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September 20, 2018

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)**  
**Project No. 1598964**  
**2019-2022 Demand Side Management Expenditures Plan (the Application)**  
**Errata dated September 20, 2018**

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On June 22, 2018, FEI filed the Application referenced above. Concurrent with this Errata filing, FEI submitted its responses to Information Requests (IR) No. 1.

During the course of responding to IRs, FEI identified three minor errors in its 2019-2022 DSM Plan that require corrections to the Application. FEI notes that all responses to the concurrently filed IR No. 1 use the corrected data where applicable. The following outlines the corrections made as part of this Errata.

2019-2022 DSM Expenditures with Inflation

A cell error in a background excel spreadsheet resulted in a slight incorrect application of inflation to certain program area expenditures for the years 2020 through 2022. The correction results in minor reductions to the requested yearly inflated expenditures for each of 2020 through 2022 and a small decrease to total requested 2019-2022 DSM expenditures from \$324.6 million to \$324.5 million as presented in Table 6-1 of the Application and Exhibit 1 of Appendix A.

FEI notes that the correction to the inflated DSM Plan expenditures for 2020 through 2022 have no resulting impact on the rate impact analysis provided in Section 9.3 and Table 9-1 of the Application.

#### Residential Program Gas Savings

Spillover for the EnerChoice Fireplace in the Home Renovation program was shown inadvertently as zero percent instead of the correct value of 10 percent. The correction results in an increase to residential cumulative net annual gas savings from 1,121,831 GJ to 1,146,336 GJ and an increase in the overall Residential program area MTRC from 2.2 to 2.3 as shown in Exhibit 8 of Appendix A.

#### Industrial Program Gas Savings

Gas savings were inadvertently excluded for one measure in the Industrial Prescriptive program. The correction results in an increase to industrial cumulative net annual gas savings from 1,146,666 GJ to 1,195,212 GJ and an increase in the overall Industrial program area TRC from 3.3 to 3.5 as shown in Exhibit 12 of Appendix A.

FEI notes that the above two corrections in the gas savings for residential and industrial program areas result in an increase to the Portfolio cumulative net annual gas savings from 3,994,549 GJ to 4,067,599 GJ and result in a slight increase to the Portfolio cost-effectiveness from 1.8 to 1.9 as shown in Table 7-1 to the Application and Exhibit 3 of Appendix A.

The following pages of the Application (Exhibit B-1) have been revised as a result of the corrections noted above.

- Page 2, Line 4
- Page 5, Table 3-1
- Page 6, Line 20
- Page 11, Table 3-4
- Page 22, Table 6-1
- Page 28, Table 7-1
- Appendix A, page 5, Exhibit 1
- Appendix A, page 6, Exhibit 3
- Appendix A, page 8, Exhibit 6
- Appendix A, page 12, Exhibit 8
- Appendix A, page 14
- Appendix A, page 29, Exhibit 12
- Appendix A, page 57, Section 10
- Appendix C, Recital F

FEI has attached the blacklined version of the affected pages.

If further information is required, please contact Sarah Wagner at (250) 469-6081.

Sincerely,

**FORTISBC ENERGY INC.**

***Original signed:***

Diane Roy

Attachment

cc (email only): Registered Parties

## 2. APPROVALS SOUGHT AND PROPOSED REGULATORY PROCESS

FEI seeks an order pursuant to section 44.2(3) of the UCA accepting the 2019 - 2022 DSM Expenditure Schedule set out in Table 6-1 of the Application, with total DSM expenditures of \$324.5 million for 2019 through 2022.

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In addition, FEI is seeking approval of the following:

1. Approval for funding transfers as set out in Section 9.1;
2. Approval of the forecast rate base additions accounting treatment as set out in Section 9.2; and
3. Approval to move to a 16-year amortization period for DSM expenditures as set out in Section 9.3.

A draft Order is attached as Appendix C.

The 2019-2022 DSM Expenditures Plan was developed with the help of information gathered through consultation with various program stakeholders and interested parties. Given the extensive consultation that provided multiple opportunities for review and feedback with key stakeholders as detailed in Section 6.1 of the Application and to accommodate a Commission decision on the Application before the end of the year, FEI believes that a written public hearing with one round of Information Requests is appropriate for the review of this Application and proposes the following regulatory timetable.

