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October 5, 2016

Industrial Customers Group  
c/o #301 – 2298 McBain Avenue  
Vancouver, BC  
V6L 3B1

Attention: Mr. Robert Hobbs

Dear Mr. Hobbs:

**Re: FortisBC Inc. (FBC)**

**Project No. 3698889**

**Application for Acceptance of Demand Side Management (DSM) Expenditures  
for 2017 (the Application)**

**Response to the Industrial Customers Group (ICG) Information Request (IR) No.  
1**

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On August 8, 2016, FBC filed the Application referenced above. In accordance with the British Columbia Utilities Commission Order G-135-16 setting out the Regulatory Timetable for review of the Application, FBC respectfully submits the attached response to ICG IR No. 1.

If further information is required, please contact Joyce Martin, Manager Regulatory Affairs at (250) 368-0319.

Sincerely,

**FORTISBC INC.**

***Original signed:***

Diane Roy

Attachments

cc (email only): Commission Secretary  
Registered Parties

FortisBC Inc. (FBC or the Company) Application for Acceptance of Demand Side Management (DSM) Expenditures for 2017 (the Application)	Submission Date: October 5, 2016
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1 **1. Reference: Exhibit B-1, p. 13**

2 **“As required by the 2015-16 DSM Plan decision (Directive 5), the**  
3 **Company reviewed the 8% discount rate (DR) used in the 2012 LTRP**  
4 **and recent DSM filings, and has updated it to use a 6% DR in the**  
5 **current filing.”**

6 1.1 Please explain why FBC decided to change the discount rate from 8% to 6%.  
7 Please identify the discount rates used in the economic analysis of FBC’s 5 most  
8 recent 5 CPCN applications, and 5 most recent electricity purchase contracts  
9 (where a discount rate was used in the economic analysis) .

10  
11 **Response:**

12 Please refer to the response to CEC IR 1.9.2 for the calculation of FBC’s Weighted Average  
13 Cost of Capital (WACC).

14 FBC’s WACC is generally used as a proxy to Discount Rate (DR) for financial analysis. The pre-  
15 Tax and post-Tax DR for FBC is forecast at approximately 8% and 6% respectively for 2017.  
16 The post-Tax DR is also analogous to the Company’s Allowance for Funds Used During  
17 Construction (AFUDC) Rate. The 6% post tax DR is appropriate since customers are using  
18 post-tax cash flows for their DSM projects.

19 Please note that since DR has an inverse relationship to Net Present Value (NPV), a higher or  
20 lower proxy of this parameter may be used depending on the nature, risk profile and objective of  
21 any specific analysis.

22 On the other hand, while evaluating a set of options within a specific project (i.e., a CPCN), the  
23 use of a specific DR % is of lesser significance because it will still be possible to determine the  
24 relative financial divergence of one specific option over the other, regardless of the DR used in  
25 the NPV analysis as long as the same DR value is consistently used for rating all the options  
26 within that project.

27 The table below sets out the DRs used in FBC’s five most recent CPCN Applications. Please  
28 note that FBC does not typically use DRs in the economic analysis of its Energy Supply  
29 Contract (ESC) Applications.

	DR % used in Economic Analysis
Kootenay Operations Centre CPCN Application	6
Advanced Metering Infrastructure CPCN Application	8
CPCN Application for the Purchase of the Utility Assets of the City of Kelowna	N/A
Corra Linn Unit 2 Upgrade and Life Extension CPCN Application	10
Benvoulin Substation Project CPCN Application	10
Application for the Residual Capacity Agreement Electric Tariff Supplement No. 10 and RS 11	8

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1   **2.     Reference:   Exhibit B-1, Appendix A, page A9**

2                                   **“New in 2016 was the offer of subsidized facility-wide energy**  
3                                   **efficiency assessments and detailed feasibility studies to qualifying**  
4                                   **industrial customers. The Industrial budget increase is partly to**  
5                                   **fund such energy efficiency assessments in 2017. Also the**  
6                                   **Industrial incentive rate has been increased to a nominal \$0.15 per**  
7                                   **kWh saved by qualifying projects.”**

8                   2.1     Please provide details regarding the type of energy efficiency assessments  
9                                   referred to above, and any communications to industrial customers regarding this  
10                                  “new offer” in 2016?

