings Not Estimated				
ALL PROGRAMS	57,547	64,128	121,675	1,279,659	3.1	-	0.4	2.5	0.2

* Section 4 of the BC DSM Regulation, as amended in March 2017, requires the use of the Zero Emission Energy Alternative and a 40 percent benefit adder in calculating the TRC for Low Income programs.

4.4 Program Profiles

The following pages provide profiles for each of the programs shown above in Exhibit 8 and Exhibit 9Exhibit 7.

4.4.1 Direct Install Program

Program Description	Recognizing that some low income customers do not have the expertise and/or physical capabilities to install energy efficient measures, these programs aim to remove that barrier by having a program delivery agent/contractor perform the installation.
Target Sub-Market	Low income single family dwellings, townhomes, row homes and apartments
New vs. Retrofit	Retrofit
Partners	BC Hydro, FortisBC Inc.

Forecasted Measure Participation			
Measure	2021	2022	2021-2022
Energy Conservation Assistance	1,793	2,300	4,093

Expenditures (\$000's)			
Expenditure Type	2021	2022	2021-2022
Incentives	\$3,386	\$3,450	\$6,836
Admin	\$415	\$583	\$999
Communication	\$726	\$729	\$1,456
Evaluation	\$151	\$174	\$325
Labour	\$321	\$369	\$690
TOTAL	\$4,999	\$5,305	\$10,305

Measure Details								
Measure	Incremental Cost (\$)	Incentive (\$)	Contractor Incentive (\$)	Annual Gas Savings (GJ)	Annual Elec. Savings (kWh)	Measure Lifetime (yrs)	Free Rider Rate (%)	Spillover Rate (%)
Energy Conservation Assistance	\$1,420	\$1,670	\$0	4.8	0	12	0%	0%

4.4.2 Self Install Program

Program Description	Participants that have the capabilities to perform basic installations on their own can receive a bundle of basic energy efficiency measures delivered to their home address.
Target Sub-Market	Low income home owners, low income customers living in private rental suites
New vs. Retrofit	Retrofit
Partners	BC Hydro, FortisBC Inc.

Forecasted Measure Participation			
Measure	2021	2022	2021-2022
Energy Savings Kit	12,300	13,000	25,300

Expenditures (\$000's)			
Expenditure Type	2021	2022	2021-2022
Incentives	\$491	\$585	\$1,076
Admin	\$7	\$8	\$16
Communication	\$44	\$51	\$95
Evaluation	\$4	\$5	\$9
Labour	\$11	\$13	\$23
TOTAL	\$558	\$661	\$1,219

Measure Details								
Measure	Incremental Cost (\$)	Incentive (\$)	Contractor Incentive (\$)	Annual Gas Savings (GJ)	Annual Elec. Savings (kWh)	Measure Lifetime (yrs)	Free Rider Rate (%)	Spillover Rate (%)
Energy Savings Kit	\$23	\$43	\$0	2.2	0	10	0%	0%

4.4.3 Prescriptive Program

Program Description	The prescriptive program is to enable a straight forward path towards a rebate for income-qualified customers and non-profit housing societies.
Target Sub-Market	Residential low Income customers and social housing multi-unit buildings
New vs. Retrofit	New construction and retrofit
Partners	N/A

Forecasted Measure Participation			
Measure	2021	2022	2021-2022
Incentive Top Ups			
Space Heat (Commercial)	12	14	26
Water Heating (Commercial)	20	22	42
Furnace (Residential)	758	628	1,386
0.67 EF Storage Tank Water Heater (Residential)	82	94	176
Condensing Tankless Water Heater (Residential)	193	222	415
Condensing Storage Tank Water Heater (Residential)	2	2	4
Non-Profit (Bundled) Measures (Commercial)	42	48	90
New Measures			
Furnace (Commercial)	36	41	77
Boiler (Residential)	55	66	121
Communicating Thermostat (Residential)	261	300	561
Attic Insulation (Residential)	59	68	127
Wall Insulation (Residential)	3	3	6
Insulation - Other (Residential)	3	3	6
Windows & Doors (Residential)	77	89	166
Ventilation (Residential)	3	3	6
Health & Safety (Residential)	46	53	99
STEP 2 (Residential New Home)	6	15	21
STEP 3 (Residential New Home)	20	15	35
STEP 4 (Residential New Home)	0	13	13
TOTAL	1,678	1,700	3,378

Expenditures (\$000's)			
Expenditure Type	2021	2022	2021-2022
Incentives	\$3,939	\$4,067	\$8,006
Admin	\$11	\$12	\$23
Communication	\$16	\$18	\$34
Evaluation	\$0	\$0	\$0
Labour	\$289	\$333	\$622
TOTAL	\$4,255	\$4,430	\$8,684

Prescriptive Program (cont'd...)