**Table 2-1: Proposed Regulatory Timetable**

Regulatory Timetable	Date (2018)
Registration of Interveners	Friday, July 6
BCUC Information Request No. 1	Friday, July 20
Intervener Information Request No. 1	Wednesday, July 25
FEI Response to Information Request No. 1 from BCUC and Interveners	Friday, August 10
FEI Final Submission	Thursday, August 30
Intervener Final Submission	Thursday, September 13
FEI Reply Submission	Friday, September 28

**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 <del>36,751,641</del> 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 <del>1,896,385</del> tonnes CO <sub>2</sub> 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.

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

### 3.4 CONSISTENCY WITH LONG TERM GAS RESOURCE PLAN

When considering whether to accept a utility's expenditure schedule under section 44.2 of the UCA, the Commission must consider the utility's most recent long-term resource plan filed under section 44.1 of the UCA.

FEI filed its most recent Long Term Gas Resource Plan (2017 LTGRP) with the Commission on December 14, 2017. The 2017 LTGRP is currently under review by the Commission and covers a planning horizon from its 2015 base year until 2036.

The 2017 LTGRP examines the impact of FEI's long-term forecast DSM activity on natural gas demand, projected natural gas delivery rates, and GHG emissions across three alternate future scenarios over the 20-year LTGRP planning horizon. In 2015, FEI, in collaboration with BC Hydro, FortisBC Inc. (FBC), and Pacific Northern Gas (PNG), initiated a province-wide conservation potential review (BC CPR). This project uses a 2014 base year to determine the technical, economic, and market energy savings potential for natural gas and electricity until 2035. The range of potential natural gas DSM measures from the BC CPR results informed the 2017 LTGRP DSM forecast. FEI's DSM Plan (Appendix A) is informed by both the results from the BC CPR (filed as Appendices D and E and Appendix C-1 of the 2017 LTGRP<sup>5</sup>) and the 2017 LTGRP.

The energy savings in FEI's DSM Plan are generally consistent with the 2017 LTGRP forecast Reference Case energy savings.<sup>6</sup> From 2019 until 2022, FEI's DSM Plan forecasts eight percent higher energy savings than FEI's 2017 LTGRP. FEI's DSM Plan indicates expenditures that average \$81.1<sup>3</sup> million per year (including inflation). For the same period, the 2017 LTGRP Reference Case forecasts a theoretical estimate of DSM expenditures that average \$42.80 million per year. However, energy savings and expenditure figures are not directly comparable in absolute terms. By virtue of representing a long term forecast and in contrast to FEI's DSM Plan, the 2017 LTGRP does not take into account the following factors:

- Non-incentive expenditures that support or enable DSM programs at the portfolio level, such as enabling activities and conservation education outreach;
- Operational program delivery considerations, such as changes in required DSM staffing levels, program eligibility requirements, or measure packaging and marketing; and
- Emergence of new technologies more than five years into the future or technologies which are currently unknown which may increase aggregate energy savings opportunities and thus enable greater actual DSM program expenditures.

<sup>5</sup> The BC CPR has been thoroughly canvassed in the 2017 LTGRP proceeding.

<sup>6</sup> Pursuant to Order G-189-14, dated December 3, 2014, FEI confirmed that the 2017 LTGRP Action Plan is based on the Reference Case end-use annual demand forecast and the Traditional Peak Method Forecast. FEI compares the DSM Plan to the 2017 LTGRP Reference Case because the Action Plan describes activities that FEI intends to pursue over the next four years based on the information provided in the 2017 LTGRP. Action Plan item 7 indicates that FEI will pursue approval of DSM funding for the period beyond 2018.

