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October 25, 2018

VIA ELECTRONIC MAIL

British Columbia Utilities Commission
6th Floor, 900 Howe Street
Vancouver, B.C. V6Z 2N3

**Attention: Patrick Wruck, Commission Secretary
and Manager, Regulatory Support**

Dear Sirs/Mesdames:

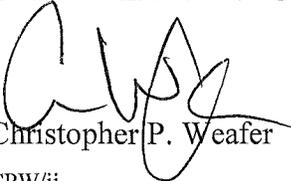
**Re: FortisBC Energy Inc. ~ 2019-2022 Demand Side Management Expenditures Plan ~
Project No.1598964**

We are counsel to the Commercial Energy Consumers Association of British Columbia (the "CEC"). Attached please find the CEC's Final Submissions with respect to the above-noted matter.

If you have any questions regarding the foregoing, please do not hesitate to contact the undersigned.

Yours truly,

OWEN BIRD LAW CORPORATION



Christopher P. Weafer

CPW/jj
cc: CEC
cc: FortisBC Energy Inc.
cc: Registered Interveners

**COMMERCIAL ENERGY CONSUMERS
ASSOCIATION OF BRITISH COLUMBIA**

FINAL SUBMISSIONS

**FortisBC Energy Inc. 2019-2022 Demand Side Management Expenditures Plan
Project No.1598964**

October 25, 2018

Commercial Energy Consumers Association of British Columbia

Final Submissions

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COMMERCIAL ENERGY CONSUMERS ASSOCIATION OF BRITISH COLUMBIA

Final Submissions

FortisBC Energy Inc. ~ 2019-2022 Demand Side Management Expenditures Plan Project No.1598964

The Commercial Energy Consumers Association of BC (the “CEC”) represents the interests of ratepayers consuming energy under commercial tariffs in applications before the BC Utilities Commission (“BCUC” or “Commission”).

FortisBC Energy Inc. (“FEI”) applies to the Commission for approval of its 2019-2022 Demand Side Management (“DSM”) Expenditures Plan (the “DSM Plan”).

FEI is requesting acceptance of DSM expenditures for 2019 – 2022 in the total amount of \$324.6 million.¹

FEI is also requesting the approval for three related proposals including:

- Continuation of the existing funding transfer rules with an additional funding rule to permit the ‘rollover’ of unspent expenditures to the same program area in the following year;
- Forecast rate base additions; and
- Approval of a 16 years amortization period for DSM expenditures.

The CEC has participated in the proceeding and provides the following Final Submissions for the Commission’s review and consideration.

Summary and Recommendations

1. The CEC recommends that the Commission find the proposed DSM spending plan to be in the public interest and approve the requested forecast for rate base additions.
2. The CEC recommends that the Commission approve the proposed automatic ‘rollover’ Funding Transfer Rules as requested.
3. The CEC recommends that the Commission require Commission approval to ‘rollover’ spending for any year in which FEI is unable to spend more than 85% of its budget

¹ Exhibit B-1, page 22

within the DSM program as a whole in order to have accountability for the degree of underspending and its impact on customers.

4. The CEC recommends that the Commission encourage FEI to continue to increase its DSM spending over time until it is able to achieve a Portfolio Total Resource Cost of 1, and/or the most cost-effective DSM plan possible.
5. The CEC recommends that the Commission approve an increase in the amortization period for DSM as requested from 10 to 16 years.

A. Demand Side Management Expenditure Plan

Inputs to the DSM Plan

6. FEI provides the Legal Framework for the BCUC's acceptance of DSM expenditures as provided for in the Utilities Commission Act, RSBC 1996, c473 (the "UCA") at pages 5-6 of its Final Submissions. The CEC agrees with FEI's review of this framework.
7. FEI also provides a set of 11 Guiding Principles by which it develops in its proposed DSM Plan at pages 7-8 of its Final Submissions.
8. Unless otherwise noted in this submission, the CEC is generally of the view that FEI's principles are appropriate.
9. FEI also cites the British Columbia Conservation Potential Review ("CPR"), the Long-Term Resource Plan and other Third-Party studies as contributors to the DSM Plan.
10. The CEC submits that these are significant and appropriate sources of information to inform the 2019-2022 DSM Plan.

Collaboration

11. FEI states that its proposed DSM Plan reflects 'deep collaboration' with FortisBC Inc. ("FBC"), BC Hydro and Power Authority ("BC Hydro"), and Pacific Northern Gas ("PNG")², and has identified various activities and programs that it has undertaken with these partners.
12. FEI also collaborates with other parties including government, various associations, and other industry stakeholders.³
13. FEI provides examples of the types of collaboration that FEI will seek out from other parties in CEC 1.8.1 and the expected benefits in CEC 1.8.2.
14. The CEC submits that FEI has demonstrated a strong emphasis on collaboration, and that the evidence shows the benefits of this collaboration can be significant.