11  
12    **Response:**

13    The Industrial Optimization Program was launched in 2016 as a joint initiative between FEI and  
14    FBC. Two energy assessments options are offered to FBC industrial customers with an annual  
15    electricity consumption exceeding 3 GWh/year.

16           1.   Plant Wide Audit

17                   FBC provides funding towards the cost of having a professional engineer perform a high-  
18                   level, whole facility audit to identify opportunities to use electricity and natural gas more  
19                   efficiently. Energy Conservation Measures (ECMs) identified in the audit will be  
20                   presented in a report that will outline cost and savings estimates at a +/- 50% uncertainty  
21                   level.

22           2.   Feasibility Study

23                   FBC provides funding towards the cost of a feasibility study for a specific process or  
24                   system within an Industrial customer’s facility to fully investigate an opportunity to use  
25                   electricity and natural gas more efficiently. ECMs identified in the study will be presented  
26                   in a report that will outline cost and savings estimates at a +/- 10% uncertainty level.

27    Dual-fuel studies are offered to FBC Industrial customers who have an annual electricity  
28    consumption of at least 3 GWh/year and receive natural gas from FEI with a minimum annual  
29    consumption of 10,000 GJ/year.

30    All qualified FBC customers have been contacted by a FBC Technical Advisor. Program  
31    collateral was provided, as well as a link to the Industrial Optimization Program website<sup>1</sup>.

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<sup>1</sup> <https://www.fortisbc.com/Rebates/RebatesOffers/IndustrialOptimizationProgramPS/Pages/default.aspx>



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1           2.2     Please provide details regarding the funding available to customers from the offer  
2                     related to energy efficiency assessments, including the percentage of the total  
3                     cost of such assessments “subsidized” by FBC and the maximum amount of  
4                     available funding, if any?

5  
6     **Response:**

7     For the Plant Wide Audit offer, FBC will pay 75% of the study costs up to a maximum of \$10,000  
8     (for FBC electric-only customers) or \$20,000 (for joint FBC and FEI dual-fuel studies).

9     For the Feasibility Study offer, FBC will pay a maximum of 75% of the energy efficiency study.  
10    There is no maximum, but FBC uses discretion to limit the overall cost of the study versus what  
11    the potential savings would be from the ultimate energy efficiency project.

12  
13

14  
15           2.3     Please confirm that BC Hydro pays 75% of a customer’s study costs upon  
16                     completion rising to 100% if sufficient measures are implemented within 18  
17                     months?

18  
19     **Response:**

20    FBC’s understanding of BC Hydro’s current Energy Efficiency Feasibility Study and Plant Wide  
21    Audit offers is that BC Hydro currently pays 75% of a customer’s study costs upon study  
22    completion, rising to 100% if sufficient measures are implemented within 18 months.

23  
24

25  
26           2.4     Please also provide a comparison of BC Hydro and FBC funding criteria for  
27                     energy efficiency assessments, and explain any differences?

28  
29     **Response:**

30    FBC Industrial customers are eligible for the Plant Wide Audit and Feasibility Study programs if  
31    their annual aggregate (if more than one plant) consumption exceeds three gigawatt-hours of  
32    electricity per year. FBC Industrial customers are eligible for a dual-fuel study, joint with FEI, if  
33    they are also FEI customers with annual natural gas consumption exceeding 10,000 GJ  
34    annually. Consultants used to conduct the studies must be on the list of FortisBC-approved  
35    consultants.

36    FBC understands that BC Hydro industrial customers are eligible for the (i) Plant Wide Audit  
37    offer if their annual consumption exceeds two gigawatt-hours of electricity per year, and (ii)

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1 Feasibility Study offer if the customer's system uses more than one gigawatt-hour of electricity  
2 per year. No dual-fuel study offers are available to BC Hydro industrial customers. Consultants  
3 must be a part of the BC Hydro Alliance of Energy Professionals.

4  
5

6 2.5 Please provide the total number of, and the percent of, industrial customers that  
7 have completed an energy efficiency assessment? Also, please provide the  
8 totalized 2015 and 2016 (YTD) energy consumption for the group of industrial  
9 customers for which energy efficiency assessments have been performed and  
10 compare this to the total energy consumption for all industrial customers, and for  
11 comparison purposes, the total energy consumption of the other rate classes.