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**Table 3-4: DSM Plan Energy Savings & GHG Emission Reductions**

Indicator	Year	Total Natural Gas Savings	GHG Emission Reductions*
Net Incremental Annual Gas Savings (GJ/yr.) and GHG Reductions (tonnes/year)	2019	875,933	45,198
	2020	929,884	47,982
	2021	1,113,469	57,455
	2022	1,201,809	62,013
Cumulative Net Annual Gas Savings (GJ) and GHG Reductions (tonnes)	2019-2022	<b>4,067,599</b>	<b>209,888</b>
NPV of Net Gas Savings (GJ) and Resulting GHG Reductions (tonnes)**		<b>36,751,641</b>	<b>1,896,385</b>

\*Based on long run combustion emission factor of 0.0516 tonnes CO<sub>2</sub>e/GJ for natural gas from Ministry of Environment & Climate Change Strategy

\*\*NPV in this context refers to including the entire stream of savings into the future (by measure life) and annualizing that to present time to show the total value of the stream of savings

Through increasing the use of higher efficiency natural gas equipment and encouraging improved overall building energy efficiency, FEI's DSM Plan supports federal and provincial government policy to reduce carbon emissions. In FEI's view, the Commission's consideration of government direction and policy must weigh heavily in favour of FEI's proposal to increase investment in cost-effective DSM programs.

### 3.7 INTERESTS OF PERSONS WHO MAY RECEIVE SERVICE

FEI believes that the proposed DSM expenditures are in the interests of customers and potential customers as they encourage energy efficiency and conservation, reduce GHG emissions, are beneficial to the economy and are cost-effective. Individual customers that avail themselves of DSM measures will reduce their natural gas consumption and, all else equal, their natural gas bills.

stakeholder and customer interests and is positioned well to achieve the energy savings forecast within.

## 6.2 DSM EXPENDITURE FORECAST BY PROGRAM AREA

FEI is requesting acceptance of DSM expenditures for 2019-2022 of \$324.6 million. FEI is forecasting annual DSM expenditures in each of the program areas as outlined in Table 6-1. These expenditures are stated in “as-spent” dollars, including inflation. If accepted, these are the values that FEI will report actual spending against in each year’s Annual DSM Report. These are the same values shown in Exhibit 1 of the DSM Plan (Appendix A). For simplicity, all other tables in Appendix A show proposed expenditures in 2019 dollars (uninflated).

**Table 6-1: FEI DSM Expenditures - 2019-2022 Forecast, Shown in As Spent Dollars<sup>9</sup>**

Program Area	Utility Expenditures (\$000s)				
	All Spending				
	2019	2020	2021	2022	Total
Residential	23,521	25,722	28,476	31,383	109,101
Commercial	13,837	17,355	27,437	31,074	89,703
Industrial	3,103	3,152	3,644	3,708	13,607
Low Income	6,630	6,795	6,984	7,217	27,626
Conservation Education and Outreach	7,155	7,353	8,578	9,433	32,518
Innovative Technologies	2,043	2,202	2,631	3,062	9,938
Enabling Activities	8,426	8,322	9,231	8,921	34,900
Portfolio Level Activities	1,635	1,676	1,822	1,979	7,112
<b>ALL PROGRAMS</b>	<b>66,350</b>	<b>72,577</b>	<b>88,803</b>	<b>96,775</b>	<b>324,505</b>

It can be seen in the table above that the forecast DSM expenditures for most program areas are relatively stable from 2019 on, with three exceptions: the Residential, Commercial and Innovative Technologies program areas. The forecast increase in expenditures in the Residential program area is primarily due to expansion of the furnace and boiler incentives to become available year round, as well as BC Energy Step Code support. The forecast increase in expenditures in the Commercial program area is primarily due to new measures in the Prescriptive Program such as furnaces and roof insulation and by the Performance Program – New Buildings, which includes enhanced support for BC Energy Step Code and an additional program participation path for smaller commercial customers. The forecast increase in expenditures in the Innovative Technologies program area is primarily due to the BC Energy Step Code Tier 5 Buildings Pilot, for which FEI expects significant increased participation over the DSM Plan period.

Further details on the forecast expenditures for each program area can be found in the DSM Plan (Appendix A).

<sup>9</sup> Requested expenditures listed include inflation as indicated in Appendix A, Exhibit 2.



## 7. COST EFFECTIVENESS APPROACH

### 7.1 COST-EFFECTIVENESS UNDER THE DSM REGULATION

FEI's proposed DSM portfolio for the 2019-2022 funding period is cost-effective according to the currently approved approach to determining cost-effectiveness. As shown in Exhibit 3 of the DSM Plan (Appendix A) and in Table 7-1 below, the portfolio passes the cost-effectiveness tests as currently required by the Commission.