Measure Details								
Measure	Incremental Cost (\$)	Incentive (\$)	Contractor Incentive (\$)	Annual Gas Savings (GJ)	Annual Elec. Savings (kWh)	Measure Lifetime (yrs)	Free Rider Rate (%)	Spillover Rate (%)
Incentive Top Ups								
Space Heat (Commercial)	\$15,922	\$19,597	\$0	317.0	0	20	0%	0%
Water Heating (Commercial)	\$4,288	\$7,048	\$0	89.4	0	17	0%	0%
Furnace (Residential)	\$1,840	\$2,567	\$75	3.3	0	18	0%	0%
0.67 EF Storage Tank Water Heater (Residential)	\$246	\$631	\$50	3.0	0	15	0%	0%
Condensing Tankless Water Heater (Residential)	\$2,575	\$2,283	\$50	9.5	0	20	0%	0%
Condensing Storage Tank Water Heater (Residential)	\$2,273	\$2,200	\$50	6.9	0	13	0%	0%
Non-Profit (Bundled) Measures (Commercial)	\$12,854	\$11,074	\$0	237.2	0	19	0%	0%
New Measures								
Furnace (Commercial)	\$1,990	\$2,363	\$0	5.6	0	18	0%	0%
Boiler (Residential)	\$3,890	\$2,232	\$75	9.5	0	18	0%	0%
Communicating Thermostat (Residential)	\$250	\$186	\$0	2.6	0	12	0%	0%
Attic Insulation (Residential)	\$1,326	\$1,939	\$0	8.5	0	30	0%	0%
Wall Insulation (Residential)	\$2,714	\$3,285	\$0	28.9	0	30	0%	0%
Insulation - Other (Residential)	\$1,167	\$2,464	\$0	5.7	0	30	0%	0%
Windows & Doors (Residential)	\$56	\$331	\$0	0.3	0	25	0%	0%
Ventilation (Residential)	\$0	\$1,971	\$0	0.0	0	-	-	-
Health & Safety (Residential)	\$0	\$1,680	\$0	0.0	0	-	-	-
STEP 2 (Residential New Home)	\$3,186	\$4,000	\$0	7.4	0	30	0%	0%
STEP 3 (Residential New Home)	\$5,312	\$5,000	\$0	12.0	21	30	0%	0%
STEP 4 (Residential New Home)	\$9,280	\$8,462	\$0	20.7	41	30	0%	0%
Weighted Average per Participant	\$2,000	\$2,327	\$42	14.1	0	19	0%	0%

4.4.4 Support Program

Program Description	Support program measures seek to enhance energy efficiency retrofit skills, provide direction to Non-Profit Housing providers seeking to enhance the energy efficiency of their housing complexes, and motivate behavioural change through education and engagement.
Target Sub-Market	Low income customers and social housing providers
New vs. Retrofit	New construction and retrofit
Partners	

Forecasted Measure Participation			
Measure	2021	2022	2021-2022
Non-Profit Studies and Implementation Support	67	77	144
REnEW	0	25	25
TOTAL	67	102	169

Expenditures (\$000's)			
Expenditure Type	2021	2022	2021-2022
Incentives	\$227	\$261	\$487
Admin	\$0	\$0	\$0
Communication	\$0	\$0	\$0
Evaluation	\$0	\$0	\$0
Labour	\$22	\$25	\$47
TOTAL	\$249	\$286	\$535

Measure Details								
Measure	Incremental Cost (\$)	Incentive (\$)	Contractor Incentive (\$)	Annual Gas Savings (GJ)	Annual Elec. Savings (kWh)	Measure Lifetime (yrs)	Free Rider Rate (%)	Spillover Rate (%)
Non-Profit Studies and Implementation Support	\$0	\$3,383	\$0	0.0	0	-	-	-
REnEW	\$0	\$0	\$0	0.0	0	-	-	-
Weighted Average per Participant	\$0	\$2,883	\$0	0.0	0	1	0%	0%

Appendix E

**COMPARISON OF CURRENT ENERGY SAVINGS PER
MEASURE TO 2019-2022 DSM PLAN**

Appendix D - Comparison of Current Energy Savings per Measure to 2019-2022 DSM Plan