12  
13

**Response:**

14 The Industrial Optimization Program launched for FBC in Q2 2016. No projects have been  
15 completed to date and one project is in the application phase. FBC is working with several  
16 other industrial customers who are expected to apply for the program in late 2016 or early 2017.

17  
18

19

20 2.6 Please comment on whether FBC has partnered with FEU to co-fund dual-fuel  
21 studies to further improve the value to qualified customers?

22  
23

**Response:**

24 Please refer to the response to ICG IR 1.2.1. The FBC Industrial Optimization Program is a joint  
25 program with FEI and customers are able to access dual-fuel Plant Wide Audits and Feasibility  
26 Studies.

27

28

29 2.7 Please provide the previous Industrial incentive rate that was increased to a  
30 nominal \$0.15 per kWh and the effective date of the increase?

31  
32

**Response:**

33 The previous Industrial incentive rate was \$0.10 per annual kWh saved. The proposed effective  
34 date for the new nominal rate of \$0.15 per kWh is January 1, 2017, subject to Commission  
35 acceptance of the Application.

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37

1  
 2           2.8    Please provide a comparison of the Industrial incentive rates of BC Hydro and  
 3                    FBC?  
 4

5    **Response:**

6    FBC provides the following comparison of its proposed incentive rate for industrial customers to  
 7    BC Hydro’s incentive rate for industrial transmission customers as found on BC Hydro’s  
 8    website<sup>2</sup>. The industrial incentive for qualifying projects is the minimum of the following values:

	FBC	BC Hydro
% of project cost	50%	75%
Incentive rate	\$0.15 per kWh for one year of annual electricity savings	\$0.0302* per kWh for total lifespan electricity savings
Payback	amount needed to achieve a two-year payback	N/A

9  
 10    \*Based on a 10 year project lifespan. Source:  
 11    <https://www.bchydro.com/powersmart/business/programs/project-incentives/transmission.html#sample>

12  
 13  
 14  
 15           2.9    Please provide any documents filed with the Commission and any approvals  
 16                    granted by the Commission relevant to the “new offer” to fund energy efficiency  
 17                    assessments and to increase to the Industrial incentive rate?  
 18

19    **Response:**

20    FBC introduced the revised energy assessment offer in conjunction with FEI in order to market  
 21    a uniform, coordinated offer to its Industrial customers. In addition, the changes are in response  
 22    to Commission Directives 15 and 17 in its Decision and Order G-186-14 on FBC’s 2015-2016  
 23    DSM Expenditures Application (2015-16 DSM Plan).

24    FBC is seeking Commission acceptance of both the increased budget for additional energy  
 25    assessment costs and the increased Industrial incentive rate as part of this Application.

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<sup>2</sup> <https://www.bchydro.com/powersmart/business/programs/project-incentives/transmission.html#sample>.

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1            2.10    Please confirm that FBC expects that the increase to the Industrial incentive rate  
2    will increase the take-up rate so as to acquire available resources sooner?  
3

4    **Response:**

5    FBC expects that an increase to the Industrial incentive rate will increase the take-up rate.  
6  
7

8  
9            2.11    Please identify the number of qualified Certified Energy Managers (CEMs) a)  
10    employed and b) contracted by FBC? Please describe the process by which  
11    FBC vets and accepts contract CEM resources.  
12

13    **Response:**

14    FBC employs five staff with the Certified Energy Manager (CEM) designation: four Technical  
15    Advisors and one Program Manager. FBC does not currently have any external staff contracted  
16    with the CEM designation.  
17  
18

19  
20            2.12    Please provide details and any relevant documents regarding how FBC qualifies  
21    projects for the increase to the \$0.15 per kWh? Is the increase to the Industrial  
22    incentive rate available to all customers in that rate class, including pulp  
23    producers?  
24

25    **Response:**

26    Industrial projects are accepted and vetted through the Custom Business Efficiency Program  
27    (CBEP)<sup>3</sup>.