**Table 7-1: 2019-2022 DSM Plan Portfolio Level Cost Effectiveness Results – All Tests**

Benefit/Cost Ratios	TRC	1.0
	Portfolio**	1.9
	Utility	0.9
	Participant	1.7
	RIM	0.4

Note: The cost effectiveness test result called 'Portfolio' in this Table reflects the use of the modified total resource cost test (MTRC) for up to 40% of the portfolio per the DSM regulation as explained in Section 7.1.3 below.

The following discussion explains these cost-effectiveness tests and shows that the DSM Plan meets the requirements of the provincial DSM Regulation. FEI submits that the current approach to determining the cost-effectiveness of its DSM programs is comprehensive, benefits customers and should be used for the 2019-2022 period. This section discusses the cost-effectiveness approach and the relevant parameters that FEI submits should be used in assessing its DSM activities.

#### 7.1.1 Portfolio-Level Analysis

Section 4(1) of the DSM Regulation stipulates that the Commission, in determining the cost-effectiveness of a demand-side measure proposed in an expenditure portfolio or a plan portfolio, may compare the costs and benefits of (a) a demand-side measure individually, (b) with other demand-side measures in the portfolio or (c) the portfolio as a whole.

The portfolio-level analysis remains the appropriate method for testing the cost-effectiveness of the DSM Plan for the following reasons:

- The portfolio approach to measuring the cost-effectiveness of DSM expenditures has been in place for many years and remains an effective means of assessing the performance of DSM activities. The Commission first determined that assessment of cost-effectiveness be based on the portfolio as a whole in its decision on FEI's 2008 DSM Application<sup>13</sup> and, since then, has reached the same determination in each of its subsequent decisions on FEI's DSM expenditure applications. Continued use of the portfolio approach will provide more flexibility for FEI to implement programs that meet

<sup>13</sup> Order G-36-09

Exhibit 1 - Summary of Annual Expenditures Including Inflation

Program Area	Total Utility Expenditures (\$000s)				Total
	2019	2020	2021	2022	
Residential	23,521	25,722	28,476	31,383	109,101
Commercial	13,837	17,355	27,437	31,074	89,703
Industrial	3,103	3,152	3,644	3,708	13,607
Low Income	6,630	6,795	6,984	7,217	27,626
Conservation Education and Outreach	7,155	7,353	8,578	9,433	32,518
Innovative Technologies	2,043	2,202	2,631	3,062	9,938
Enabling Activities	8,426	8,322	9,231	8,921	34,900
*Portfolio Level Activities	1,635	1,676	1,822	1,979	7,112
<b>ALL PROGRAMS</b>	<b>66,350</b>	<b>72,577</b>	<b>88,803</b>	<b>96,775</b>	<b>324,505</b>

\*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 EECAG<sup>2</sup> activities.

Exhibit 2 - Summary of Applied Inflation Rates

Inflation Category	Annual Inflation Rate (%)			
	2019	2020	2021	2022
Consumer Price Index (Non-Labour)	2.1%	2.0%	2.0%	2.0%
Average Weekly Earnings (Labour)	2.4%	2.6%	2.6%	2.8%

<sup>2</sup> The Energy Efficiency and Conservation Advisory Group (EECAG) provides insight and feedback on FEI's portfolio of DSM activities and related issues.

Exhibit 3 - Results for the Total DSM Program Portfolio

Indicator	Year	Total
Utility Expenditures, Incentives (\$000s)	2019	42,623
	2020	47,957
	2021	59,625
	2022	65,411
	<b>Total</b>	<b>215,615</b>
Utility Expenditures, Non-Incentives (\$000s)	2019	23,727
	2020	24,101
	2021	27,962
	2022	29,411
	<b>Total</b>	<b>105,201</b>
Utility Expenditures, Total (\$000s)	2019	66,350
	2020	72,057
	2021	87,587
	2022	94,821
	<b>Total</b>	<b>320,816</b>
Net Incremental Annual Gas Savings (GJ/yr.)	2019	875,933
	2020	929,884
	2021	1,113,469
	2022	1,201,809
	<b>Total</b>	<b>4,067,599</b>
*Cumulative Net Annual Gas Savings (GJ)	2019-2022	<b>4,067,599</b>
NPV of Net Gas Savings (GJ)		<b>36,751,641</b>
Benefit/Cost Ratios	TRC	<b>1.0</b>
	Portfolio**	<b>1.9</b>
	Utility	<b>0.9</b>
	Participant	<b>1.7</b>
	RIM	<b>0.4</b>