² FEI Final Submissions page 13

³ FEI Final Submissions page 14

15. The CEC commends FEI for having undertaken a quantitative analysis of the cost savings benefits of collaborating with BC Hydro and FBC. A joint review estimated that FEI, FBC, and BC Hydro had a combined incremental cost savings of \$21.5 million as a result of working together⁴ over the 2013-2018 time period.
16. The CEC submits that such reviews offer important evidence by which the Commission can assess the value of certain practices and provide ongoing direction to the utilities.
17. The CEC submits that collaboration between the utilities is clearly in the ratepayers' interests and recommends that the Commission provide direction to the utilities that they should continue to collaborate where practicable and in the ratepayer interests.
18. The CEC submits that the collaboration shown and intended by FEI are important positive aspects of the DSM Plan and should be given significant weight by the Commission.

Market Transformation Studies

19. FEI conducts market studies on a program by program basis and assesses adoption of energy efficient equipment through end-use studies. Over the last five years FEI has formally conducted three program level market transformation studies and two end-use studies through third party consultants. A list is provided in CEC 1.9.1.
20. The CEC submits that the studies are useful in providing important market information. For instance, the BC Fenestration Market Study of 2016 indicated manufacturers' awareness that the market is ready for the introduction of higher performance, lower U value products.⁵
21. The CEC recommends that the Commission provide encouragement for FEI to continue to pursue market transformation studies to inform future DSM planning.

Conclusion on DSM Plan Inputs

22. The CEC submits that all of the above are appropriate inputs to the DSM plan and should be considered as reasonable and acceptable by the Commission.

B. Proposed DSM Expenditures and Anticipated Savings

23. Pursuant to section 44.2 of the UCA, FEI requests acceptance of the DSM expenditure schedule from 2019-2022 as follows:

⁴ Exhibit B-5, CEC 1.8.3

⁵ Exhibit B-5, CEC 1.9.1

FEI DSM Expenditures - 2019-2022 Forecast, Shown in As Spent Dollars⁵

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
ALL PROGRAMS	66,350	72,577	88,803	96,775	324,505

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24. The DSM Plan amounts to \$313,787,000 in uninflated 2019 dollars.⁷
25. The CEC notes that FEI's current proposal results in a significant increase to its DSM spending relative to both the Long Term DSM plan, and 2018 Approved.
26. 2018 Approved was slightly more than half the proposed 2019 expenditures. The 2017 Long Term Gas Resource Plan ("LTGRP") Reference Case forecasts a theoretical estimate of DSM expenditures that average \$42.80 million per year, compared to FEI's DSM Plan which indicates expenditures of \$81.14 million per year (including inflation) over the same time period.⁸

⁶ FEI Final Submission page 3

⁷ Exhibit B-5, CEC 1.6.1

⁸ Exhibit B-1, page 6

Table 5-1: FEI Annual Total DSM Expenditures 2014 to 2018



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27. FEI points out that from 2016-2017 FEI’s DSM expenditures have exceeded \$30 million annually, and FEI is projecting that it will exceed its Approved budget for the first time in 2018.¹⁰
28. The CEC supports FEI in its expectation that it will exceed its Approved budget for 2018 and submits that this spending could provide a good foundation for the significant increases anticipated for 2019.
29. FEI believes that opportunities identified in the CPR and other third-party studies, changes to the DSM regulation, and existing escalating program activity supports the level of expenditures.¹¹ The level of DSM expenditures was driven by FEI’s ‘bottom up’ development of programs in alignment with government objectives and policy and customer needs. New initiatives are identified as well.
30. FEI discusses its spending drivers in its Final Submissions at pages 18-22 of its Final Submissions.
31. The CEC finds the rationale to be persuasive and submits that to the extent that the portfolio of spending is cost-effective, as measured with the Total Resource Cost test (“TRC”) and Modified Total Resource Cost test (“MTRC”), then the savings can be considered to represent cost-effective acquisition of energy and highly beneficial results for customers.

⁹ Exhibit B-5, ECE 1.4.1

¹⁰ FEI Final Submissions page

¹¹ Exhibit B-2, BCUC 1.22.3.4

32. The CEC submits that the significant increase in DSM spending for 2019, with continuous and significant increases through to 2022, is a welcome improvement from historical spending and can result in significant benefits for ratepayers in the form of cost-effective supply and GHG savings.

Anticipated Savings

33. The incremental savings and cost-effectiveness results for the Program Areas and the total DSM Portfolio increase from approximately 876,000 GJ in 2019 to over 1.2 million GJ by 2022, for cumulative Annual Gas Savings (Net) of approximately 4 million GJ.¹²

34. The figures are presented in Exhibit 6 of the DSM Plan, as follows:

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	238,046	277,639	300,891	328,860	1,146,336	11,077,465	0.6	2.3	0.9	1.3	0.4
Commercial	280,314	295,004	418,482	478,259	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	78,590	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				
ALL PROGRAMS	875,933	929,884	1,113,469	1,201,809	4,067,599	36,751,641	1.0	1.9	0.9	1.7	0.4

^{*}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.

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35. The Present Value of the gas savings is provided in CEC 1.6.2:

¹² Exhibit B-1-1 page 7

¹³ Exhibit B-1-1 page 7

¹⁴ The CEC notes that the cumulative Annual Gas Saving for Commercial presented in the Table above is 53,496 GJ lower than the incremental gas savings add to, which is 1472088 GJ, resulting in a total savings of 4121096 GJ.