28    Projects submitted and installed after January 1, 2017 will be eligible for the increased  
29    \$0.15/kWh incentive rate subject to acceptance of the 2017 DSM Plan. It is available to all full  
30    service Industrial customers, including pulp producers, and is subject to the principles set out in  
31    FBC's response to BCUC IR 1.10.3 regarding partial service (self-generation) customers.  
32  
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34

<sup>3</sup> <https://www.fortisbc.com/Rebates/RebatesOffers/CustomBusinessEfficiencyProgram>.







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2.16 Please provide details of all such consultations that have occurred in the past year, including consultations regarding the increase to the Industrial incentive rate?

**Response:**

FBC's program manager met with approximately half of FBC's Industrial customers while gathering feedback on improved energy assessment offers. Those customers indicated that a larger incentive would be welcomed to improve their internal business cases (i.e. reduce their project payback period and externalize more of their project costs). They also requested improved cash flow timing, i.e. a larger portion of the eligible incentive to be rendered at time of project completion and less held back (and at risk) for Measurement and Verification of the project savings. FBC will address this request in its proposed revisions of Rate Schedule 90 to be filed in its Long Term DSM Plan (LT DSM Plan).

Additionally the BC Conservation Potential Review (CPR) has an overview process through its Technical Advisory Committee (TAC), whose membership contains industrial customers, including pulp & paper representation. The overview included scrutiny of the proposed industrial measure list used in the BC CPR.

Please also refer to the response to ICG IR 1.2.9.

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1    **3.    Reference:    Exhibit B-1, Appendix B, p. 2, Table 1-1**

2            3.1    Please explain the difference in the 2015 approve plan savings and the 2015  
 3            actual savings for the industrial sector, given actual spend exceeds the approved  
 4            spend?  
 5

6    **Response:**

7    The 2015 actual costs included \$146,200 in incentives that are variable in nature, and the  
 8    remaining non-incentive costs included an allocation of labour for FBC technical advisors who  
 9    work with industrial customers to assist with project formulation, implementation and follow-up.  
 10    Because there is a long lead time between when industrial projects are formulated and the time  
 11    of completion when savings are counted, there were some costs incurred in 2015 that related to  
 12    laying the groundwork for industrial sector savings in future years.

13    The “lumpy” nature (i.e. large magnitude and infrequent occurrence) of industrial sector projects,  
 14    as described above, can lead to overspending in some years when costs are incurred that are  
 15    related to projects that may be completed in future years.

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19            3.2    Please provide the Benefit/Cost ratio on a Total Resource Cost basis together  
 20            with aggregate “Savings” and “Cost” for the five year period from 2011 to 2015  
 21            for each sector?  
 22

23    **Response:**

24    The Benefit/Cost (B/C) ratios on a Total Resource Cost (TRC) basis together with aggregate  
 25    savings and costs for the five year period from 2011 to 2015 for each sector are provided in the  
 26    table below:

Program	Aggregate 2011 - 2015		
	Benefits (\$000s)	Costs (\$000s)	B/C Ratio
<b>Residential Total</b>	37,934	23,065	1.6
<b>Commercial Total</b>	38,152	21,688	1.8
<b>Industrial Total</b>	4,164	3,112	1.3
<b>Portfolio Level Costs</b>	0	2,940	
<b>TOTAL DSM Portfolio</b>	<b>80,250</b>	<b>50,804</b>	<b>1.6</b>

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1           3.3     Please confirm that the Benefit/Cost ratio on a Total Resource Cost basis as  
2                    shown in reasons accompanying Order G-186-14 at p. 25 is 5.7 for 2015, and the  
3                    comparable ratio for 2015 as shown in the 2015 DSM Annual Report is 2.2. If  
4                    confirmed, please provide in an excel model the calculation of the benefit/cost  
5                    ratios referred to above?  
6

7     **Response:**

8     Not confirmed. The Industrial Efficiency TRC of 5.7 inadvertently omitted the customer portion of  
9     cost and was corrected to 3.4 in FBC's response to BCUC IR 1.6.1.2 in the Commission  
10    proceedings regarding FBC's 2015-16 DSM Plan.

11    The difference in these values is due to the assumptions used in the 2015-16 DSM Plan that  
12    were based on the 2013 CPR Update, compared to actual program results.

