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November 27, 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:

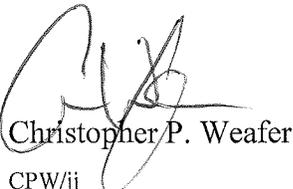
**Re: FortisBC Inc. – 2019 – 2022 Demand Side Management Expenditures Application ~
Project No. 1598973**

We are counsel to the Commercial Energy Consumers Association of British Columbia (the “CEC”). Attached please find the CEC’s Final Submission 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 Inc.
cc: Registered Interveners

**COMMERCIAL ENERGY CONSUMERS
ASSOCIATION OF BRITISH COLUMBIA**

FINAL SUBMISSIONS

**FortisBC Inc. 2019-2022 Demand Side Management Expenditures Application
Project No. 1598973**

November 27, 2018

Commercial Energy Consumers Association of British Columbia

**FortisBC Inc. 2019-2022 Demand Side Management Expenditures Application
Project No. 1598973**

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**COMMERCIAL ENERGY CONSUMERS ASSOCIATION
OF BRITISH COLUMBIA
FINAL SUBMISSIONS**

**FortisBC Inc. 2019-2022 Demand Side Management Expenditures Application
Project No. 1598973**

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

Pursuant to Section 44.2 of the *Utilities Commission Act* (“UCA”) FortisBC Inc. (“FortisBC” or “FBC”) files for Commission acceptance of its Demand Side Management (“DSM”) expenditures for the 2019-2022 period.

The CEC provides the following comments and submissions for the Commission’s consideration and review.

I. SUMMARY POSITION

1. The CEC recommends that the Commission accept FortisBC’s proposed DSM schedule.
2. The CEC’s view is that the utility should be pursuing all cost-effective DSM for the benefit of ratepayers and other stakeholders, and could go significantly further than it has provided in this plan.
3. The CEC recommends that the Commission continue to encourage FBC to increase its Demand Side Measures expenditures levels closer to a target of unity in both the Total Resource Cost (“TRC”) test and the Modified TRC (“mTRC”).

II. GUIDING PRINCIPLES

4. FBC outlines its Guiding Principles at pages 11- 12 of the Application.
5. FBC’s Guiding Principle #2 states
 2. C&EM expenditures will have a goal of incentive costs exceeding 50 percent of the expenditures in a given year.
6. FBC states that Principle #2 represents a qualitative approach to designing incentives that ensures that a higher proportion of Conservation and Energy Management (“C&EM”)

expenditures are delivered to customers as incentives to assist in offsetting the higher incremental cost of higher efficiency equipment and appliances.¹

7. FBC sets incentives on a program-by-program basis, and, when deemed appropriate, may exceed 50% of the participant's cost of the measure.²
8. The CEC agrees that incentives are valuable to encourage customer uptake but does not agree that they should be an end-goal in and of themselves. The incentives are only valuable so long as they contribute to cost-effective DSM savings.
9. The CEC submits that the goal could be better cast as follows:

C&EM expenditures will have a goal of incentive costs exceeding 50% of the expenditures in a given year, subject to contributing to cost-effective demand side savings.
10. The CEC is of the view that incentive costs should be maximized to the extent reasonably possible in order to deliver the benefits directly to the customers, subject to ensuring their cost-effectiveness.
11. The CEC submits that the Guiding Principles are acceptable, subject to its comments on the inappropriateness of single-metric goal setting.

III. CONSULTATION

12. FBC conducted an in-depth and varied consultation process which included communities, customers, contractors, manufacturers, government, First Nations, vendors, interest groups and the Energy Efficiency and Conservation Advisory Group (“EECAG”).³
13. FBC provides a table with a list of directional feedback and a brief description of how the recommendations will be accomplished in CEC 1.5.1.
14. The CEC submits that FBC has provided evidence indicating its responsiveness to consultation results.
15. The CEC recommends that the Commission find that FBC has provided adequate consultation with its stakeholders in its DSM plan.

IV. CONSISTENCY WITH LONG TERM RESOURCE PLAN

16. Under Section 44.2(5)(b) of the UCA the Commission must consider the utility's most recent LTRP filed under Section 44.1 of the UCA. For FBC the reference plan is the

¹ Exhibit B-4, CEC 1.4.1

² Exhibit B-3, BCSEA 1.15.3

³ FBC Final Submission page 19

2016 Long Term Electric Resource Plan (“**LTERP**”) which included the Long Term DSM Plan (“**LTDSM Plan**”).

17. The BCUC accepted FBC’s LT DSM Plan as being in the public interest.⁴
18. FBC’s proposed spending and savings level in the proposed DSM Plan are higher than those FBC proposed in its LT DSM Plan⁵ and the variances are primarily explained by the unanticipated changes in customer activities in FBC’s service territory related to cannabis production facilities.⁶

Anticipated Spending

19. The DSM Plan amounts to \$44,000,000 over the four year period, and incorporates an additional \$7.7 million in expenditures⁷ over and above LT DSM Plan.
20. Over half of the increased spending is attributable to forecast activity in cannabis production, while the balance is from increased spending in the Residential Customer Engagement Tool (\$1.1 million), Demand Response Pilot (“**DR Pilot**”) (\$1.0 million) and DSM Tracking Tool (\$0.6 million).⁸
21. The CEC submits that increasing DSM spending in response to unanticipated load growth from large customers is appropriate.
22. FBC notes that the Supporting Initiatives were not included in the LTDSM Plan, and FBC was not actively planning the DR pilot or the DSM Tracking Tool at the time the 2016 LTERP and LT DSM Plan were prepared.⁹
23. In its Final Submissions, FBC points out that the Commission typically considers that the DSM expenditure schedule will follow and reflect the previously submitted DSM Plan as part of its LTRP. However, they also note that the Commission is required only to ‘consider’, the most recent LTRP filed by FBC under Section 44.1.
24. Nothing in the UCA prevents FBC from seeking acceptance of, or the BCUC approving, levels of DSM spending that are higher than contemplated in a long term resource plan where circumstances warrant.¹⁰ However, the BCUC cannot accept or approve higher expenditure levels than are included in a public utility’s filed DSM expenditure schedule.

⁴ FBC Final Submissions pages 1-2

⁵ FBC Final Submissions pages 1-2

⁶ FBC Final Submission page 10-11

⁷ FBC Final Submission page 12

⁸ FBC Final Submission page 12

⁹ FBC Final Submission pages 12-13

¹⁰ FBC Final Submission page 10-11

The BCUC must accept the expenditure schedules if it considers that making the expenditures would be in the public interest.¹¹

25. The CEC submits that FBC should not be held to a lower level of DSM spending to ‘match’ the LT DSM Plan developed in 2016.
26. The CEC submits that changes to the load should be addressed as they become evident and that new opportunities should be included when they become available.
27. Further, the CEC submits that the evidence is that the proposed expenditure is more than adequately cost effective, with a TRC of 1.5 and a modified TRC of 1.7. The TRC of 1.5 on a portfolio basis means that estimated benefits are 1.5 times the cost of the DSM portfolio.
28. The CEC submits that FBC should aim to undertake to acquire all cost-effective savings, and could have increased its expenditures to achieve a TRC and mTRC of unity.

Anticipated Savings Relative to Long Term Electric Resource Plan

29. Energy savings targets have increased by 19.4 GWh over the 2016 LTERP primarily in response to the opportunities presented by cannabis production facilities, although the load growth offset has decreased by a small amount. The forecast load growth offset for the 2019-2022 DSM Plan is higher than was presented in the 2016 LTERP, including savings from cannabis facilities. Excluding savings from cannabis facilities, the average load growth offset would be 69% over the 2019-2022 plan period, which is slightly less than the 72% growth offset included in the LTERP.¹²
30. Due to a correction to the estimated savings in the Low Income program area, the total 2019-2022 DSM Plan savings have increased.¹³
31. FBC submits that the DSM measures included in the 2019-2022 DSM Plan are consistent with the measures assessed and the benefit/cost methodology used in the 2016 LTERP and LT DSM Plan.¹⁴
32. The CEC submits that additional savings could clearly be generated with additional expenditures.