Table 6-1(b): Present Value (2019) of Net Lifetime Gas Savings, FEI DSM 2019-2022 Forecast

Program Area	PV of Net Lifetime Gas Savings (GJ)				Total
	2019	2020	2021	2022	
Residential	2,714,585	2,986,234	3,079,158	3,197,489	11,977,465
Commercial	3,026,523	2,989,931	4,055,224	4,359,421	14,431,099
Industrial	1,962,834	1,859,097	2,009,838	1,903,616	7,735,384
Low Income	698,270	666,506	635,972	606,945	2,607,693
Conservation Education and Outreach	0	0	0	0	0
Innovative Technologies	0	0	0	0	0
Enabling Activities	0	0	0	0	0
Portfolio Level Activities	0	0	0	0	0
ALL PROGRAMS	8,402,212	8,501,767	9,780,191	10,067,471	36,751,641

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36. The Net Present Value of GHG Emissions reductions is in the order of 1,896,385 tonnes.¹⁶
37. The CEC submits that the proposed savings are significant and represent substantial improvements over prior years' plan savings.

Evaluation

38. Section 4(1) of the Demand-Side Measures Regulation, BC Reg 326/2008 (the "DSM Regulation") provides that the Commission may assess 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.¹⁷
39. The Commission has historically considered the cost-effectiveness of FBC's DSM plans at the portfolio level. FEI identifies several other reasons for continuing to use the portfolio-based assessment in this instance, including the benefit of facilitating certain residential programs that may have difficulty passing the TRC or the MTRC and promoting efficiency in natural gas equipment.¹⁸
40. The CEC submits that the portfolio approach is appropriate because in addition to providing the utility with the opportunity to test out and/or refine programs that may have significant benefits in the long run, the spending can contribute to the knowledge base for DSM programming overall.
41. The CEC submits that while it is important for continuously cost-ineffective individual programs and incentives to ultimately be avoided and/or terminated, it is also necessary to allow FEI to have the flexibility to determine what the evidence is and, when the evidence becomes clear, to manage these programs accordingly.

¹⁵ Exhibit B-5, CEC 1.6.2

¹⁶ Exhibit B-1-1, page 11 Table 3-4

¹⁷ Exhibit B-1, page 28

¹⁸ Exhibit B-1, page 29

42. The CEC recommends that the Commission continue to assess the cost-effectiveness of the DSM program at a portfolio level.

Cost Effectiveness

43. FEI provides the following Cost Effectiveness Results for a variety of tests.

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

	TRC	1.0
	Portfolio	1.8
Benefit/Cost Ratios	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.

44. The CEC acknowledges the combined TRC and modified TRC as being the primary test of cost-effectiveness for the portfolio.
45. The CEC notes that the TRC is currently at unity, which indicates that the company is pursuing all the cost-effective DSM available based on this cost/benefit test.
46. In order to ensure that the portfolio remains at a TRC of 1 on an annual basis, FEI will continue its practice of monitoring DSM programs on a monthly basis to identify trends in cost-effectiveness related to program and portfolio expenditures, and make adjustments as needed.¹⁹
47. The CEC commends FEI on achieving unity for the portfolio without the MTRC, but submits that the company could go further in the future to reduce the Portfolio TRC (using the MTRC) down to 1 as well.
48. The inclusion of the MTRC for up to 40% of the portfolio results in the Portfolio result increasing to 1.8.
49. The CEC submits that a Portfolio result of 1.8 can appropriately be viewed as 'very cost-effective' and as having room for the inclusion of additional measures which could reduce it closer to 1.
50. The CEC submits that given the significant increases in spending and savings proposed over the next 4 years, it is reasonable to wait for results of the current DSM program prior to making significant additions of programs with lower cost-effectiveness.

¹⁹ Exhibit B-1, page 28

Spending By Program Area

51. Most of the programs are a continuation of existing programs, with only one new program and one new enabling activity.²⁰ Additionally, many existing programs include other new initiatives within them. The initiatives reflect FEI's ongoing efforts to respond to changing market conditions and integrate operational lessons learned.²¹
52. FEI provides a comprehensive list of Initiatives with a Description, Reference page, and Market Drivers identified in CEC 1.19.1.
53. The CEC has reviewed the initiatives and finds them to be appropriate and responsive to the market drivers identified.
54. FEI will monitor the market and/or other conditions and respond to changes as they occur, as laid out in CEC 1.19.2.
55. The CEC submits that these are appropriate activities and will be useful in ensuring the DSM program remains current and useful over the time period and provides lasting benefits into the future.