13    Please refer to Attachment 3.3.

14  
15

16  
17           3.4     Please explain the key drivers of any trends in the Benefit/Cost ratios provided in  
18                    the previous information request?  
19

20    **Response:**

21    Plan B/C ratios are based on prototypical projects. Reported B/C ratios are an outcome of the  
22    actual DSM projects that have been submitted and approved. Any trends in reported B/C ratios  
23    are due to the changing mix of DSM projects.

24

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1 **4. Reference: Exhibit B-1, Appendix B, p. 5, Table 1-2; and Order G-186-14**

2 **“... the Commission Panel directs FBC to include in its next DSM**  
3 **Annual Report a review and discussion of whether opportunities**  
4 **exist in expanding DSM funding to 2013 approved levels for**  
5 **industrial customers while continuing to obtain cost-effective**  
6 **energy savings.” (emphasis in original)**

7 4.1 Please explain why the above quoted direction is not included in the 2015 Annual  
8 Report, in particular why it is not included in Table 1-2?

9  
10 **Response:**

11 FBC’s response to Directive 15 in BCUC Order G-186-14, to which the above quoted direction  
12 refers, was included in the Company’s 2014 Annual DSM Report ending December 31, 2014.  
13 FBC’s response is reproduced below:

14 The 2015 approved DSM Plan expenditure and savings are \$7.3 million and 26.2  
15 GWh, which moves towards the 2012 LTRP goals. The next long-term DSM Plan,  
16 in the Company’s LTERP due to be filed June 2016, will inform the DSM  
17 expenditure filings for 2017 and subsequent years.<sup>4</sup>

18 and

19 The current Industrial Efficiency program offering, in the approved 2015-16 DSM  
20 Plan, is generic enough to accommodate a wide range of customer projects, and  
21 the spending rules include the ability to increase up to 25 percent of sector budget  
22 (or more with Commission approval), thus not limiting participation.<sup>5</sup>

23 Because Directive 15 from the Commission was responded to in the 2014 Annual DSM Report,  
24 there was no need to replicate those responses in the 2015 Annual DSM Report.

25  
26

27

28 4.2 Please comment on whether FBC has complied with the above quoted direction?  
29 If not, please explain why FBC has not complied with this direction?

30  
31 **Response:**

32 Please refer to the response to ICG IR 1.4.1.

33

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<sup>4</sup> FBC Response to Directive 7, FBC Annual DSM Report ending December 31, 2014, Table 1-1, page 3.

<sup>5</sup> FBC Response to Directive 15, FBC Annual DSM Report ending December 31, 2014, Table 1-1, page 3.

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1   **5.    Reference:   Exhibit B-1, Appendix C, pp. 8-9**

2                                   **“These values have been updated since then in the Amended F2012**  
3                                   **to F2014 Revenue Requirements Application Updated DSM Plan,**  
4                                   **the following assumptions were listed:**

5                   •   **Bulk transmission capacity: \$0 per kW-year (\$ F2011) based on BC Hydro**  
6                   estimate because there are no bulk transmission capacity investments  
7                   expected to be deferred by the Updated DSM Plan.

8                   •   **Regional transmission and substation capacity: \$11 per kW-year (\$ F2011)**  
9                   based on BC Hydro estimate of the cost of the regional and substation  
10                  capacity costs avoided by the Updated DSM Plan.

11                  •   **Distribution capacity: \$1 per kW-year (\$ F2011), based on BC Hydro estimates**  
12                  of the distribution capacity cost avoided by the updated DSM Plan.”

13           5.1    Please explain why the values FBC used for deferred capital expenditures are so  
14                  different from the above numbers used by BC Hydro, and describe the  
15                  differences between the two utilities that support such different values.  
16

17    **Response:**

18    Please refer to the responses to CEC IRs 1.14.2 through 1.14.3 for an explanation of why the  
19    values FBC used for deferred capital expenditures differ from other WECC utilities, including BC  
20    Hydro.

21  
22

23           5.2    Please provide the forecast and actual load growth numbers, separated by  
24                  customer class for both FBC and BC Hydro for 2014, 2015 and 2016.  
25  
26

27    **Response:**

28    The forecast and actual load growth numbers separated by customer class for both FBC and  
29    BC Hydro for 2014, 2015 and 2016 are provided below. Please note that the BC Hydro forecast  
30    and actuals were taken from the BC Hydro annual service plans, which do not provide the  
31    actual or forecast load growth numbers for each class.