V. COLLABORATION

33. FBC has undertaken several collaborative initiatives including the Residential Customer Energy Tool (“CET”) with FEI¹⁵, the Community Energy Specialist with FEI and

¹¹ Exhibit B-4, CEC 1.1.1

¹² Exhibit B-2, BCUC 1.1.2

¹³ Exhibit B-2, BCUC 1.1.1

¹⁴ Exhibit B-1, page 5

Climate Action Partners¹⁶, a proposal to Natural Resources Canada (“**NRCan**”) to co-fund a Cold Climate Heat Pump (“**CCHP**”) study in collaboration with BC Hydro and the BC Ministry of Energy and Mines,¹⁷ in addition to significant ongoing work with other public utilities on DSM-related activities as outlined in FBC’s Final Submissions at page 18.¹⁸

34. The CEC commends FBC on its collaborations and submits that FBC’s collaboration is highly beneficial to the ongoing development of DSM and maximizing the benefits/costs of demand side measures for ratepayers and other stakeholders.
35. The CEC recommends that the Commission view FBC’s collaborative efforts as a very positive outcome of the ongoing DSM planning processes.

VI. ADEQUACY OF DSM MEASURES

36. Adequacy criteria are established in Section 3(1) of the DSM regulation,¹⁹ which stipulates several conditions that must be fulfilled.
37. FBC provides a discussion of the DSM measures which satisfy the adequacy criteria of the DSM regulation in its Final Submissions at pages 14-15.
38. FBC also discusses various Applicable Energy Objectives under the Clean Energy Act and other regulation at pages 7 and 15-19 of its Final Submissions. These include:
 - a) To take demand-side measures and conserve energy;
 - b) To use and foster the development in BC of innovative technologies that support energy conservation and efficiency;
 - c) To reduce BC greenhouse gas emissions by the amounts and intervals prescribed;
 - d) To encourage communities to reduce greenhouse gas emissions and use energy efficiently;
 - e) To coordinate DSM programs with other utilities; and
 - f) To encourage switching from one kind of energy source or use to another that decreases GHG emissions in BC.

¹⁵ FBC Final Argument page 23

¹⁶ FBC Final Argument page 18

¹⁷ FBC Final Argument page 16

¹⁸ FBC Final Argument page 18

¹⁹ FBC Final Submission page 14

39. The CEC has reviewed the evidence related to the above and found the FBC proposal sufficient to meet these criteria.
40. FBC also notes that the ‘final consideration under the Utilities Commission Act is the interests of persons in British Columbia who receive or may receive service from FBC’.²⁰
41. FBC points to its stakeholder collaboration, considers that it has a ‘robust suite of cost-effective DSM measures’, and that a comparison to other utilities and jurisdictions in North America shows FBC to be well above average in variety of energy conservation metrics.²¹
42. The CEC submits that the evidence is that FBC has provided a DSM plan that fulfills the basic requirements stipulated in the various regulations, with the determinative question being the sufficiency with which the proposal meets the interests of the persons in British Columbia who receive or may receive service from FBC.²²
43. The CEC submits that the DSM Plan does meet these interests, but could go further in doing so.

VII. PORTFOLIO SPENDING AND COST EFFECTIVENESS

44. Section 44.2(5)(d) of the UCA requires the Commission to consider whether or not the DSM measures are ‘cost-effective’ within the meaning of the DSM Regulation.
45. Additionally, there are cost benefit tests as measured by the TRC which requires that at least 90% of the measures must pass the TRC, and up to 10% of the measures may be permitted to pass the modified mTRC.²³
46. FBC’s anticipated DSM expenditures total \$43.3 million (\$44 million inflation adjusted) over the 2019-2022 four-year term. FBC attaches its DSM Plan as Appendix A to the Application and is summarized below.

²⁰ FBC Final Submission pages 19-20

²¹ FBC Final Submission pages 19-20

²² FBC Final Submission pages 19-20

²³ FBC Final Submissions page 8

Table 1-1: 2019-2022 DSM Plan compared with the LT DSM Plan

Plan	2019	2020	2021	2022	Total
Expenditures (\$000s)					
2019-2022 DSM Plan	\$10,900	\$10,600	\$11,100	\$11,400	\$44,000
LT DSM Plan	\$8,100	\$8,200	\$9,400	\$10,600	\$36,300
<i>Difference</i>	\$2,800	\$2,400	\$1,700	\$800	\$7,700
Energy savings (GWh)					
2019-2022 DSM Plan	32.8	32.3	32.6	33.3	131.0
LT DSM Plan	26.4	26.4	28.4	30.4	111.6
<i>Difference</i>	6.4	5.9	4.2	2.9	19.4

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Portfolio Assessment

47. Section 4(1) of the Demand Side Measures Regulation, BC Reg 326/2008, 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.
48. The Commission has historically considered the cost-effectiveness of FBC’s DSM plans at the portfolio level.
49. 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.
50. 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 FBC to have the flexibility to determine what the evidence is and, when the evidence becomes clear, to manage these programs accordingly.
51. The CEC recommends that the Commission continue to assess the cost-effectiveness of the DSM program at a portfolio level.

Cost Effectiveness Criteria and Inputs

52. Cost effectiveness criteria are established in Section 4 of the DSM regulation.
53. Cost effectiveness testing applied to the 2019-2022 DSM Plan was based on the Long Run Marginal Cost (LRMC) value of \$100/MWh, developed pursuant to the 2016

²⁴ Exhibit B-1-1, page 1

LTERP and LT DSM Plan.²⁵ The value was recently accepted in the BCUC June 2018 Decision on FBC's 2016 LTERP and LT DSM Plan, and will be updated as part of its next LTRP.²⁶

54. Additionally, FBC used the previously accepted²⁷ Deferred Capital Expenditure (“DCE”) value of \$79.85 kW per year, to represent the incremental savings of deferred infrastructure.²⁸ The DCE factor is the marginal cost of FBC's anticipated system infrastructure capital additions expressed as a present value over a 20-year planning horizon, divided by the incremental capacity gains.²⁹
55. The CEC has found no persuasive evidence to suggest that the LRMC value is inappropriate.
56. The CEC is satisfied with the use of the LRMC and DCE measure values in the evaluation of the cost-effectiveness given their existing Commission approval.
57. The CEC notes that the TRC and mTRC are the primary tests for the cost-effectiveness of the portfolio. FBC uses a deemed 15% adder in its mTRC calculations, which is applicable to a maximum of 10% of the total expenditures in an electricity DSM expenditure portfolio.³⁰
58. Based on the LRMC and DCE, the cost effectiveness test results were as follows.
59. Below are the DSM Plan Benefit-Cost Test results provided in Exhibit B-1-1.

²⁵ FBC Final Submissions page 12

²⁶ Exhibit B-4, CEC 1.3.2

²⁷ Order G-19-17 Exhibit B-4, CEC 1.3.4

²⁸ FBC Final Submissions page 13

²⁹ Exhibit b-4, CEC 1.3.4

³⁰ Exhibit B-1, page 24

Table 10-1: DSM Plan Benefit-Cost Tests, 2019-2022

Program Area (Sector)	TRC	mTRC	UCT	PCT	RIM	TRC	Utility Cost
	Ratio	Ratio	Ratio	Ratio	Ratio	\$/MWh	\$/MWh
Total	1.5	1.7	2.8	3.1	0.8	83.8	44.7
Residential Program							
Home Renovation	2.2	2.4	4.2	4.3	0.8	77.2	39.7
New Home	2.2	2.4	3.9	4.0	1.0	92.0	52.4
Lighting	1.9	2.2	13.6	1.9	1.1	58.3	8.2
Rental Apartment	3.0	3.4	3.0	-	0.7	38.2	38.2
Total	2.1	2.3	4.8	3.5	0.9	72.6	32.4
Low Income Program							
Self Install	3.6	3.6	3.6	-	0.3	30.6	30.6
Direct Install	1.9	1.9	1.9	-	0.8	60.6	60.6
Social Housing Rebate Support							
Prescriptive Rebate Support	1.5	1.5	10.2	1.4	1.1	75.7	11.3
Total	1.9	1.9	2.1	-	0.6	59.3	54.4
Commercial Program							
Commercial Custom	1.3	1.5	4.7	1.9	0.8	92.5	25.2
Commercial Prescriptive	2.8	3.2	6.7	5.2	0.8	43.9	18.4
Total	2.0	2.2	5.8	3.2	0.8	62.2	21.0
Industrial Program							
Industrial Custom	1.8	2.1	5.1	2.3	1.0	58.7	21.2
Industrial Prescriptive	1.4	1.5	4.9	1.7	0.9	91.6	25.4
Total	1.7	2.0	5.1	2.2	1.0	64.0	21.8

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60. The CEC accepts the calculations as being valid.
61. FBC confirms that the TRC of 1.5 is on a portfolio basis using the accepted LRMC and DCE. The TRC indicates that the estimated benefits are 1.5 times the cost of the DSM portfolio.
62. The CEC notes that the TRC is 1.5 and the mTRC is 1.7, and every program is significantly above unity.
63. The CEC submits that FBC should consider undertaking additional DSM to the point that the TRC approaches unity, and could go so far as to reduce the mTRC to approach unity as well.