Programs with Savings Attached

56. The CEC provides the following breakdown of spending by sector.
57. Note: The Total DSM spending for all programs is considered to be \$324,505,000 and includes Conservation Education and Outreach, Innovative Technologies, Enabling Activities, and Portfolio level activities.²²

	2019		2020		2021		2022		Total	
Spending										
Residential	23521	50%	25722	49%	28476	43%	31383	43%	109102	45%
Commercial	13837	29%	17355	33%	27437	41%	31074	42%	89703	37%
Industrial	3103	7%	3152	6%	3644	5%	3708	5%	13607	6%
Low Income	6630	14%	6795	13%	6984	10%	7217	10%	27626	12%
Total Programs w sav	47091	100%	53024	100%	66541	100%	73382	100%	240038	100%
Total Spending	66350		72577		88803		96775	0	324505	
Savings										
Residential	238946	27%	277639	30%	300891	27%	328860	27%	1146336	28%
Commercial	280314	32%	295004	32%	418482	38%	478288	40%	1472088	36%
Industrial	280651	32%	280651	30%	316955	28%	316955	26%	1195212	29%
Low Income	76022	9%	76590	8%	77141	7%	77707	6%	307460	7%
	875933	100%	929884	100%	1113469	100%	1201810	100%	4121096	100%

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²⁰ FEI Final Submission page

²¹ Exhibit B-1, Appendix A page 1

²² The CEC has not rationalized minor discrepancies noted between various tables such as Exhibit 1 and Table 6-1 (showing total expenditures of \$324,505,000) and Exhibit 5 (showing total expenditures of \$320,816,000) both in Exhibit B-1-1

²³ Sources: Exhibit B-1-1 page 22 and Exhibit B-1-1 Appendix A page 8

Residential

58. Residential spending is expected to increase from \$23,521,000 in 2019 to \$31,383,000 in 2022, which represents an increase of approximately 33%. Total spending for the period amounts to \$109,101,000.²⁴
59. The forecast increase in expenditures in the residential program is primarily due to expansion of the furnace and boiler incentives to become available year-round, as well as BC Energy Step Code support.²⁵ FEI also points out that new measures such as combination systems, direct vent wall furnaces, drain water heat recovery, communicating thermostats, and HVAC zone controls are expected to provide gas savings of 36,826 GJ in 2019. The Residential program area is also projected to see an increase in savings from fireplaces and the New Home Program, due in large part to the introduction of the BC Step Code.²⁶
60. Residential spending of \$109,101,000 for the period accounts for about one third (34%) of total DSM expenditures of \$324,505,000 and approximately 45% of the \$238,505,000 of spending dedicated to program areas with savings attached (ie. Residential, commercial, industrial, low income). Residential initially accounts for about 50% of spending with savings attached in 2019, declining to approximately 43% by 2022.
61. Residential savings however represent only approximately 27% of the savings for most of the time period, with the exception of 2020 when the residential savings account for 30% of the total savings.

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	170,923	200,138	213,961	235,276	820,299	8,678,816	0.7	2.7	1.0	1.5
* 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		Savings Not Estimated				
ALL PROGRAMS	233,529	271,677	294,328	322,297	1,121,831	11,739,991	0.6	2.2*	0.9	1.3	0.4

* 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)

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²⁴ Exhibit B-1-1 page 22

²⁵ Exhibit B-1-1 page 22

²⁶ FEI Final Submissions page 24

²⁷ Exhibit B-1, Appendix A page 12

²⁸ The CEC notes minor changes have been made to the program area which are not reflected in this Exhibit.

62. The CEC notes that the Residential TRC is 0.6, but increases to 2.2 when including the MTRC and can therefore be deemed to be cost-effective.
63. The CEC submits that the declining spending proportion over the DSM period combined with consistent savings is indicative of improving cost-effectiveness of the residential portfolio spending.
64. The CEC submits that this is a step in a positive direction and recommends that the Commission consider this as likely to be a beneficial outcome of the plan.

Commercial

65. Commercial spending is expected to increase from \$13,837,000 in 2019 to \$31,074,000 by 2022 primarily as a result of new measures in the Prescriptive Program, such as furnaces and roof insulation, and in the Performance Program – New Buildings, which includes enhanced support for the BC Energy Step Code and an additional program path for smaller commercial customers.²⁹ FEI notes that the introduction of measures such as furnaces, roof insulation, kitchen demand control ventilation, vortex deaerators, and gas underfired broilers are projected to produce an additional 16,570 GJ of savings in 2019 compared to 2017.³⁰
66. Total forecast spending is for \$89,703,000³¹ over the DSM term (including inflation).

Exhibit 9 - Summary of Expenditures for the Commercial 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
Prescriptive Program	6,459	9,385	11,913	14,182	41,939	1,959	2,335	3,013	3,655	10,962	8,418	11,720	14,926	17,837	52,900
Performance Program - Existing Buildings	1,931	1,996	2,146	2,332	8,405	498	504	559	583	2,145	2,429	2,499	2,706	2,916	10,550
* Performance Program - New Buildings	801	808	8,060	6,285	13,954	227	229	1,420	1,470	3,347	1,028	1,037	7,481	7,755	17,501
Rental Apartment Efficiency Program	1,004	1,004	1,004	1,004	4,014	253	253	253	253	1,011	1,256	1,256	1,256	1,256	5,025
Non-Program Specific Expenses	0	0	0	0	0	706	755	604	854	3,119	706	755	804	854	3,119
ALL PROGRAMS	10,194	13,193	21,123	23,803	68,312	3,643	4,075	6,050	6,815	20,583	13,637	17,268	27,173	30,618	88,896