	FBC (GWh)						BC Hydro (GWh)					
	2014		2015		2016		2014		2015		2016	
	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual
Residential	126	22	-5	2	-49	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Commercial	104	167	-5	-13	60	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Industrial	134	90	-18	-1	22	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wholesale	-354	-337	12	13	-6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Irrigation	-1	0	-2	6	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lighting	-1	3	1	0	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Net	8	-55	-17	7	29	N/A	-4,765	-3,994	-651	-1,805	5,221	N/A
Losses	-32	-9	-3	3	4	N/A	128	385	-196	-1,371	235	N/A
Gross	-24	-64	-20	10	33	N/A	-4,637	-3,609	-847	-3,194	5,456	N/A

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5.3 Please describe the effect or absence of load growth on the value chosen for deferred capital expenditures used in the evaluation of the benefits of DSM.

**Response:**

Reduced or accelerated load growth would likely defer or accelerate, respectively, the timing of the growth related infrastructure investments that are primary inputs to the Deferred Capital Expenditure (DCE) value. Theoretically, the total absence of load growth could negate the need for such investments and drive the DCE value to zero.

5.4 Please describe the effect of lower distribution deferred capital expenditure values on the relative DSM benefits associated with residential, commercial and industrial programs.

**Response:**

Generally the effect would reduce DSM benefits relatively evenly across all sectors. A notable exception would be a transmission service industrial customer whose project benefits would not be impacted by a change in the distribution value of the DCE.

1 **6. Reference: Exhibit B-1, Appendix A, page A-16, Table A6-1**

2 6.1 Please recalculate Table A6-1 using BC Hydro's values for deferred capital  
 3 expenditures of \$11/kW-yr for transmission and \$1/kW-yr for distribution. Please  
 4 provide the details of the specific calculations as an attachment in a spreadsheet  
 5 format.  
 6

7 **Response:**

8 Please refer to the requested table below. The excel spreadsheet is included as Attachment 6.1.

Program/ Portfolio areas	Savings (MWh)	Cost (\$000s)	Benefit/Cost Tests				Levelised Cost (\$/MWh)
			TRC	UCT	PCT	RIM	
<b><i>Residential</i></b>							
Home Improvement	364	348	1.7	2.5	7.3	0.7	44.5
Heat Pumps	781	298	1.3	2.2	4.6	0.6	53.1
New Home	126	151	1.2	2.8	2.8	0.7	42.1
Lighting	2,735	190	2.1	20.3	2.8	0.8	5.6
Appliances	126	133	1.2	1.5	9.2	0.6	74.8
Water Heating	17	30	1.4	1.0	0.0	0.5	110.3
Low Income & Rentals	3,247	1,367	3.0	2.9	0	0.6	54.5
Behavioural	3,097	200	3.7	3.7	0	0.7	29.9
<b>Subtotal</b>	<b>10,493</b>	<b>2,718</b>	<b>2.3</b>	<b>4.0</b>	<b>6.6</b>	<b>0.7</b>	<b>32.3</b>
<b><i>Commercial</i></b>							
Com Lighting	10,592	2,322	1.8	3.1	4.9	0.9	37.9
Building Improvement	2,931	784	2.0	5.5	2.9	1.0	20.8
Irrigation	144	25	3.6	3.1	0	0.9	36.3
<b>Subtotal</b>	<b>13,666</b>	<b>3,131</b>	<b>1.9</b>	<b>3.4</b>	<b>4.3</b>	<b>0.9</b>	<b>34.1</b>
<b><i>Industrial</i></b>							
Industrial	1,556	309	1.9	5.1	2.6	1.1	22.0
<b>Subtotal</b>	<b>1,556</b>	<b>309</b>	<b>1.9</b>	<b>5.1</b>	<b>2.6</b>	<b>1.1</b>	<b>22.0</b>
<b>Program Total</b>	<b>25,715</b>	<b>6,158</b>	<b>2.1</b>	<b>3.7</b>	<b>5.1</b>	<b>0.8</b>	<b>32.6</b>
<b>Portfolio</b>							
Supporting Initiatives		674					
Planning & Evaluation		777					
<b>Total (including Portfolio area)</b>		<b>7,610</b>	<b>1.8</b>	<b>2.8</b>	<b>3.6</b>	<b>0.7</b>	<b>43.8</b>