\*Only includes gas savings persisting until 2022, and therefore may be less than the sum of net incremental annual gas savings from individual program years

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

Exhibit 5 - Expenditures for Each of the Program Areas and the Total DSM Portfolio

Program Area	Utility Expenditures (\$000s)														
	Incentives					Non-Incentives					Total Expenditures				
	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total
Residential	20,583	23,002	25,631	28,286	97,502	2,938	2,662	2,726	2,904	11,229	23,521	25,664	28,357	31,190	108,732
Commercial	10,194	13,193	21,123	23,803	68,312	3,643	4,075	6,050	6,815	20,583	13,837	17,268	27,173	30,618	88,896
Industrial	2,261	2,261	2,732	2,732	9,985	842	872	872	912	3,498	3,103	3,133	3,604	3,644	13,483
Low Income	4,966	5,071	5,180	5,292	20,509	1,664	1,688	1,728	1,804	6,883	6,630	6,759	6,908	7,096	27,392
Conservation Education and Outreach	0	0	0	0	0	7,155	7,203	8,233	8,868	31,459	7,155	7,203	8,233	8,868	31,459
Innovative Technologies	756	886	1,286	1,686	4,614	1,287	1,287	1,287	1,287	5,148	2,043	2,173	2,573	2,973	9,762
Enabling Activities	3,863	3,544	3,673	3,612	14,692	4,563	4,679	5,332	4,986	19,560	8,426	8,223	9,005	8,598	34,252
Portfolio Level Activities	0	0	0	0	0	1,635	1,635	1,735	1,835	6,840	1,635	1,635	1,735	1,835	6,840
ALL PROGRAMS	42,623	47,957	59,625	65,411	215,615	23,727	24,101	27,962	29,411	105,201	66,350	72,057	87,587	94,821	320,816

Exhibit 6 - 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				
	2019	2020	2021	2022			TRC	Portfolio**	Utility	Participant	RIM
Residential	238,946	277,639	300,891	328,860	1,146,336	11,977,465	0.6	2.3	0.9	1.3	0.4
Commercial	280,314	295,004	418,482	478,288	1,418,592	14,431,099	1.0	1.5	1.4	1.8	0.5
Industrial	280,651	280,651	316,955	316,955	1,195,212	7,735,384	3.5	3.5	4.5	4.9	0.8
Low Income	76,022	76,590	77,141	77,707	307,459	2,607,693	4.5***	4.5	0.8	2.6	0.4
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				
<b>ALL PROGRAMS</b>	<b>875,933</b>	<b>929,884</b>	<b>1,113,469</b>	<b>1,201,809</b>	<b>4,067,599</b>	<b>36,751,641</b>	<b>1.0</b>	<b>1.9</b>	<b>0.9</b>	<b>1.7</b>	<b>0.4</b>

\*Only includes gas savings persisting until 2022, and therefore may be less than the sum of net incremental annual gas savings from individual program years

\*\*Includes the MTRC adder for programs 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 percent benefit adder in calculating the TRC for Low Income programs.

### 3.3 Overview of Results

Exhibit 7 and Exhibit 8 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 7 - Summary of Expenditures for the Residential Sector Program Portfolio

Program	Utility Expenditures (\$000s)														
	Incentives					Non-Incentives					Total Expenditures				
	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total
* Home Renovation Rebate Program	14,713	15,911	17,123	18,653	66,399	1,587	1,282	1,297	1,377	5,543	16,300	17,193	18,420	20,030	71,942
* New Home Program	5,622	6,843	8,259	9,383	30,106	472	437	402	402	1,713	6,094	7,279	8,661	9,785	31,819
Rental Apartment Efficiency Program	249	249	249	249	997	182	182	182	182	729	432	432	432	432	1,726
Non-Program Specific Expenses	0	0	0	0	0	696	760	844	943	3,244	696	760	844	943	3,244
ALL PROGRAMS	20,583	23,002	25,631	28,286	97,502	2,938	2,662	2,726	2,904	11,229	23,521	25,664	28,357	31,190	108,732