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

Exhibit 10 - Summary of Savings and Cost-Effectiveness Results for the Commercial 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
	Prescriptive Program	145,236	187,462	238,365			290,206	861,269	9,104,089	1.1	-
Performance Program - Existing Buildings	53,840	55,050	59,708	64,365	226,033	1,960,032	1.0	-	1.5	1.7	0.6
* Performance Program - New Buildings	43,501	14,765	82,672	85,979	226,907	2,406,864	0.7	2.7	1.2	1.2	0.5
Rental Apartment Efficiency Program	37,738	37,738	37,738	37,738	104,384	960,114	1.6	-	1.5	3.0	0.6
Non-Program Specific Expenses	Savings Not Estimated				Savings Not Estimated						
ALL PROGRAMS	280,314	295,004	418,482	478,288	1,418,592	14,431,099	1.0	1.5***	1.4	1.8	0.5

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

** 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

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

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²⁹ Exhibit B-1-1, page 22

³⁰ FEI Final Submissions page 24

³¹ Exhibit B-1-1, page 22

³² Exhibit B-1, Appendix A page 21

³³ The CEC notes minor changes have been made to the program area which are not reflected in this Exhibit.

67. The CEC submits that these are important improvements in the commercial DSM program.
68. Commercial spending accounts for about 28% of total DSM expenditures, and about 37% of the spending dedicated to program areas with savings attached. Commercial spending rises significantly as a proportion of spending from 29% in 2019 to 42% in 2022.
69. The Commercial rate class accounts for 36% of savings overall, ranging from 32% in 2019 to 40% in 2022.
70. The CEC notes that the TRC for the Commercial sector is at 1, indicating that the commercial sector program portfolio is cost-effective and approaching a maximum, without considering the benefits included in the MTRC.
71. The CEC submits that the proportional increase in spending for the Commercial rate class is appropriate to bring the spending into line with the savings available, and ensures that the Commercial rate class is being provided with the opportunities to maximize its savings potential.
72. The CEC submits that this is a step in a positive direction and recommends that the Commission consider this as likely to be a beneficial outcome of the plan.

Industrial

73. FEI has introduced a new program entitled the 'Strategic Energy Management Program' which encourages larger industrial customers to use natural gas more efficiently. FEI piloted the program in 2018 and will work jointly with BC Hydro to run the program.³⁴
74. Industrial spending is fairly constant over the DSM term, starting at \$3,103,000 in 2019, and rising to \$3,708,000 in 2022 for a total of \$13,607,000 over the period.³⁵
75. Industrial spending accounts for about 4% of total DSM expenditures, and approximately 6% of spending dedicated to program areas with savings attached. Industrial spending declines from 7% to 6% over the 4-year term.
76. Industrial savings account for approximately 29% of total DSM savings.

³⁴ FEI Final Submissions page 23

³⁵ Exhibit B-1-1 page 22

Exhibit 11 - Summary of Expenditures for the Industrial Sector Program Portfolio
Utility Expenditures (\$000s)

Program	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	1,756	6,480	387	387	387	387	1,548	1,831	1,831	2,183	2,183	8,028
Prescriptive Program	417	417	466	466	1,805	95	115	95	115	420	512	532	581	601	2,225
Strategic Energy Management Program	480	400	450	450	1,780	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 (\$J)	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	86,875	86,875	91,513	91,513	356,775	2,816,862	5.1	-	10.0	5.7	0.9
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						
ALL PROGRAMS	269,863	269,863	303,470	303,470	1,146,666	7,382,117	3.3	3.3*	4.3	4.7	0.8

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

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77. The CEC notes the very positive results of the Benefit/Cost ratios including a TRC of 3.3.
78. The CEC submits that the industrial sector could be an important and cost-effective area for future increases in DSM spending to be allocated.

Low Income

79. The BCUC is required to utilize the TRC test with the Zero Emission Energy Alternative (“ZEEA”) as the avoided cost of energy, and the inclusion of non-energy benefits (“NEBs”) in its assessment of the program.
80. The Low Income Program is reviewed in Section 6 of Appendix A.
81. Low Income spending is in the order of \$6,630,000 in 2019 and remains relatively steady, rising to \$7,217,000 by 2022, for a total of \$27,626,000³⁸ over the DSM term.³⁹

Exhibit 13 - Summary of Expenditures for the Low Income Program Portfolio

Program	Incentives					Non-Incentives					Total Expenditures				
	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total
Direct Install Program	1,610	1,680	1,750	1,820	6,860	550	550	550	580	2,230	2,160	2,230	2,300	2,400	9,090
Self Install Program	325	325	325	325	1,300	170	170	170	175	685	495	495	495	500	1,985
Prescriptive Program	2,771	2,806	2,845	2,887	11,309	254	248	252	249	1,002	3,024	3,053	3,097	3,137	12,311
Support Program	260	260	260	260	1,040	540	540	540	540	2,160	800	800	800	800	3,200
Non-Program Specific Expenses	0	0	0	0	0	150	180	216	259	805	150	180	216	259	805
ALL PROGRAMS	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

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³⁶ Exhibit B-1, Appendix A page 29

³⁷ The CEC notes minor changes have been made to the program area which are not reflected in this Exhibit.