9

10

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1     **7.     Reference:   Exhibit B-1, Appendix B, pp. 1-2, Table A-1 (Appendix A to FBC 2015**  
2                                     **DSM Annual Report)**

3                                     **“Table 1-1 provides an overview of FBC’s 2015 energy savings,**  
4                                     **expenditures and TRC cost- effectiveness test results for all DSM**  
5                                     **programs, by program, sector and at the portfolio level. The**  
6                                     **Company achieved an overall portfolio TRC of 2.0 on DSM**  
7                                     **expenditures of \$3.5 million and electricity savings totalling 12.6**  
8                                     **GWh. The Company’s spending levels were less than the approved**  
9                                     **levels for the reasons set out in Section 1.2 below. In accordance**  
10                                    **with British Columbia’s Demand-Side Measures Regulation,**  
11                                    **additional detail, including results for the following cost**  
12                                    **effectiveness test calculations, are provided for the overall portfolio**  
13                                    **and each Program Area in Appendix A, Table A-1: TRC, Utility Cost**  
14                                    **Test (UCT), and the Ratepayer Impact Measure (RIM). ”**

15             7.1     Please recalculate Table A-1 using BC Hydro’s values for deferred capital  
16                                     expenditures of \$11/kW-yr for transmission and \$1/kW-yr for distribution. Please  
17                                     provide the details of the specific calculations as an attachment in a spreadsheet  
18                                     format.

19  
20     **Response:**

21     Table A-1 (Appendix A to FBC’s 2015 DSM Annual Report), has been recalculated using BC  
22     Hydro’s values for deferred capital expenditures of \$11/kW-yr for transmission and \$1/kW-yr for  
23     distribution as shown in the following table. The illustrative calculations for Residential Heat  
24     Pumps are shown in Attachment 7.1, which provides a spreadsheet and details the  
25     methodology used for all programs. The software application containing all of the calculations  
26     contains confidential information and therefore cannot be provided.

27





1  
2

**Table A-1: FBC DSM Summary Report for Year Ended December 31, 2015 Revised using \$12/kW-yr for DCE**

Program Area	2015 Approved Plan Savings (MWh)	2015 Actual Energy Savings (MWh)	Lifetimesavings (MWh) <sup>2</sup>	Incentive Expenditure (\$000)	Non-Incentive Expenditure (\$000)	2015 Actual Spend (\$000s)	2015 Approved Plan (\$000s)	Benefit/Cost Tests			Levelized cost (¢/kWh)
								TRC	UCT	RIM	
<b>Residential</b>											
Home Improvement	3,106	231.2	6,326	62.0	136.8	198.7	884	1.6	1.6	0.7	7.1
Behavioural	888	0.0				-	85				
Watersavers	850	4.6	64	0.3	1.8	2.2	387	1.2	2.6	0.8	10.8
Appliances	288	51.9	865	23.3	47.7	71.0	96	0.8	1.0	0.6	17.9
Lighting	1,569	4,144.4	50,893	167.9	30.1	198.0	193	5.3	26.1	1.1	2.1
Heat Pumps	1,618	569.0	17,561	138.4	44.1	182.5	302	1.5	4.1	0.9	7.9
New Home Program	1,179	356.2	12,366	37.6	73.2	110.8	390	1.1	5.0	0.9	10.2
Low Income Housing	2,598	281.8	1,827	97.5	189.9	287.3	824	1.2	0.9	0.6	9.7
<b>Residential Total</b>	<b>12,096</b>	<b>5,639.0</b>	<b>89,903</b>	<b>526.9</b>	<b>523.5</b>	<b>1,050.4</b>	<b>3,160</b>	<b>2.8</b>	<b>6.8</b>	<b>1.0</b>	<b>4.0</b>
<b>Commercial</b>											
Lighting	7,445	4,089.3	71,188	404.4	331.0	735.4	1,485	1.9	5.5	0.9	6.0
Building Improvement	3,454	1,605.9	41,841	175.8	367.3	543.0	842	1.4	3.9	0.9	8.3
Computers	378	0.0		-	-	-	55				
Municipal (WWTP)	759	186.6	4,900	24.5	11.7	36.2	79	2.3	5.4	0.9	5.0
Irrigation	490	0.0		-	9.0	9.0	69				
<b>Commercial Total</b>	<b>12,526</b>	<b>5,881.8</b>	<b>117,929</b>	<b>604.7</b>	<b>719.0</b>	<b>1,323.7</b>	<b>2,530</b>	<b>1.7</b>	<b>4.9</b>	<b>0.9</b>	<b>6.7</b>
<b>Industrial</b>											
Industrial Efficiency	1,537	1,086.8	27,937	146.2	79.8	226.0	202	2.0	6.1	0.9	5.7
<b>Industrial Total</b>	<b>1,537</b>	<b>1,086.8</b>	<b>27,937</b>	<b>146.2</b>	<b>79.8</b>	<b>226.0</b>	<b>202</b>	<b>2.0</b>	<b>6.1</b>	<b>0.9</b>	<b>5.7</b>
<b>Total Programs</b>	<b>26,159</b>	<b>12,607.6</b>	<b>235,769</b>	<b>1,277.8</b>	<b>1,322.3</b>	<b>2,600.1</b>	<b>5,892</b>	<b>2.1</b>	<b>5.8</b>	<b>0.9</b>	<b>5.3</b>