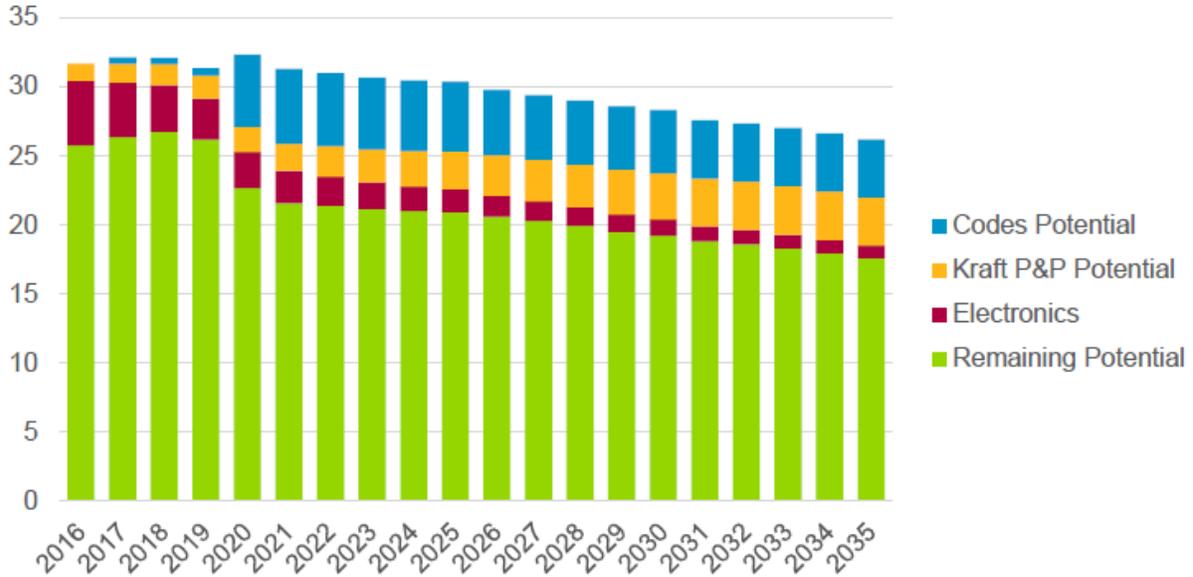
CONSERVATION POTENTIAL REVIEW

64. FBC utilized the Conservation Potential Review (CPR) 'market potential' as an input to its DSM planning. The CPR is included as Appendix B to the application. The CPR generated a reference case forecast, characterized energy savings measures and estimated

³¹ Exhibit B-1-1, page 21 PDF page 9 of 9

savings potential.³² The market potential assessment, methodology and results are reviewed in Section 5.4 of the Application.

Figure 5-3: Annual Electric Energy Savings Market Potential by Source (GWh/year)



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- 65. The CEC submits that it is apparent from the above chart that there is significant market potential remaining to be addressed, and that the Kraft P&P Potential appears to be increasing over the DSM period.
- 66. FBC did not confirm that all measures that were included in the LT DSM Plan are included in the 2019-2022 DSM Plan.

³² Exhibit B-1, page 15

³³ Exhibit B-1, page 20

VIII. SPENDING BY PROGRAM AREA

67. FBC provides the following breakdown by Program Area.

Table 5-1: 2019-2022 DSM Plan Proposed Expenditures (inflation adjusted)

Program Area (Sector)	2018 Plan	Expenditures (\$000s)					Energy savings (GWh)					TRC 2019-2022
	Approved	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total	Ratio
Residential	\$1,591	\$2,086	\$2,304	\$2,519	\$2,795	\$9,703	6.0	5.6	6.0	6.5	24.1	1.8
Low Income	\$731	\$843	\$873	\$899	\$930	\$3,545	1.2	1.2	1.2	1.3	4.9	1.2
Commercial	\$3,592	\$3,178	\$3,031	\$3,052	\$3,047	\$12,308	15.5	15.5	15.3	15.5	61.8	1.7
Industrial	\$377	\$1,762	\$1,788	\$1,813	\$1,815	\$7,178	10.0	10.0	10.1	10.1	40.2	1.7
<i>Program sub-total</i>	<i>\$6,291</i>	<i>\$7,870</i>	<i>\$7,995</i>	<i>\$8,284</i>	<i>\$8,587</i>	<i>\$32,735</i>	<i>32.6</i>	<i>32.1</i>	<i>32.4</i>	<i>33.1</i>	<i>130.3</i>	<i>1.7</i>
Education and Outreach	\$165	\$366	\$497	\$595	\$666	\$2,324						
Supporting Initiatives	\$742	\$1,218	\$838	\$1,024	\$1,044	\$4,124						
Portfolio	\$743	\$776	\$913	\$1,019	\$956	\$3,663						
Demand Response		\$477	\$324	\$130	\$133	\$1,064						
Total	\$7,940	\$10,900	\$10,600	\$11,100	\$11,400	\$44,000	32.6	32.2	32.6	33.2	131.0	1.5
LT DSM Plan	\$7,900	\$8,100	\$8,200	\$9,400	\$10,600	\$36,300	26.4	26.4	28.4	30.4	111.6	1.9

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PROGRAMS WITH SAVINGS ATTACHED

68. The CEC provides the following chart of the proposed DSM program spending with savings attached and the associated savings over time.

FortisBC DSM Plan	2018	2019	2020	2021	2022	Total								
Spending (\$ thousands)														
Residential	1591	2086	27%	2304	29%	2519	30%	2795	33%	9704	30%			
Low Income	731	843	11%	873	11%	899	11%	930	11%	3545	11%			
Commercial	3592	3178	40%	3031	38%	3052	37%	3047	35%	12308	38%			
Industrial	377	1762	22%	1788	22%	1813	22%	1815	21%	7178	22%			
Total Programs w savings	6291	7869	100%	7996	100%	8283	100%	8587	100%	32735	100%			
Total Spending	7940	10900		10600		11100		11400		44000				
Savings GWh														
Residential		6	18%	5.6	17%	6	18%	6.5	19%	24.1	18%			
Low Income		1.2	4%	1.2	4%	1.2	4%	1.3	4%	4.9	4%			
Commercial		15.5	47%	15.5	48%	15.3	47%	15.5	46%	61.8	47%			
Industrial		10	31%	10	31%	10.1	31%	10.1	30%	40.2	31%			
Total Savings		32.7	100%	32.3	100%	32.6	100%	33.4	100%	131.0	100%			

69. As demonstrated above, Residential spending accounts for 30% of the planned expenditures for those programs with savings attached over the four-year period, but contributes only 18% of the anticipated savings. Similarly, Low Income accounts for 11% of proposed expenditures with savings attached while contributing only 4% of the savings. Combining Low Income with Residential results in 41% of the total spending being provided to the residential sector overall, but contributing only 22% of the benefits.

³⁴ Exhibit B-1-1, page 14

70. The CEC also notes that FBC’s Conservation Education and Outreach budget totals \$2.3 million over four years, of which nearly half (\$1.1 million) is attributable to the Residential CET.³⁵
71. Conversely, Commercial spending accounts for 38% of proposed expenditures and 44% of savings, while Industrial programs account for only 22% of spending but 31% of total savings, making commercial and industrial spending significantly more cost effective.
72. The CEC submits that from an overall perspective, it would be appropriate for FBC to focus more on those areas that are most cost effective, by increasing DSM activity in the Commercial and Industrial areas, rather than increasing spending in those areas that are less cost-effective.
73. The CEC addresses spending in the individual spending by rate class below.