Residential Program Area

Home Renovation Rebate Program

	Measure Participation				Annual Gas Savings Per Measure (GJ)		Incremental Annual Gas Savings, Gross (GJ)			
	2021		2022		Measure Details		2021		2022	
	DSM Plan	Revised Forecast	DSM Plan	Revised Forecast	DSM Plan	Revised Forecast	DSM Plan	Revised Forecast	DSM Plan	Revised Forecast
Space Heating										
Furnace	7,000	16,393	8,000	8,682	6.2	4.6*	43,400	75,457	49,600	39,963
Boiler	500	400	500	330	8.7	10.0	4,350	4,000	4,350	3,300
Combination System	610	1,533	650	990	17.7	17.5	10,797	26,828	11,505	17,325
Secondary Heating										
EnerChoice Fireplace	8,190	5,810	8,410	6,121	9.5	8.2	85,586	45,700	87,885	52,417
Direct Vent Wall Furnace	220	0	240	0	4.6	4.6	1,012	0	1,104	0
Water Heating										
0.67 EF Storage Tank Water Heater	4,450	1,500	4,900	2,000	3.0	3.0	13,350	4,500	14,700	6,000
Condensing Tankless Water Heater	2,060	6,000	2,260	7,000	9.5	9.5	19,570	57,000	21,470	66,500
Condensing Storage Tank Water Heater	640	100	700	100	6.9	6.9	4,416	690	4,830	690
Building Envelope										
Attic Insulation	2,720	1,500	3,000	1,500	8.5	8.5	23,120	12,810	25,500	12,810
Wall Insulation	290	250	320	250	28.9	28.9	8,381	7,230	9,248	7,230
Crawlspace and Basement Insulation	320	250	350	250	6.6	6.6	2,112	1,660	2,310	1,660
Other Insulation	130	100	150	100	5.7	5.7	741	572	855	572
Bonus Offers	700	5,640	750	2,720	0.0	0.0	0	0	0	0
Water Conservation										
Aerators & Showerheads	650	3,500	650	3,500	1.0	1.9	650	6,566	650	6,566
ENERGY STAR Washer	2,750	2,000	3,025	2,000	1.0	1.0	2,750	2,000	3,025	2,000
Other										
ENERGY STAR Dryer	100	100	100	100	0.7	0.7	70	70	70	70
Draftproofing	0	20,000	0	20,000	0.0	0.1	0	1,600	0	1,600
Drain Water Heat Recovery	300	0	400	100	4.3	4.3	1,290	0	1,720	425
Communicating Thermostat	5,600	8,557	6,400	5,473	6.5	2.6	36,400	22,334	41,600	14,285
HVAC Zone Controls	560	0	640	0	5.5	5.5	3,080	0	3,520	0
Appliance Maintenance	50,000	0	50,000	35,000	0.0	0.0	0	0	0	0
TOTAL GROSS	87,790	73,633	91,445	96,216			261,075	269,016	283,942	233,412
Less: Net to Gross							(40,551)	(47,162)	(42,103)	(46,730)
TOTAL NET	87,790	73,633	91,445	96,216			220,524	221,854	241,839	186,682

New Home Program

	Measure Participation				Annual Gas Savings Per Measure (GJ)		Incremental Annual Gas Savings, Gross (GJ)			
	2021		2022		Measure Details		2021		2022	
	DSM Plan	Revised Forecast	DSM Plan	Revised Forecast	DSM Plan	Revised Forecast	DSM Plan	Revised Forecast	DSM Plan	Revised Forecast
BC Energy Step Code - Whole Home[1]										
STEP 2 (Single Family Dwelling)	500	150	600	150	6.2	7.4	3,100	1,106	3,720	1,106
STEP 2 (Townhome/Rowhome)	165	20	200	20	9.5	9.6	1,568	191	1,900	191
STEP 3 (Single Family Dwelling)	1,200	480	1,400	500	11.1	12.0	13,320	5,771	15,540	6,011
STEP 3 (Townhome/Rowhome)	575	220	700	225	12.9	12.6	7,418	2,772	9,030	2,835
STEP 4 (Single Family Dwelling)	150	125	200	150	21.0	20.7	3,150	2,589	4,200	3,107
STEP 4 (Townhome/Rowhome)	75	185	100	185	16.6	19.6	1,245	3,617	1,660	3,617
Space and Water Heating Systems										
0.67 EF Storage Tank Water Heater	210	25	210	25	3.0	3.0	630	75	630	75
Tankless Water Heater	810	800	760	810	9.5	9.5	7,695	7,600	7,220	7,690
Condensing Storage Tank Water Heater	270	150	255	150	6.9	6.9	1,863	1,035	1,760	1,035
Combination System	800	400	800	450	14.0	6.4	11,200	2,554	11,200	2,873
Secondary Heating										
EnerChoice Fireplace	1,990	940	2,140	950	5.0	5.0	9,950	4,700	10,700	4,750
Direct Vent Wall Furnace	200	0	250	0	4.6	4.6	920	0	1,150	0
Other										
Drain Water Heat Recovery	300	100	400	150	3.4	3.4	1,020	337	1,360	506
Communicating Thermostat	800	400	900	500	6.5	2.6	5,200	1,040	5,850	1,300
HVAC Zone Controls	80	0	90	0	5.5	5.5	440	0	495	0
ENERGY STAR Dryer	55	100	60	75	0.7	0.7	39	70	42	53
TOTAL	8,180	4,095	9,065	4,340			68,757	33,457	76,457	35,148
Less: Net to Gross							(12,075)	(7,134)	(13,121)	(7,443)
TOTAL NET	8,180	4,095	9,065	4,340			56,682	26,323	63,336	27,706