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Program Area	2015 Approved Plan Savings (MWh)	2015 Actual Energy Savings (MWh)	Lifetime savings (MWh) <sup>2</sup>	Incentive Expenditure (\$000)	Non- Incentive Expenditure (\$000)	2015 Actual Spend (\$000s)	2015 Approved Plan (\$000s)	Benefit/Cost Tests			Levelized cost (¢/kWh)
								TRC	UCT	RIM	
<b>Portfolio Level Activities</b>											
Planning & Evaluation	-	-		-	584.9	584.9	725				
Supporting Initiatives	-	-		-	346.3	346.3	675				
<b>Total Portfolio</b>	<b>26,159</b>	<b>12,607.6</b>	<b>235,769</b>	<b>1,277.8</b>	<b>2,253.5</b>	<b>3,531.3</b>	<b>7,292</b>	<b>1.9</b>	<b>4.2</b>	<b>0.9</b>	<b>6.0</b>

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1    **8.       Reference:   Exhibit B-1, Appendix B, p. 16**

2                                   **“FBC commercial and industrial Technical Advisors increased the**  
3                                   **number of site visits with industrial customers to promote the**  
4                                   **overall program.”**

5            8.1       Please identify the number of industrial Technical Advisors employed by FBC,  
6                                   and the number of site visits with industrial customers in 2014, 2015 and 2016.

7  
8    **Response:**

9    FBC employs four Technical Advisors, three of whom are responsible for industrial key  
10   accounts. FBC does not keep track of the number of individual site visits with its Industrial  
11   customers. In 2016, FBC developed an internal DSM marketing plan in order to track the last  
12   point of contact, schedule regular visits with FBC key accounts, and increase touch points  
13   between FBC and its key accounts.

14   For Industrial accounts, FBC Technical Advisors generally visit customers with annual electric  
15   consumption exceeding 3 GWh/year at least once a year (often 2-3 times). FBC Technical  
16   Advisors generally visit customers with electric consumption between 1-3 GWh/year at least  
17   once every two years. Smaller Industrial customers are visited by FBC Technical Advisors or  
18   Energy Efficiency Advisors upon customer request.

19   In 2016, FBC began recording the last touch point with its larger key accounts. From January 1  
20   to September 1, 2016, FBC Technical Advisors visited 59% of the Company’s key Industrial  
21   accounts. FBC estimates that in 2014 and 2015, approximately 40% and 50% of key Industrial  
22   accounts were visited by FBC Technical Advisors, respectively.

23

## **Attachment 3.3**

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### **REFER TO LIVE SPREADSHEET MODEL**

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)

## **Attachment 6.1**

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**REFER TO LIVE SPREADSHEET MODEL**

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## **Attachment 7.1**

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### **REFER TO LIVE SPREADSHEET MODEL**

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