RESIDENTIAL

74. The residential sector budget totals \$9.7 million over four years and targets energy savings totalling 24.1 GWh.³⁶

Table 5-1: 2019-2022 DSM Plan Proposed Expenditures (inflation adjusted)

Program Area (Sector)	2018 Plan	Expenditures (\$000s)					Energy savings (GWh)					TRC 2019-2022
	Approved	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total	Ratio
Residential	\$1,591	\$2,086	\$2,304	\$2,519	\$2,795	\$9,703	6.0	5.6	6.0	6.5	24.1	1.8
Low Income	\$731	\$843	\$873	\$899	\$930	\$3,545	1.2	1.2	1.2	1.2	4.8	1.2
Commercial	\$3,592	\$3,178	\$3,031	\$3,052	\$3,047	\$12,308	15.5	15.5	15.3	15.5	61.8	1.7
Industrial	\$377	\$1,762	\$1,788	\$1,813	\$1,815	\$7,178	10.0	10.0	10.1	10.1	40.2	1.7
Program sub-total	\$6,291	\$7,870	\$7,995	\$8,284	\$8,587	\$32,735	32.6	32.1	32.4	33.1	130.3	1.7

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75. FBC notes that the budgeted expenditures in each year of the DSM Plan reflect a material increase compared to the 2018 DSM Plan³⁸, rising from \$1,591,000 in 2018 to \$2,086,000 in 2019 and increasing to \$2,795,000 by 2022.
76. The CEC notes that residential expenditures have varied over time and, in the period, 2013 and 2016 were considerably higher than those in the 2015 and 2017-2018 period.³⁹
77. The following provides FBC’s historic Residential spending and energy savings.

³⁵ FBC Final Submission page 23

³⁶ FBC Final Submission page 20

³⁷ Exhibit B-1-1, page 14

³⁸ FBC Final Submission page 20

³⁹ Exhibit B-4, CEC 1.6.1

Program Area (Sector)	Expenditures (\$000s)					Energy Savings (MWh)				
	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017
Residential Total	3,168	1,694	1,050	2,518	1,891	16,200	8,686	5,639	12,538	10,847

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78. FBC’s residential programs include:

- Home Renovation Program;
- New Home Program;
- Lighting Program; and
- Rental Apartment Efficiency Program.⁴¹

79. The Home Renovation Program encourages a holistic approach to home energy savings and is conducted with several partners.⁴² The Home Renovation program has changes in expenditures greater than 25% which includes higher incentive levels for heat pumps, consolidation of programs, greater participation levels and introduction of new measures.⁴³

80. The New Home Program is intended to stimulate uptake of energy efficient construction by aligning the BC Step Code with a graduated incentive program. The New Home Program includes amendments to the DSM regulation enabling province-wide incentives, consolidation of programs, greater participation levels through the BC Energy Step Code and new measures.⁴⁴

81. The Residential Lighting program is a collaboration with BC Hydro, retailers, and distributors to offer point of sale incentives on LED light bulbs and luminaires in retail stores.

82. The Rental Apartment Efficiency Program is conducted in collaboration with FEI and provides direct installation of in-suite measures, plus no cost whole-building energy assessments.⁴⁵

⁴⁰ Exhibit B-4, CEC 1.6.1 The CEC notes that Low Income was not broken out in the historical spending.

⁴¹ Exhibit B-1, Appendix A page 3

⁴² Exhibit B-1, Appendix A page 3

⁴³ Exhibit B-2, BCUC 1.10.1.1

⁴⁴ Exhibit B-2, BCUC 1.10.1.1

⁴⁵ Exhibit B-1, Appendix A page 5

83. Spending is allocated as follows:

Table 2-1: Residential Program Expenditures and Savings, 2019-2022

Program	Expenditures 2019 dollars (000s)					Energy savings (GWh)					TRC 2019- 2022
	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total	Ratio
Home Renovation	\$1,200	\$1,356	\$1,501	\$1,656	\$5,713	3.3	3.9	4.3	4.8	16.2	2.2
New Home	\$184	\$226	\$307	\$428	\$1,145	0.3	0.4	0.6	0.8	2.1	2.2
Lighting	\$157	\$163	\$136	\$120	\$576	2.3	1.1	1.0	0.8	5.2	1.9
Rental Apartment	\$54	\$54	\$54	\$54	\$215	0.1	0.1	0.1	0.1	0.6	3.0
Labour and expenses	\$491	\$491	\$491	\$491	\$1,965						
Total	\$2,086	\$2,290	\$2,489	\$2,750	\$9,614	6.0	5.6	6.0	6.5	24.1	2.1

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84. The following provides the Detailed Benefit to Cost ratios for the Residential Sector programs.

Program Area (Sector)	TRC	mTRC	UCT	PCT	RIM	TRC	Utility Cost
	Ratio	Ratio	Ratio	Ratio	Ratio	\$/MWh	\$/MWh
Residential Program							
Home Renovation	2.2	2.4	4.2	4.3	0.8	77.2	39.7
New Home	2.2	2.4	3.9	4.0	1.0	92.0	52.4
Lighting	1.9	2.2	13.6	1.9	1.1	58.3	8.2
Rental Apartment	3.0	3.4	3.0	-	0.7	38.2	38.2
Total	2.1	2.3	4.8	3.5	0.9	72.6	32.4

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85. The CEC notes that the TRC and mTRC ratios for every program are well above unity, and indeed double and triple that required to pass the TRC.
86. The CEC submits that given a whole Portfolio TRC of 1.5 and a Program Area TRC of 1.8 it is well within reason for FBC to increase its residential spending over the 2018 Plan, and could go considerably further than is being proposed.
87. The CEC has reviewed the evidence with regard to the Residential Program expenditures and finds them acceptable.
88. The CEC recommends that the Commission approve the Residential Program expenditures as proposed by FBC.

⁴⁶ Exhibit B-1, Appendix A page 3 The CEC notes the discrepancy with Inflation Adjusted Table 5-1 of Exhibit B-1-1

⁴⁷ Exhibit B-1-1, page 21 PDF page 9 of 9

LOW INCOME

- 89. FBC’s Low Income budget totals \$3.530 million over four years and targets energy savings totalling 4.9 GWh.⁴⁸
- 90. This represents over 10% of the \$3.27 million Program sub-total as demonstrated below.

Table 5-1: 2019-2022 DSM Plan Proposed Expenditures (inflation adjusted)

Program Area (Sector)	2018 Plan	Expenditures (\$000s)					Energy savings (GWh)					TRC 2019-2022
	Approved	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total	Ratio
Residential	\$1,591	\$2,086	\$2,304	\$2,519	\$2,795	\$9,703	6.0	5.6	6.0	6.5	24.1	1.8
Low Income	\$731	\$843	\$873	\$899	\$930	\$3,545	1.2	1.2	1.2	1.3	4.9	1.2
Commercial	\$3,592	\$3,178	\$3,031	\$3,052	\$3,047	\$12,308	15.3	15.3	15.3	15.3	61.8	1.7
Industrial	\$377	\$1,762	\$1,788	\$1,813	\$1,815	\$7,178	10.0	10.0	10.1	10.1	40.2	1.7
<i>Program sub-total</i>	<i>\$6,291</i>	<i>\$7,870</i>	<i>\$7,995</i>	<i>\$8,284</i>	<i>\$8,587</i>	<i>\$32,735</i>	<i>32.6</i>	<i>32.1</i>	<i>32.4</i>	<i>33.1</i>	<i>130.3</i>	<i>1.7</i>

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- 91. The Low Income Program expenditures for 2019 are approximately \$100,000 higher than in 2018.
- 92. FBC’s Low Income budget programs include:
 - Self Install;
 - Direct Install; and
 - Social Housing support (Prescriptive Rebate and Support).