\* Program requires the MTRC in order to pass the economic screen

Exhibit 8 - 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				
	2019	2020	2021	2022			TRC	MTRC	Utility	Participant	RIM
* Home Renovation Rebate Program	176,340	206,101	220,524	241,839	844,804	8,916,291	0.7	2.8	1.0	1.5	0.4
* New Home Program	38,921	47,854	56,682	63,336	206,792	2,367,570	0.3	1.4	0.6	0.8	0.3
Rental Apartment Efficiency Program	23,685	23,685	23,685	23,685	94,740	693,605	3.1	-	3.1	8.3	0.6
Non-Program Specific Expenses	Savings Not Estimated						Savings Not Estimated				
<b>ALL PROGRAMS</b>	<b>238,946</b>	<b>277,639</b>	<b>300,891</b>	<b>328,860</b>	<b>1,146,336</b>	<b>11,977,465</b>	<b>0.6</b>	<b>2.3**</b>	<b>0.9</b>	<b>1.3</b>	<b>0.4</b>

\* Program requires the MTRC in order to pass the economic screen

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

## Home Renovation Program (cont'd...)

Expenditures (\$000's)								
Expenditure Type	2019	2020	2021	2022	2019-2022			
Incentives	\$14,713	\$15,911	\$17,123	\$18,653	\$66,399			
Admin	\$574	\$334	\$334	\$334	\$1,576			
Communication	\$100	\$100	\$100	\$100	\$400			
Evaluation	\$430	\$365	\$380	\$460	\$1,635			
Labour <sup>8</sup>	\$483	\$483	\$483	\$483	\$1,932			
<b>TOTAL</b>	<b>\$16,300</b>	<b>\$17,193</b>	<b>\$18,420</b>	<b>\$20,030</b>	<b>\$71,942</b>			

  

Measure Details								
Measure	Incremental Cost (\$)	Incentive (\$)	Contractor Incentive (\$)	Annual Gas Savings (GJ)	Annual Elec. Savings (kWh)	Measure Lifetime (yrs)	Free Rider Rate (%)	Spillover Rate (%)
<b>Space Heating</b>								
Furnace	\$1,737	\$500	\$100	6.2	280	18	- <sup>9</sup>	0%
Boiler	\$3,200	\$500	\$100	8.7	0	18	- <sup>9</sup>	0%
Combination System	\$5,486	\$1,200	\$50	17.7	0	18	20%	0%
<b>Secondary Heating</b>								
EnerChoice Fireplace	\$132	\$300	\$50	9.5	0	15	28%	10%
Direct Vent Wall Furnace	\$1,245	\$300	\$0	4.6	0	20	1%	0%
<b>Water Heating</b>								
0.67 EF Storage Tank Water Heater	\$246	\$200	\$50	3.0	0	13	26%	0%
Condensing Tankless Water Heater	\$2,561	\$1,000	\$50	9.5	0	20	31%	0%
Condensing Storage Tank Water Heater	\$2,273	\$1,000	\$50	6.9	0	13	11%	0%
<b>Building Envelope</b>								
Attic Insulation	\$1,326	\$550	\$0	8.5	0	30	20%	0%
Wall Insulation	\$2,714	\$625	\$0	28.9	0	30	20%	0%
Crawlspace and Basement Insulation	\$838	\$543	\$0	6.6	0	30	20%	0%
Other Insulation	\$1,167	\$350	\$0	5.7	0	30	20%	0%
Bonus Offers	\$0	\$1,000	\$0	0.0	0	-	-	-
<b>Water Conservation</b>								
Aerators & Showerheads	\$3	\$3	\$0	1.0	0	10	0%	0%
ENERGY STAR Washer	\$77	\$75	\$0	1.0	69	14	20%	0%
ENERGY STAR Dryer	\$50	\$100	\$0	0.7	0	12	0%	0%
<b>Other</b>								
Drain Water Heat Recovery	\$738	\$250	\$0	4.3	0	25	3%	0%
Communicating Thermostat	\$250	\$100	\$0	6.5	0	15	0%	0%
HVAC Zone Controls	\$896	\$500	\$0	5.5	0	16	0%	0%
Appliance Maintenance	\$0	\$25	\$0	0.0	0	-	-	-
<b>Weighted Average per Participant</b>	<b>\$380</b>	<b>\$175</b>	<b>\$18</b>	<b>2.8</b>	<b>26</b>	<b>17</b>	<b>19%</b>	<b>2%</b>