Rental Apartment Efficiency Program

	Measure Participation				Annual Gas Savings Per Measure (GJ)		Incremental Annual Gas Savings, Gross (GJ)			
	2021		2022		Measure Details		2021		2022	
	DSM Plan	Revised Forecast	DSM Plan	Revised Forecast	DSM Plan	Revised Forecast	DSM Plan	Revised Forecast	DSM Plan	Revised Forecast
RAP										
Aerators & Showerheads	23,685	19,303	23,685	19,303	1.0	1.2	23,685	23,935	23,685	23,935
TOTAL	23,685	19,303	23,685	19,303			23,685	23,935	23,685	23,935

Low Income Program Area

	Measure Participation				Annual Gas Savings Per Measure (GJ)		Incremental Annual Gas Savings, Gross (GJ)			
	2021		2022		Measure Details		2021		2022	
Measure	DSM Plan	Revised Forecast	DSM Plan	Revised Forecast	DSM Plan	Revised Forecast	DSM Plan	Revised Forecast	DSM Plan	Revised Forecast
Direct Install Program										
Energy Conservation Assistance	2,500	1,793	2,600	2,300	4.4	4.8	11,000	8,553	11,440	10,971
Self Install Program										
Energy Savings Kit	13,000	12,300	13,000	13,000	2.7	2.2	35,100	26,568	35,100	28,080
Prescriptive Program										
Incentive Top Ups										
Space Heat (Commercial)	30	12	30	14	125.0	317.0	3,750	3,804	3,750	4,375
Water Heating (Commercial)	15	20	15	22	34.0	89.4	510	1,788	510	1,967
Furnace (Residential)	665	758	665	628	6.2	3.3	4,090	2,521	4,025	2,089
0.67 EF Storage Tank Water Heater (Residential)	312	82	343	94	3.0	3.0	936	246	1,028	283
Condensing Tankless Water Heater (Residential)	103	193	113	222	8.0	9.5	820	1,834	904	2,109
Condensing Storage Tank Water Heater (Residential)	32	2	35	2	5.0	6.9	160	14	175	14
Non-Profit (Bundled) Measures (Commercial)	25	42	25	48	831.0	237.2	20,775	9,907	20,775	11,318
New Measures										
Furnace (Commercial)	0	36	0	41	0.0	5.6	0	201	0	231
Boiler (Residential)	0	55	0	66	0.0	9.5	0	523	0	631
Programmable Thermostat(Residential)	0	261	0	300	0.0	2.6	0	679	0	780
Attic Insulation (Residential)	0	59	0	68	0.0	8.5	0	502	0	577
Wall Insulation (Residential)	0	3	0	3	0.0	28.9	0	87	0	100
Insulation - Other (Residential)	0	3	0	3	0.0	5.7	0	17	0	20
Windows & Doors (Residential)	0	77	0	89	0.0	0.3	0	22	0	25
Ventilation (Residential)	0	3	0	3	0.0	0.0	0	0	0	0
Health & Safety (Residential)	0	46	0	53	0.0	0.0	0	0	0	0
STEP 2 (Residential New Home)	0	6	0	15	0.0	7.4	0	44	0	111
STEP 3 (Residential New Home)	0	20	0	15	0.0	12.0	0	240	0	180
STEP 4 (Residential New Home)	0	0	0	13	0.0	20.7	0	0	0	269
Support Program										
REnEW	25	0	25	0	0.0	0.0	0	0	0	0
Non-Profit Custom Studies and Implementation Support	20	67	20	77	0.0	0	0	0	0	0
TOTAL GROSS	16,727	15,838	16,871	17,078			77,141	57,547	77,707	64,128

Notes:

1. The participation in the "Non-Profit (Bundled) Measures (Commercial)" measure cannot be directly compared to the DSM Plan. The DSM Plan used a count of buildings whereas the revised forecast uses a count of measures. Total energy savings for this measure can still be accurately compared to the DSM Plan.