Table 3-1: Low Income Expenditures and Savings, 2019-2022

Program	Expenditures 2019 dollars (000s)					Energy savings (GWh)				
	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total
Self Install (ESK)	\$74	\$74	\$74	\$74	\$296	0.2	0.2	0.2	0.2	1.0
Direct Install (ECAP)	\$665	\$687	\$704	\$726	\$2,781	0.9	0.9	0.9	0.9	3.5
Social Housing Support										
Prescriptive Rebate	\$15	\$16	\$18	\$20	\$68	0.1	0.1	0.1	0.1	0.4
Support	\$26	\$30	\$35	\$40	\$130					
Labour and expenses	\$64	\$64	\$64	\$64	\$254					
Program	\$843	\$870	\$894	\$923	\$3,530	1.2	1.2	1.2	1.3	4.9

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⁴⁸ FBC Final Submission page 21

⁴⁹ Exhibit B-1-1, page 14

⁵⁰ Exhibit B-1-1, page 6

93. The Self Install Energy Savings Kit provides the means for customers to self-install energy efficiency measures.
94. The Direct Install, Energy Conservation Assistance Program (“**ECAP**”) provides for eligible customers to receive assistance from a program contractor. Previous vendor transitions have hampered the implementation, however, new contractors were engaged and trained. FBC has engaged two program delivery vendors to replace the one former vendor.⁵¹
95. The Prescriptive Rebate provides rebates and implementation support for social housing.
96. The Support Program provides studies, training, and implementation.⁵²
97. The program Benefit/Cost tests are broken down as follows:

Program Area (Sector)	TRC	mTRC	UCT	PCT	RIM	TRC	Utility Cost
	Ratio	Ratio	Ratio	Ratio	Ratio	\$/MWh	\$/MWh
Low Income Program							
Self Install	3.6	3.6	3.6	-	0.3	30.6	30.6
Direct Install	1.9	1.9	1.9	-	0.8	60.6	60.6
Social Housing Rebate Support							
Prescriptive Rebate Support	1.5	1.5	10.2	1.4	1.1	75.7	11.3
Total	1.9	1.9	2.1	-	0.6	59.3	54.4

98. The CEC notes that the programs all exceed the TRC and mTRC cost tests.
99. The CEC submits that in general the programs have a strong history and that new measures including insulation for manufactured homes and assistance with heat pumps⁵³ would seem straightforward and reasonable.
100. The CEC has reviewed the evidence with regard to Low Income Program expenditures and finds it to be acceptable.
101. The CEC recommends that the Commission approve the Low Income Program expenditures as proposed by FBC.

COMMERCIAL

102. FBC’s DSM Plan includes a Commercial sector budget totalling \$12.3 million over four years and targets energy savings totalling 61.8 GWh.

⁵¹ Exhibit B-4, BCSEA 1.19.1 and 1.19.2

⁵² Exhibit B-1, Appendix A page 7

⁵³ Exhibit B-1, Appendix A page 7

103. As illustrated in Table 5-1, the TRC for the Commercial sector is 1.7 (inflation adjusted).

Table 5-1: 2019-2022 DSM Plan Proposed Expenditures (inflation adjusted)

Program Area (Sector)	2018 Plan	Expenditures (\$000s)					Energy savings (GWh)					TRC 2019-2022
	Approved	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total	Ratio
Residential	\$1,391	\$2,086	\$2,304	\$2,519	\$2,795	\$9,703	6.0	5.6	6.0	6.5	24.1	1.8
Low Income	\$731	\$843	\$873	\$899	\$930	\$3,545	1.2	1.2	1.2	1.2	4.8	1.7
Commercial	\$3,392	\$3,178	\$3,031	\$3,052	\$3,047	\$12,308	15.5	15.5	15.3	15.5	61.8	1.7
Industrial	\$377	\$1,762	\$1,788	\$1,813	\$1,815	\$7,178	10.0	10.0	10.1	10.1	40.2	1.7
Program sub-total	\$6,291	\$7,870	\$7,995	\$8,284	\$8,587	\$32,735	32.6	32.1	32.4	33.1	130.3	1.7

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104. The following provides FBC’s historic Commercial spending and energy savings.

Program Area (Sector)	Expenditures (\$000s)					Energy Savings (MWh)				
	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017
Commercial Total	1,909	1,184	1,324	2,339	4,023	10,900	5,279	5,882	8,128	16,115

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105. The CEC notes that FBC’s proposed annual spending of approximately \$3 million is above its historical spending, but has declined by about 25% since 2017, going from about \$4 million annually to about \$3 million annually.⁵⁶

106. There is a reduction of about \$0.3 million from 2018-2019, which declines further over the course of the DSM Plan.⁵⁷

107. FBC states that:

‘This is primarily due to the maturation and transformation of the LED lighting market; the CPR market potential shows a declining market potential for commercial lighting measures and incentives supporting LED lighting and controls represent approximately 90% of the Commercial Prescriptive Program. FBC began offering new non-lighting prescriptive measures in the Commercial sector in 2018 and expects this market to grow; however, the decline in lighting-related measures results in an overall reduction of expenditures in this sector over the 2019-2022 period’.⁵⁸

108. The CEC notes that FBC’s DSM Plan does not match the LTERP Forecast load growth, except in 2021.

⁵⁴ Exhibit B-1-1, page 14

⁵⁵ Exhibit B-4, CEC 1.6.1

⁵⁶ Exhibit B-4, CEC 1.6.1

⁵⁷ Exhibit B-2, BCUC 1.12.1

⁵⁸ FBC Final Submission page 22

Year	DSM Plan (GWh)	LTERP Forecast Load Growth (GWh)	2019 Annual Review Forecast Load Growth (GWh)
2019	15.5	18.3	14.3
2020	15.5	15.5	
2021	15.3	10.4	
2022	15.5	17.9	

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109. The CEC submits that it would be reasonable for FBC to undertake to increase its DSM expenditures, particularly when it is forecasting continuous load growth.
110. Commercial expenditures include:
- Commercial custom;
 - Commercial Prescriptive.
111. The Custom program provides offers to encourage customers to identify, assess and implement custom building energy efficiency projects for existing and new buildings, and is administered jointly with FEI. It includes retrofit as well as new construction.⁶⁰ It does not include fuel switching.⁶¹
112. The Prescriptive program includes fixed incentives for the purchase and installation of specific qualifying new construction and retrofit, and rebates. These include:
- LED lighting and controls
 - Commercial refrigeration
 - Commercial food service
 - Variable heat drives
 - Heat Pumps and heat pump water heaters.⁶²

⁵⁹ Exhibit B-2, BCUC 1.12.2

⁶⁰ Exhibit B-1, Appendix A page 9

⁶¹ Exhibit B-2, BCUC 1.12.6

⁶² Exhibit B-1, Appendix A page 8

113. Commercial spending is broken down as follows:

Table 10-1: DSM Plan Benefit-Cost Tests, 2019-2022

Program Area (Sector)	TRC	mTRC	UCT	PCT	RIM	TRC	Utility Cost
	Ratio	Ratio	Ratio	Ratio	Ratio	\$/MWh	\$/MWh

Table 4-1: Commercial Expenditures and Savings, 2019-2022

Program	Expenditures 2019 dollars (000s)					Energy savings (GWh)					TRC 2019-
	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total	Ratio
	Commercial Custom	\$980	\$963	\$1,005	\$1,095	\$4,043	4.4	5.3	6.0	6.8	22.6
Commercial Prescriptive	\$1,371	\$1,218	\$1,174	\$1,057	\$4,819	11.1	10.1	9.2	8.7	39.1	2.8
Labour and expenses	\$828	\$828	\$828	\$828	\$3,312						
Total	\$3,178	\$3,008	\$3,006	\$2,980	\$12,173	15.5	15.5	15.3	15.5	61.8	2.0

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114. The program Benefit-Cost Tests are broken down as follows:

Commercial Program								
Commercial Custom	1.3	1.5	4.7	1.9	0.8	92.5	25.2	
Commercial Prescriptive	2.8	3.2	6.7	5.2	0.8	43.9	18.4	
Total	2.0	2.2	5.8	3.2	0.8	62.2	21.0	64

115. The CEC notes that all programs exceed the TRC by a significant margin and the overall TRC is 2.⁶⁵

116. In response to BCSEA 1.5.2 requesting an explanation for the decline in Commercial Prescriptive, FBC states that its:

‘...Prescriptive Program plans to offset some of the loss in commercial lighting program participation by encouraging customer to increase participation in the Prescriptive Program’s non-lighting energy efficiency incentives. In order to achieve these goals, FBC is proposing to maintain the current resources in the Commercial Program area, but shift a portion of their focus from promoting efficient lighting offer to promoting other non-lighting offers’.⁶⁶

117. The CEC recognizes that there has been market maturation in the LED lighting market and acknowledges the objective of redirecting spending to other avenues.

118. FBC also notes that it will continue to ‘review and revise its list bi-annually to ensure measures are meeting customer demand and technological trends in energy efficiency.