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<sup>8</sup> Labour is considered to be an Admin expenditure and has been listed separately throughout all program profiles in this DSM Plan in order to clearly identify FEI's estimated labour expenditures.

<sup>9</sup> Based on early replacement methodology

### 5.3 Overview of Results

Exhibit 11 and Exhibit 12 provide a summary of the estimated savings, program expenditures and cost-effectiveness results for each of the programs noted above and for the Industrial Energy Efficiency Program Area as a whole.

Exhibit 11 - Summary of Expenditures for the Industrial Sector Program Portfolio

Program	Utility Expenditures (\$000s)														
	Incentives					Non-Incentives					Total Expenditures				
	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total
Performance Program	1,444	1,444	1,796	1,796	6,480	387	387	387	387	1,548	1,831	1,831	2,183	2,183	8,028
Prescriptive Program	417	417	486	486	1,805	95	115	95	115	420	512	532	581	601	2,225
Strategic Energy Management Program	400	400	450	450	1,700	210	210	210	210	840	610	610	660	660	2,540
Non-Program Specific Expenses	0	0	0	0	0	150	160	180	200	690	150	160	180	200	690
ALL PROGRAMS	2,261	2,261	2,732	2,732	9,985	842	872	872	912	3,498	3,103	3,133	3,604	3,644	13,483

Exhibit 12 - Summary of Savings and Cost-Effectiveness Results for the Industrial Sector Program Portfolio

Program	Incremental Annual Gas Savings, Net (GJ)				Cumulative Annual Gas Savings, Net (GJ)	NPV Gas Savings, Net (GJ)	Benefit/Cost Ratios				
	2019	2020	2021	2022			TRC	MTRC	Utility	Participant	RIM
Performance Program	90,189	90,189	115,957	115,957	412,291	2,997,976	2.3	-	2.9	3.4	0.8
Prescriptive Program	97,663	97,663	104,998	104,998	405,321	3,170,130	5.7	-	11.2	6.3	1.0
Strategic Energy Management Program	92,800	92,800	96,000	96,000	377,600	1,567,279	5.3	-	4.6	9.2	0.8
Non-Program Specific Expenses	Savings Not Estimated						Savings Not Estimated				
<b>ALL PROGRAMS</b>	<b>280,651</b>	<b>280,651</b>	<b>316,955</b>	<b>316,955</b>	<b>1,195,212</b>	<b>7,735,384</b>	<b>3.5</b>	<b>3.5*</b>	<b>4.5</b>	<b>4.9</b>	<b>0.8</b>

\* MTRC is equal to TRC since there are no Industrial MTRC programs

## 10 Summary

The information presented in this DSM Plan provides:

- A comprehensive suite of programs for each of the previously approved DSM activity areas
- Descriptions of each of the programs, including target markets, eligible measures, expected levels of participation, energy savings and forecast expenditures by administrative category
- A full reporting of the cost-effectiveness of those programs at the level of individual program, program area and total portfolio

The DSM plan illustrates that there remain significant cost-effective opportunities for energy efficiency within FEI's service territory, which is consistent with the results provided in FEI's BC Conservation Potential Review<sup>15</sup> and the previous EEC Plan Report for 2014-2018. This remaining opportunity reflects, in part, how the continued technology cost and performance improvements have increased the availability of energy-efficiency options.

However, some markets are challenged. More specifically:

- The scope for program-induced natural gas savings in the Residential sector are challenged by the impacts of new space and water heating equipment performance standards, as well as those due to new residential construction standards. Consequently, the residential program portfolio has a TRC value of 0.6.
- The Commercial sector is somewhat challenged as well, with a TRC of 1.0. This is also partly related to new equipment performance standards and new construction standards. The cost-effectiveness of this program area is also challenged as its programs dig deeper to include a broader array of measures.