³⁸ The CEC notes minor discrepancies between various tables in Appendix A of Exhibit B-1-1 with Appendix A of Exhibit B-1

³⁹ Exhibit B-1-1 page 22.

⁴⁰ Exhibit B-1 Appendix A page 36

Exhibit 14 - Summary of Savings and Cost-Effectiveness Results for the Low Income 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
Direct Install Program	10,120	10,560	11,000	11,440	43,120	359,738	1.8	-	0.3	1.6	0.2
Self Install Program	35,100	35,100	35,100	35,100	140,400	1,027,888	23.1	-	4.0	9.3	0.6
Prescriptive Program	30,802	30,930	31,041	31,167	123,939	1,220,066	4.6	-	0.8	2.3	0.4
Support Program	Savings Not Estimated				Savings Not Estimated						
Non-Program Specific Expenses	Savings Not Estimated				Savings Not Estimated						
ALL PROGRAMS	76,022	76,590	77,141	77,707	307,459	2,607,693	4.5	-	0.8	2.6	0.4

* 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.

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82. Low Income spending accounts for about 9% of total DSM spending and approximately 12% of spending with savings attached. The CEC notes that proportional spending declines over the period from 14% of spending with savings attached, to 10% over the 4-year term.
83. Low Income savings account for approximately 7% of the total, and the savings have consistently been proportionally lower than the percentage spend.
84. The CEC is satisfied that FEI has adopted the appropriate assessment approach and submits that the FEI proposal for Low Income spending is acceptable.

Programs Without Savings Attached

Conservation Education and Outreach

85. Conservation and Outreach spending increases from \$7,155,000 in 2019 to \$9,433,000 by 2022, for a total of \$32,518,000 or about 10% of the total DSM expenditures of \$324,505,000.
86. The program area is intended to foster a culture of conservation within the province by providing education to a broad range of customers, including residential and commercial customers and students.⁴³
87. The CEC has reviewed the evidence related to the Conservation, Education and Outreach program and finds it to be positive.
88. The CEC expects that there can be long-lasting educational benefits.
89. The CEC recommends that the Commission view the program as being beneficial to ratepayers.

⁴¹ Exhibit B-1, Appendix A page 36

⁴² The CEC notes minor changes were made to the program area which are not reflected in this Exhibit.

⁴³ Exhibit B-1, Appendix A page 41

Innovative Technologies

90. The Innovative Technologies Program Area evaluates both pre-commercial and commercially-available technologies and conducts pilot studies to validate manufacturers' claims related to equipment and system performance. The program area also assesses actual 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 within the larger C&EM portfolio.⁴⁴
91. Spending in Innovative Technologies is proposed to rise from \$2,043,000 in 2019 to \$3,062,000 in 2022, for a total of approximately \$9,938,000 or about 3% of the total DSM budget.
92. The forecast increase in Innovative Technologies is primarily due to the BC Energy Step Code Tier 5 Buildings Pilot, for which FEI expects significant increased participation over the DSM Term.⁴⁵
93. The CEC has reviewed the evidence with respect to spending on Innovative Technologies and submits that the 3% spending on Innovative Technologies is appropriate and likely to be money well spent.
94. The CEC recommends that the Commission view the program as being beneficial to ratepayers.

Enabling Activities

95. Enabling Activities are initiatives that support and supplement FEI's Conservation & Energy Management program development and delivery. These programs, activities, and projects provide resources common to the support and delivery of all program area activities.
96. Most of the activities listed are a continuation from 2018 or a re-application of a study previously conducted in order to gather up-to-date information. The Commercial Energy Specialist Program has been moved from the Commercial program area to Enabling Activities to better represent its role as an enabling program.⁴⁶
97. FEI initiated the Community Energy Specialist program as a new enabling activity to support the development of energy plans, including BC Energy Step Code Support, and to raise awareness in FEI's programs within municipalities and regional districts.⁴⁷

⁴⁴ Exhibit B-1, Appendix A page 48

⁴⁵ Exhibit B-1-1, page 22

⁴⁶ Exhibit B-1, Appendix A page 53

⁴⁷ FEI Final Submissions page 23-24

98. The suite of Enabling Activities included in this DSM Plan are:
- Trade Ally Network;
 - Codes and Standards;
 - Reporting Tool and Customer Application Portal;
 - Conservation Potential Review;
 - Customer Research;
 - Commercial Energy Specialist Program; and
 - Community Energy Specialist Program.
99. The CEC submits that these all represent invaluable activities that are likely to be highly cost-effective despite the difficulty that may be found in measuring savings. In particular, the CEC submits that activity in the Codes and Standards area can be highly cost-effective. The CEC notes that FEI's contributions to the advancement of codes and standards will result in energy savings and FEI will explore ways to measure and claim the energy savings resulting from this activity. Any such savings claims would accrue to the programs supporting the codes and standards.⁴⁸
100. Enabling Activities account for just over 10% of the total DSM budget with a total of \$34,900,000 to be spent over the DSM period.⁴⁹
101. The spending is relatively flat, commencing at \$8,426,000 and rising to \$8,921,000 between 2019 and 2022, with a slight increase in 2021.
102. The CEC has reviewed the evidence with respect to spending on Enabling Activities and submits that the spending is appropriate.
103. The CEC recommends that the Commission view the program as being very beneficial to ratepayers.