⁶³ Exhibit B-1, Appendix A, page 8

⁶⁴ Exhibit B-1-1 page 21, PDF page 9 of 9

⁶⁵ The TRC is 1.7 in the Inflation Adjusted Table 5-1 of Exhibit B-1-1

⁶⁶ Exhibit B-3, BCSEA 1.5.2

Future measures may include LED grow lighting for agricultural products and commercial computer and server energy efficiency.⁶⁷

119. The CEC submits that it would be reasonable for FBC to offset lighting spending with at least the equivalent spending in other non-lighting or new areas, particularly given the high ratio of savings to expenditures in this class.
120. Alternatively, the CEC submits that expenditures could be increased in the Commercial custom area or into new programming altogether.
121. FBC states that it will continue to seek additional opportunities to increase its future Commercial Program area DSM offerings, which are outlined in BCUC 1.12.4.
122. The CEC submits that the future opportunities may be valuable, but that FBC has fallen short in its opportunity to deliver DSM savings at this time and could significantly increase the expenditures on the Commercial sector in this DSM plan.
123. The CEC recommends that the Commission approve the Commercial Program as proposed by FBC but encourage FBC to increase its efforts to expand DSM activity in the Commercial sector where cost-effective.

INDUSTRIAL

124. FBC's DSM Plan includes an Industrial sector budget totalling \$7.2 million over four years and target energy savings totalling 40.2 GWh.⁶⁸

Table 5-1: 2019-2022 DSM Plan Proposed Expenditures (inflation adjusted)

Program Area (Sector)	2018 Plan	Expenditures (\$000s)					Energy savings (GWh)					TRC 2019-2022
	Approved	2019	2020	2021	2022	Total	2019	2020	2021	2022	Total	Ratio
Residential	\$1,591	\$2,086	\$2,304	\$2,519	\$2,795	\$9,703	6.0	5.6	6.0	6.5	24.1	1.8
Low Income	\$731	\$843	\$873	\$899	\$930	\$3,545	1.2	1.2	1.2	1.2	4.8	1.7
Commercial	\$3,592	\$3,178	\$3,031	\$3,052	\$3,047	\$12,308	15.5	15.5	15.3	15.5	61.8	1.7
Industrial	\$377	\$1,762	\$1,788	\$1,813	\$1,815	\$7,178	10.0	10.0	10.1	10.1	40.2	1.7
<i>Program sub-total</i>	<i>\$6,291</i>	<i>\$7,870</i>	<i>\$7,995</i>	<i>\$8,284</i>	<i>\$8,587</i>	<i>\$32,735</i>	<i>32.6</i>	<i>32.1</i>	<i>32.4</i>	<i>33.1</i>	<i>130.3</i>	<i>1.7</i>

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125. The industrial proposal includes:

- Industrial Custom; and
- Industrial Prescriptive.

⁶⁷ Exhibit B-1, Appendix A page 9

⁶⁸ FBC Final Submission page 22

⁶⁹ Exhibit B-1-1, page 14

126. As illustrated below, both programs exceed the TRC tests and mTRC tests by a significant margin and the Program area has a TRC of 1.7 as a whole.

127. The program Benefit-Cost Tests are broken down as follows:

Table 10-1: DSM Plan Benefit-Cost Tests, 2019-2022

Program Area (Sector)	TRC	mTRC	UCT	PCT	RIM	TRC	Utility Cost
	Ratio	Ratio	Ratio	Ratio	Ratio	\$/MWh	\$/MWh
Industrial Program							
Industrial Custom	1.8	2.1	5.1	2.3	1.0	58.7	21.2
Industrial Prescriptive	1.4	1.5	4.9	1.7	0.9	91.6	25.4
Total	1.7	2.0	5.1	2.2	1.0	64.0	21.8

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128. The Custom Program is administered jointly with FEI and provides offers to encourage customers to identify, assess, and implement measures that use energy for process related activities. If offers co-funding for plant-wide audits, feasibility studies, and capital incentives.⁷¹

129. The Prescriptive program includes fixed incentives for the purchase and installation of specific qualifying new construction and retrofit measures and rebates for:

- LED lighting and controls;
- Variable speed drives;
- Energy efficient irrigation equipment; and
- Compressed air.

130. The following provides FBC’s historic Commercial spending and energy savings.

Program Area (Sector)	Expenditures (\$000s)					Energy Savings (MWh)				
	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017
Industrial Total	324	188	226	300	206	2,500	614	1,087	2,099	876

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131. The CEC notes that FBC’s proposed industrial program expenditures are approximately 4.5 to 9 times that which they have been in the past, depending on the years examined.

⁷⁰ Exhibit B-1-1 page 21 PDF page 9 of 9

⁷¹ Exhibit B-1, Appendix A page

⁷² Exhibit B-4, CEC 1.6.1

132. FBC's proposed Industrial sector plan represents a significant increase over the 2018 DSM Plan, which is attributed to lighting measures in relation to the new cannabis production facilities⁷³, and increases to encourage industrial retrofits by increasing both the energy study and capital incentives.⁷⁴
133. FBC is aware of 17 prospective cannabis facilities in the FBC service area that are proposed to complete in 2019-2020.⁷⁵
134. FBC estimates the addition of a total 325 GWh of electricity load from cannabis facilities by 2022. FBC believes that although it is theoretically possible that over time FBC could invest enough cost-effective DSM to offset the increased load growth from cannabis facilities it seems unlikely given the relative magnitude of the increased load compared to the estimated market potential identified by The Conservation Potential Review ("CPR") of approximately 425 GWh, not including energy savings potential from cannabis production facilities.⁷⁶
135. FBC has some indications that incentives will be insufficient to encourage the transition from high intensity discharge grow lights to LEDs.⁷⁷
136. The CEC submits that it is a step in the right direction that industrial expenditures will increase to address the opportunities provided by cannabis production.
137. FBC also states that DSM plan includes additional expenditures to encourage industrial retrofits by increasing energy study and capital incentives. No new industrial programs are proposed.
138. The CEC submits that the proposed increases in incentive spending are relatively low as they amount to approximately \$0.3 million per annum compared to planned 2018 DSM expenditures.⁷⁸
139. The CEC submits that additional spending could also be undertaken in the industrial sector to address the opportunities in the Kraft and Pulp and Paper ("**Kraft P&P**"), which appear to be increasing in the CPR.⁷⁹
140. The CEC recommends that the Commission approve FBC proposed industrial spending, but encourage FBC to increase its spending in areas other than the cannabis production, which should include the Kraft P&P.

⁷³ FBC Final Submission page 22

⁷⁴ FBC Final Submission page 22

⁷⁵ Exhibit B-4, CEC 1.3.12

⁷⁶ Exhibit B-4, CEC 1.3.10

⁷⁷ Exhibit B-2, BCUC 1.13.4

⁷⁸ Exhibit B-2, BCUC 1.14.1

⁷⁹ Exhibit B-1, page 20

PROGRAMS WITHOUT SAVINGS ATTACHED

CONSERVATION EDUCATION AND OUTREACH

141. FBC’s Conservation Education and Outreach (“CEO”) budget totals \$2.324 million over four years⁸⁰, and averages to approximately \$581,000 per year.
142. The budget includes the following programs as established below:
- Residential Education Program;
 - Residential Customer Engagement Tool;
 - Commercial Education Program; and
 - School Education Program.

Table 6-1: Conservation Education and Outreach Expenditures, 2019-2022

Program	Expenditures 2019 dollars (000s)				
	2019	2020	2021	2022	Total
Residential Education Program	\$217	\$217	\$220	\$220	\$875
Residential Customer Engagement Tool	\$281	\$203	\$254	\$321	\$1,059
Commercial Education Program	\$21	\$21	\$28	\$28	\$99
School Education Program	\$46	\$47	\$69	\$58	\$219
Total	\$566	\$488	\$572	\$627	\$2,252

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143. The CEC notes that the Residential aspects of the CEO expenditures account for by far the most significant spending.
144. The Residential Education Program (\$0.875 million) represents approximately 38% of the CEO budget. The program provides information to residential customers and the general public on electric conservation and energy literacy. There are partnerships with Canadian Home Builders Associations and local sports organization to expand outreach opportunities.⁸²
145. The CEC submits that the partnerships with builders associations and others are important in ensuring the education can be accessed and utilized.