Overall, the portfolio of programs contained in the DSM Plan provide a TRC value of 1.0. Based on the DSM Regulation as amended on March 24, 2017 pursuant to B.C. Reg. 117/2017 (the March 2017 Amendment), the MTRC has been calculated for the measures with a TRC below 1.0. Section 4(1.5) of the DSM Regulation limits expenditures on measures that require the MTRC to be cost-effective to 40% of the total DSM portfolio expenditure. Based on the cost-effectiveness results presented herein, the expenditures for these programs total \$121,062,000<sup>16</sup> over the test period, which represents 37.7% of the total DSM portfolio expenditures. Considering the MTRC adder only for the programs that require it, the portfolio cost-effectiveness was calculated at 1.9.

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<sup>15</sup> The annual energy savings reported in CPR 2016 include the cumulative effects of technologies implemented in prior years, which provides an accurate comparison with FEI's load forecast. However, the annual savings calculation method used for the purpose of this DSM Plan does not include the effects of those prior year technologies. Consequently, the reported savings from each approach are not directly comparable.

<sup>16</sup> All non-incentive expenditures are based on 2019 dollars, and do not account for inflation.



**ORDER NUMBER**

**G-xx-xx**

**IN THE MATTER OF**

the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

FortisBC Energy Inc.

Application for Approval of 2019-2022 Demand Side Management Expenditures Plan

**BEFORE:**

[Panel Chair]  
Commissioner  
Commissioner

on **Date**

**ORDER**

**WHEREAS:**

- A. On September 15, 2014, the British Columbia Utilities Commission (Commission) issued its Decision and Order G-138-14 on the FortisBC Energy Inc. (FEI) 2014-2019 Performance Based Ratemaking Plan (PBR Plan). In the decision accompanying Order G-138-14 (PBR Decision), the Commission accepted FEI's Utilities Commission Act (UCA) section 44.2 expenditure request for energy efficiency and conservation (EEC) programs for 2014 through 2019.;
- B. In accordance with Directive 148 of the PBR Decision, FEI and FortisBC Inc. filed for approval of a new Rental Apartment Efficiency Program (RAP), and on September 24, 2015, the Commission issued order G-152-15A, approving the RAP;
- C. In accordance with Directives 140 and 142 of the PBR Decision, FEI filed for approval of the detailed plans for four new EEC Programs, and on January 28, 2016, the Commission issued Order G-11-16 approving the four new EEC Programs;
- D. On March 31, 2017, FEI filed its 2016 Demand Side Management (DSM) Annual Report (2016 Annual Report). In the 2016 Annual Report, FEI identified potential barriers and opportunities for future DSM programming, to be considered as FEI prepares its next DSM Plan for 2019 and beyond;
- E. On June 22, 2018, FEI filed its Application for Approval of 2019-2022 Demand Side Management Expenditures Plan (DSM Plan);
- F. FEI seeks acceptance, pursuant to section 44.2 of the UCA of Conservation and Energy Management (C&EM) (previously referred to as Energy Efficiency and Conservation (EEC)) total expenditures of \$324.5 million for 2019 through 2022;

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G. FEI seeks the following additional approvals:

1. approval for funding transfers as set out in Section 9.1 of the Application;
2. approval of the forecast rate base additions accounting treatment as set out in Section 9.2 of the Application; and
3. approval to move to a 16-year amortization period for DSM expenditures as set out in Section 9.3 of the Application;

H. The Commission has reviewed FEI's DSM Plan and requested approvals for C&EM expenditures for 2019 to 2022 and concludes that the requested expenditure schedules should be accepted.

**NOW THEREFORE** the Commission orders as follows:

1. Pursuant to section 44.2(a) of the UCA, the Commission accepts the FEI C&EM expenditure schedule of total DSM expenditures of \$324.5 million for 2019 through 2022 on the C&EM program areas described in the DSM Plan.
2. The funding transfer rules as set out in Section 9.1 of the Application are approved;
3. Forecast rate base additions to the EEC deferral account of \$30 million, on a net-of-tax basis, for each of the years 2019 through 2022 as set out in Section 9.2 of the Application are approved.

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**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