Portfolio level activities

104. Portfolio level activities account for approximately 2% of total DSM expenditures, and are relatively stable, starting at \$1,635,000 in 2019 and increasing to \$1,979,000 by 2022, for a total of \$7,112,000 overall.
105. The CEC has reviewed the evidence related to Portfolio Level Activities and finds it to be acceptable.

⁴⁸ Exhibit B-1, Appendix A page 54

⁴⁹ Exhibit B-1-1, page 22

Incentives and Non-Incentive Spending

106. FEI also breaks its spending down by classifying them as either ‘incentives’ or ‘non-incentives’ as illustrated below.

Exhibit 3 - Results for the Total DSM Program Portfolio

Indicator	Year	Total
Utility Expenditures, Incentives (\$000s)	2019	42,623
	2020	47,967
	2021	59,625
	2022	65,411
	Total	215,615
Utility Expenditures, Non-Incentives (\$000s)	2019	23,727
	2020	24,101
	2021	27,962
	2022	29,411
	Total	105,201
Utility Expenditures, Total (\$000s)	2019	66,350
	2020	72,067
	2021	87,587
	2022	94,821
	Total	320,816
Net Incremental Annual Gas Savings (GJ/yr.)	2019	875,933
	2020	929,884
	2021	1,113,469
	2022	1,201,809
	Total	4,067,599
Cumulative Net Annual Gas Savings (GJ)	2019-2022	4,067,599
NPV of Net Gas Savings (GJ)		36,751,641
Benefit/Cost Ratios	TRC	1.0
	Portfolio**	1.9
	Utility	0.9
	Participant	1.7
	RIM	0.4

*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)

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107. Incentive spending is determined by the incentive levels required to achieve participation and forecast program uptake; non-incentive spending is determined using operational delivery considerations and promotional elements required for specific programs.⁵¹
108. One of FEI’s Guiding Principles provides for incentives to exceed 50% of the expenditures of a given year. This principle has been in place for several years.⁵²

⁵⁰ Exhibit B-1-1 page 6

⁵¹ FEI Final Submissions page 21

⁵² Exhibit B-5, CEC 1.7.1

109. BC's 2016 Climate Leadership Plan set direction to FEI to increase incentives by at least 100%.⁵³ The DSM Regulation was amended in 2017 to increase the incentives FEI can cost-effectively offer. The DSM Regulation changes enable increased activity in support of the BC Energy Step Code, Low Income programs, codes and standards, and programs that require use of the MTRC.⁵⁴
110. FEI does not have a quantitative analysis of different threshold levels but considers that the 50% threshold ensures that a high proportion of expenditures are delivered to customers as incentives.
111. FEI provides for total incentive expenditures of approximately \$42 million for 2019, which represents about two-thirds of total spending. Incentive expenditures increase to \$65 million, or about 70% of total spending, by 2022.
112. The incentive spending is approximately double and triple that of 2016 (\$21 million)⁵⁵ in 2019 and 2022 respectively.
113. The CEC supports high levels of incentive spending because in the CEC's view they provide material direct inducements to participants.
114. The CEC recommends that the Commission consider FEI's proposed incentive spending to be a material benefit of its proposed DSM plan and consistent with government intention and DSM regulation.
115. The CEC recommends that the Commission weight this heavily in its assessment processes.

Conclusions Regarding Cost-Effectiveness

116. The CEC submits that the DSM Plan submitted by FEI is well within the cost-effective range according to the meanings prescribed by the DSM Regulation.
117. The CEC submits that the DSM Plan could be increased to include more measures to bring the MTRC down to a level of 1.
118. However, the CEC is also cognizant of the significant spending increases that have been initiated in this application, and submits that it is appropriate to permit the spending to become well-established and demonstrating its cost-effectiveness prior to making further increases.
119. The CEC recommends that the Commission find the DSM Plan proposed by FEI to be cost-effective.

⁵³ FEI Final Submission page 18 (verify that the change relates to 'incentives' and is not a 'general change')

⁵⁴ FEI Final Submission page 18 (verify that the change relates to 'incentives' and is not a 'general change')

⁵⁵ Exhibit B-5, CEC 1.2.1

Evaluation Measurement and Verification

120. Section 8 of the application discusses FEI's Evaluation, Measurement, and Verification ("EM&V") proposal.
121. The total proposed expenditure for program EM&V is approximately \$9.2 million, or 2.9% of FEI's overall planned portfolio expenditures. The proposed budget is slightly higher than FEI's historical evaluation expenditures of about 1.5%-2%⁵⁶, and other practices, and also appears slightly high based on industry surveys, which appear to suggest spending of approximately 1% to 2%.⁵⁷
122. The CEC submits that the importance of EM&V is particularly significant given the sizeable increases in spending that FEI is proposing to undertake in this DSM Plan.
123. The CEC submits that it would be unwise to artificially reduce the EM&V expenditures in order to meet an industry standard when the value of measuring the results can be so important. The CEC submits that the difference of approximately \$4 million in this instance is not significant.
124. The CEC recommends approval of the EM&V budget as proposed by FEI.