⁸⁰ Exhibit B-1-1 page 14

⁸¹ Exhibit B-1, page 12 The CEC notes minor discrepancies with Table 6-1 of Exhibit B-1-1

⁸² Exhibit B-1, page 12

146. Nearly half of the total expenditures (\$1.059 million) is attributable to the Residential CET.⁸³
147. The Residential CET program is a collaborative initiative between FEI and FBC. Industry research indicates electric savings for this type of initiative are approximately 2% of total participant electric consumption. However, since the savings are based on behaviour change and there is uncertainty of their magnitude, FBC did not include the savings in the DSM forecast.⁸⁴
148. FBC provides an explanation as to the expected merits of the CET in BCSEA 1.3.5. These include extending the reach of programs and improving customer literacy. The CEC accepts these contributions as being important but should be carefully evaluated in the future.
149. CEC submits that it would be worthwhile for FBC and FEI to undertake to monitor the results from the CET carefully to determine if they are meeting or exceeding industry norms. FBC indicates that they plan to report on the savings in future annual reports.⁸⁵
150. The CEC notes that there appears to be \$153,000 of EMV expenditures attached to this program,⁸⁶ which would appear to be significant, but likely appropriate given the importance of the initiative.
151. The CEC submits that joint programming and cost sharing between FBC and FEI and BC Hydro is valuable to ratepayers in avoiding duplication of costs and creating common messaging.
152. The Commercial Education accounts for only \$0.099 million or about 4% of the CEO budget. The program provides ongoing education about energy conservation initiatives as well as encouraging behavioural changes that help commercial customers reduce their organization's energy consumption. It addresses a variety of small to large businesses.
153. The CEC submits that the Commercial Education Program could likely be significantly higher and should be grown to represent at least 30% of the full CEO budget.
154. The CEC recommends that the Commission direct FBC to develop more and larger Commercial CEO outreach programs in its future assessments of its DSM plans.
155. The School Education Program is relatively small at less than 10% of total CEO spending, but still represents more than double the expenditures devoted to Commercial CEO spending.

⁸³ FBC Final Submission page 23

⁸⁴ Exhibit B-1, Appendix A, pages 12-13

⁸⁵ Exhibit B-3, BCSEA 1.3.5

⁸⁶ Exhibit B-1, Appendix A, Section 8.1 page 18

156. The CEC has reviewed the evidence related to CEO and finds it to be appropriate spending.
157. The CEC recommends that the Commission approve the CEO spending as proposed by FBC.

SUPPORTING INITIATIVES

158. FBC’s Supporting Initiatives amount to \$4.124 million over the four-year period,⁸⁷ which averages to approximately \$1.03 million per year. This represents an approximate 40% increase in the expenditure over the 2018 Plan.

Table 7-1: Supporting Initiative Expenditures, 2019 to 2022

Program	Expenditures 2019 dollars (000s)				
	2019	2020	2021	2022	Total
Commercial Energy Specialist Program	\$60	\$60	\$60	\$60	\$240
Community Energy Specialist Program	\$150	\$200	\$250	\$250	\$850
Trade Ally Network	\$152	\$148	\$200	\$200	\$700
Codes and Standards	\$97	\$105	\$117	\$116	\$435
Reporting Tool & Customer Application Portal	\$466	\$14	\$61	\$61	\$602
Labour and expenses	\$293	\$293	\$293	\$293	\$1,173
Total	\$1,218	\$820	\$981	\$980	\$4,000

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159. The Commercial Energy Specialist Program is a joint initiative with FEI that co-funds Energy Specialist positions in large commercial organizations with each utility providing up to \$30,000 per year in an annual contract.⁸⁹
160. The CEC submits that the Commercial Energy Specialist Program is a valuable program that can contribute to DSM savings for the customer and utilities.
161. The Community Energy Specialist Program provides financial assistance to local governments to facilitate energy efficiency planning activities.⁹⁰
162. The Trade Ally Network (“TAN”) provides sponsorships for training and support for a number of initiatives associated with its TAN.⁹¹

⁸⁷ Exhibit B-1-1 page 14

⁸⁸ Exhibit B-1, page 14 The CEC notes minor discrepancies with Table 6-1 of Exhibit B-1-1

⁸⁹ Exhibit B-1, page 14

⁹⁰ Exhibit B-1, Appendix A page 14

⁹¹ Exhibit B-1, Appendix A page 14

163. FBC outlines its plans to increase its communication with trade allies in BCSEA 1.9.1
164. The CEC submits that trade allies are crucial to the success of its DSM programs and to ensure ongoing success of FBC's DSM plans.
165. Codes and Standards represent approximately 1% of proposed portfolio expenditures, which is an increase from previous years.⁹²
166. The CEC submits that contributions to the development of Codes and Standards are highly important due to the cost-effectiveness and efficacy of Codes and Standards to create energy and potentially capacity savings.
167. The CEC submits that spending on Codes and Standards could potentially be increased to promote long term energy savings.
168. The Reporting Tool and Customer Application Portal is part of the DSM Tracking System project, which is expected to conclude in Q2 2019.⁹³
169. The CEC has reviewed the evidence related to Supporting Initiatives and recommends that the Commission approve these expenditures, but encourages FBC to increase activity with respect to new Codes and Standards because of their inherent cost-effectiveness.

PORTFOLIO

170. Portfolio expenditures are used to plan and implement the proposed DSM programs and support efforts to meet the energy savings targets. Spending includes:
 - Monitoring and Evaluation;
 - DSM Studies;
 - Innovative Technologies; and
 - Labour and Expenses.
171. They amount to \$3.663 million over the four-year period,⁹⁴ or approximately \$910,000 per year over the four -year period. This represents a 22% increase over the 2018 Plan.
172. Monitoring and evaluation appears to refer to shared evaluations for various programs that are not otherwise dedicated to a particular sector as depicted in Table 8-2 of the Application, Appendix A.⁹⁵

⁹² Exhibit B-1, Appendix A page 15

⁹³ Exhibit B-1, Appendix A page 16

⁹⁴ Exhibit B-1-1 page 14

⁹⁵ Exhibit B-1, Appendix A, Section 8.1 page 18

173. DSM studies support DSM programs and Innovative technology funding supports the development of new technology that can support more efficient use of energy.⁹⁶

Table 8-1: Portfolio Expenditures, 2019-2022

Program	Expenditures 2019 dollars (000s)				
	2019	2020	2021	2022	Total
Monitoring and Evaluation	\$104	\$116	\$103	\$117	\$440
DSM Studies	\$25	\$130	\$175	\$30	\$360
Innovative Technologies	\$100	\$100	\$150	\$200	\$550
Labour and expenses	\$547	\$547	\$547	\$547	\$2,186
Total	\$776	\$893	\$975	\$894	\$3,536

174. The CEC has reviewed the Portfolio Expenditures and submits that they are acceptable.
175. The CEC recommends that the Commission approve FBC’s proposed Portfolio Expenditures, but encourages FBC to increase activities that may lead to more cost-effective DSM savings.

DEMAND RESPONSE

176. Demand Response (“**DR**”) is a Pilot project in the Kelowna area⁹⁷ and accounts for \$1.044 million over the four year period⁹⁸, or approximately \$250,000 per year.

Table 9-1: Demand Response Expenditures, 2019-2022

Program	Expenditures 2019 dollars (000s)				
	2019	2020	2021	2022	Total
Demand Response	\$477	\$318	\$125	\$125	\$1,045
Total	\$477	\$318	\$125	\$125	\$1,045

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177. A DR study by Enbala has been conducted to quantify the DR potential for large commercial, industrial and institutional customers in the Kelowna area to mitigate system peaks and local congestion. FBC plans the pilot to assess the ability of DR to defer capital investment in the electric system.
178. A high level review of DR potential of residential and small commercial customers was completed by Navigant earlier Residential and small commercial customers use the

⁹⁶ Exhibit B-1, Appendix A Section 8.2 and 8.3 page 18

⁹⁷ Exhibit B-1, Appendix A Section 9.1 page 20

⁹⁸ Exhibit B-1-1 page 14

⁹⁹ Exhibit B-1, Appendix A page 20

services of a third party aggregator and restrict the Company's learning from mass market customers.¹⁰⁰

179. The CEC has reviewed the evidence related to the Enbala study and finds it to present a worthwhile opportunity.
180. The CEC is of the view that DR studies are important in developing options for large customers to reduce their electricity bills and in planning for future reductions in investments that would otherwise be expected to occur in the electric system.
181. The CEC recommends that the Commission approve the DR expenditures as proposed by FBC.

IX. EVALUATION, MEASUREMENT AND VERIFICATION (“EM&V”)

182. FBC's portfolio expenditures include a total of approximately \$1.728 million in EM&V, which equates to approximately 4% of the DSM expenditure program.¹⁰¹ The EM&V framework is provided in Appendix D of the Application.

¹⁰⁰ Exhibit B-3, BCSEA 1.11.1

¹⁰¹ Exhibit B-1, Appendix A, Table 8-2

Table 8-2: Monitoring & Evaluation Plan Expenditures, 2019-2022

2019 - 2022 Evaluation Budget						
	SHARED EVALUATIONS:	2019	2020	2021	2022	Total 4 Years
Residential	Building envelope	40	60	40	60	200.0
Residential	Appliance rebate program	45	25	0	0	70.0
Residential	New Home Program	45	60	40	0	145.0
Residential	Rental Apartment Efficiency program	37.5	37.5	37.5	37.5	150.0
Residential	Residential Customer Engagement Tool	34.2	32.4	38.7	47.7	153.0
Supporting Initiatives	Residential Education Program	62	62	62	62	248.0
Supporting Initiatives	Commercial Energy Specialist	15	15	15	15	60.0
Low Income	Low Income	50	50	50	50	200.0
	Residential Subtotal	329	342	283	272	1,226
	12%	39	41	34	33	147
Commercial	Commercial Prescriptive Program	0	0	25	200	225
Commercial	Performance Program (custom)	0	0	50	0	50
Commercial	Performance Program - New Buildings	0	0	80	0	80
Industrial	Industrial Optimization Program	0	0	45	0	45
	Comm Industrial Subtotal	0	0	200	200	400
	12%	0	0	24	24	48
	Total Shared Evaluations	39	41	58	57	195
	SOLO EVALUATIONS:					
Residential	Lighting	40			45	85
Commercial	Custom - see Performance above					0
Commercial	Prescriptive - see above					0
	Heat Pump		75			75
	Unspecified	25		45	15	85
	TOTAL 4 YR SPEND FBC EVAL	104	116	103	117	440
	Labour for M&E only (excludes Planning)					1,288
	Total 4 year M&E Budget					1,728
	Total Expenditures 4 year Plan					43,300
	M&E as a Percent of Plan					4.0%

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183. FBC states that the 4% aligns with the Company’s EM&V Framework and industry practice for expenditures on M&E activities.¹⁰³
184. However, industry practice for budget spent on EM&V activities appears to range from just below 2% to 3% of spending on overall energy efficiency and conservation programs budgets¹⁰⁴ for companies with budgets of similar size to FBC’s.
185. The CEC submits that the EM&V expenditures are apparently high, and could potentially be reduced by 50%, to achieve a 2% expenditure level, subject to evaluation of the quality of EM&V usefulness not declining after such a reduction.

¹⁰² Exhibit B-1, Appendix A, Section 8.1 page 18

¹⁰³ Exhibit B-1, Appendix A, Section 8.1, page 17

¹⁰⁴ Exhibit B-1, Appendix D, page 15

186. The CEC submits that there are not significant novel approaches being introduced in the current DSM plan to warrant EM&V spending which doubles that of the industry average.
187. The CEC also notes that of the \$1.7 million in EM&V spending, approximately \$1.3 million is undertaken in the Residential sector, whereas the Commercial and Industrial sectors are significantly lower.
188. The CEC submits that there is considerable room in the overall DSM Plan for increased spending in both the Commercial and Industrial sectors.
189. The CEC has reviewed the evidence with regard to the remaining Portfolio Expenditures and is otherwise satisfied.
190. The CEC recommends that to the extent the Commission determines that FBC's proposed measures are in the public interest as filed, then the Commission request FBC to evaluate a reduction in its EM&V spending to 2% of the total budget and the potential impact on the quality of the evaluation and then submit these evaluations to the Commission.

X. AMORTIZATION PERIOD

191. FBC currently uses a 10 year straight line amortization of its DSM expenditures.
192. FBC has undertaken analysis which indicates that the average weighted life of a measure to be 15.6 years, as demonstrated in Table 8-1 in the Application.¹⁰⁵

Table 8-1: Average measure life weighted by incentives, 2019-2022 DSM Plan

Sector	Incentives \$(000s)	Measure life (years)
Residential	\$8,829	19.0
Home Renovation	\$5,243	18.7
Lighting	\$481	10.7
Low Income	\$1,988	19.6
New Home	\$1,013	23.8
Rental Apartment	\$128	11.9
Commercial	\$8,101	14.3
Commercial Custom	\$3,503	15.8
Commercial Prescriptive	\$4,599	13.2
Industrial	\$5,841	12.4
Industrial Custom	\$4,950	12.3
Industrial Prescriptive	\$891	13.5
Total	\$22,771	15.6

193. The CEC agrees that it is appropriate to match the costs with the benefits of the program, and notes FBC's citation of PSE&G, Seattle City Light, and BC Hydro that also include longer amortization periods.¹⁰⁶

¹⁰⁵ Exhibit B-1, page 28

¹⁰⁶ Exhibit B-2, BCUC 1.8.6

194. FBC calculated the average weighted life by expenditures instead of savings because there is more certainty with measure and program costs.¹⁰⁷
195. FBC reproduced the table to include the average measure life weighted by savings in BCUC 1.8.1, and the Measure Life result was 14 years.
196. The CEC submits that a calculation by savings is more appropriate in matching costs to benefits, however the 14 years is close to the 15 year proposal and is acceptable to the CEC.
197. Assuming spending levels consistent with 2018, the rate impact of the increased amortization period is a reduction of 0.51% in 2019 as compared to the 10 year amortization period, with smaller, varying impacts over time.

Table 8-2: DSM rate impact comparison

<u>Incremental Rate Impact Compared to Prior Year</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
Current Treatment: Amortizing DSM Expenditures over 10 years	0.28%	0.27%	0.23%	0.17%	0.14%	0.14%	0.22%	0.20%	0.12%	0.09%
Proposed Treatment: Amortizing DSM Expenditures over 15 years	<u>-0.22%</u>	<u>0.27%</u>	<u>0.25%</u>	<u>0.21%</u>	<u>0.22%</u>	<u>0.21%</u>	<u>0.12%</u>	<u>0.18%</u>	<u>0.17%</u>	<u>0.16%</u>
Difference	-0.51%	0.01%	0.02%	0.04%	0.08%	0.06%	-0.10%	-0.02%	0.05%	0.07%

<u>Incremental Rate Impact Compared to Prior Year</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>
Current Treatment: Amortizing DSM Expenditures over 10 years	0.07%	0.00%	0.01%	0.00%	0.00%	-0.01%	0.00%	-0.01%	-0.01%
Proposed Treatment: Amortizing DSM Expenditures over 15 years	<u>0.17%</u>	<u>0.16%</u>	<u>0.08%</u>	<u>0.11%</u>	<u>0.10%</u>	<u>0.04%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>-0.01%</u>
Difference	0.10%	0.15%	0.07%	0.11%	0.11%	0.04%	0.00%	0.01%	0.00%

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198. The CEC submits that FBC’s proposal to increase the amortization period to 15 years is appropriate in matching benefits to costs.
199. The CEC recommends that the Commission approve the amortization period of 15 years.

XI. FUNDING TRANSFERS

200. FBC proposes that starting with 2019 it be permitted to transfer or ‘rollover’ unspent expenditures in a Program Area to the same Program Area the following year. Effectively FBC is requesting that the Commission accept the total expenditures per Program Area over the four-year period.¹⁰⁹
201. The CEC supports the ability for FBC to rollover funding within the Program sector.

¹⁰⁷ Exhibit B-2, BCUC 1.8.1

¹⁰⁸ Exhibit B-1, page 29 Note: The Incremental Rate Impact at 14 years is provided in BCUC 1.8.1.2

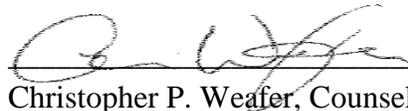
¹⁰⁹ Exhibit B-1, page 29

202. FBC does not believe there should be an upper level to the amount of expenditures that could be rolled over in a given year as outlined in BCUC 1.9.1.1. FBC plans to add unspent 'rollover' values to its DSM program annual reports.¹¹⁰
203. FBC also submits that BCUC approval for funding transfers into or out of an approved program area is not necessary for its 2019-2022 DSM Plan.
204. The CEC submits that it could be reasonable for the Commission to apply a maximum of 15% for total expenditure underspending on FBC's DSM without FBC supporting the underspending with an appropriate justification.

ALL OF WHICH IS RESPECTFULLY SUBMITTED

David Craig

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



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

¹¹⁰ Exhibit B-2, BCUC 1.9.1.2