Appropriateness of Time Period

125. FEI requests acceptance of expenditures over a 4-year period. FEI's view is that this period facilitates participation by external parties by providing certainty in the market and sufficient time to build customer awareness and planning integration.⁵⁸ Additionally, it better aligns with the long-term gas resource planning cycle and FBC electric DSM and long-term electric resource planning cycle, and promotes regulatory and internal operational efficiency related to both FEI's and FBC's DSM Plan applications.⁵⁹
126. The CEC submits that the above represent good reasons for a developing a 4-year plan.
127. The CEC recommends that the Commission approve four years as the appropriate term for this DSM expenditure plan.

CONCLUSION REGARDING DEMAND SIDE MANAGEMENT EXPENDITURE PLAN

128. The CEC submits that the DSM Plan for 2019-2022 as proposed by FEI is acceptable and is in the public interest.
129. The CEC recommends that the Commission approve the DSM Plan as proposed by FEI.

⁵⁶ Exhibit B-5, CEC 1.14.3

⁵⁷ Exhibit B-1, page 33

⁵⁸ Exhibit B-1, page 20 and Exhibit B-5, CEC 1.5.3

⁵⁹ Exhibit B-5, CEC 1.5.1

C. Additions to Funding Transfers Rules

130. In the past, the Commission has approved the use of certain funding transfer rules to guide and permit FEI to manage its DSM spending to improve its effectiveness.
131. In this application, FEI seeks an additional funding transfer rule that would permit FEI to rollover unspent expenditures from one year to the next within the same program area.⁶⁰
132. The 25% transfer rule would apply to each year of the 2019-2022 DSM Plan, such that if FEI determined that a transfer of more than 25% of the annual expenditures of an approved Program Area in a given year is required, such a transfer would require Commission approval.⁶¹
133. The following two criteria must be met in order for a funding transfer to occur in a given year within the allowed transfer amounts:
 - a) A program area is expected to realize actual expenditures greater than the approved amount for that program area; and
 - b) Another program area is expected to realize expenditures less than the approved amount for that program area.
134. Both conditions must be met in order to allow room to transfer funds from one program area to the other.⁶²
135. FEI outlines its views on the benefits of its rollover mechanism at pages 51 and 52 of its Final Submissions.
136. FEI has not proposed any limitations on the amount of unspent funding in a Program Area in a given year to rollover to the same Program Area in the following year. FEI states that it intends to follow and roll out the DSM Plan that it has worked hard to develop.⁶³
137. The CEC is optimistic that FEI will be able to follow and roll out the DSM Plan that it has developed. However, the CEC is of the view that a Commission review and approval is appropriate if FEI is unable to spend over 85% of its total DSM spending budget in any given year. The CEC believes that significant underspending of the DSM Plan as a whole would have the potential to disadvantage customers in terms of potential bill reductions delayed or not achieved.
138. The CEC submits that it could pose significant issues if FEI was consistently rolling over a significant portion of its spending, even in a given program, and was ultimately unable to catch up.

⁶⁰ FEI Final Submission page 48

⁶¹ Exhibit B-5, CEC 1.15.1

⁶² Exhibit B-5, CEC 1.15.2

⁶³ Exhibit B-5, CEC 1.16.3

139. The CEC recommends that the Commission propose that the Funding Transfer Rules require Commission approval for a rollover of more than 15% underspending of the DSM plan as a whole.

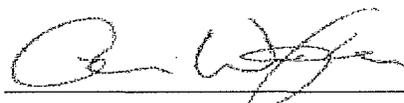
D. Regulatory Treatment

140. FEI is proposing to change the name of its rate base and non-rate base “Energy Efficiency and Conservation” deferral accounts to “DSM” deferral accounts, and to increase its forecast rate base additions to the DSM deferral account from \$15 million to \$30 million, for each of the years 2019 through 2022.
141. FEI considers that the increase from \$15 million to \$30 million is warranted given historical spending since 2015, and the increase in DSM expenditures planned for 2019 to 2022, as supported by the BC CPR, changes to the DSM Regulation, consultation and FEI’s bottom-up forecast for expanded DSM program participation and activities.⁶⁴
142. The CEC accepts FEI’s proposals as being reasonable.
143. FEI is also proposing to extend the amortization period of its DSM expenditures from 10 – 16 years, which is based on FEI’s analysis showing that it will match the period over which customers will realize the benefits of the DSM activity. FEI’s proposed 16-year amortization period is consistent with the average weighted measure life of all the measures in the DSM Plan.⁶⁵
144. The CEC agrees with FEI that the appropriate principle for amortization is benefits matching.
145. In the absence of information to the contrary, the CEC supports the increase in the amortization period from 10-16 years.

ALL OF WHICH IS RESPECTFULLY SUBMITTED

David Craig

David Craig, Consultant for the Commercial Energy Consumers Association of British Columbia



Christopher P. Weafer, Counsel for the Commercial Energy Consumers Association of British Columbia

⁶⁴ FEI Final Submissions page 53

⁶⁵ FEI Final Submissions page 54-55