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August 9, 2019

Mr. Patrick Wruck
Commission Secretary and Manager
Regulatory Support
British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC V6Z 2N3

Dear Mr. Wruck:

**RE: British Columbia Utilities Commission (BCUC or Commission)
British Columbia Hydro and Power Authority (BC Hydro)
F2005/F2006 Revenue Requirements Application
BCUC Decision: October 29, 2004; Directive 69 (page 201)
(AMENDED pursuant to 2006 Integrate Electricity Plan and
2006 Long-Term Acquisition Plan
BCUC Decision: May 11, 2006; Directive 16 (pages 145 to 146)
2008 Long-Term Acquisition Plan
BCUC Decision: July 27, 2009; Directive 36 (page 184))
Fiscal 2017 – Fiscal 2019 Revenue Requirements Application
BCUC Decision: March 1, 2018; Directive 23 (page 84)
F2019 Demand-Side Management Activities Annual Report**

BC Hydro writes to provide its Report on Demand-Side Management Activities for the 12 months ending March 31, 2019.

For further information, please contact Geoff Higgins at 604-623-4121 or by email at bchydroregulatorygroup@bchydro.com.

Yours sincerely,



(for) Fred James
Chief Regulatory Officer

st/ma

Enclosure (1)



Report on Demand-Side Management Activities for Fiscal 2019

July 30, 2019

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1 Introduction

This BC Hydro annual report to the British Columbia Utilities Commission (**BCUC or Commission**) on Demand-Side Management (**DSM**) activities provides information on DSM expenditures, electricity savings, plan performance and mitigation measures for the 2019 fiscal year, which is the twelve months ending March 31, 2019. This annual report is filed in compliance with the following BCUC Directives:

- Directive 69 from the BCUC Decision on BC Hydro's Fiscal 2005 - Fiscal 2006 Revenue Requirements Application (**F05-F06 RRA**);
- Directive 16 from the BCUC Decision on BC Hydro's 2006 Integrated Electricity Plan and Long Term Acquisition Plan (**2006 IEP/LTAP**);
- Directives 36 and 38 from the BCUC decision on BC Hydro's 2008 LTAP; and
- Directive 23 from the BCUC decision on BC Hydro's Fiscal 2017 – Fiscal 2019 Revenue Requirements Application (**F17-F19 RRA**).

Directive 69 of the F05-F06 RRA Decision directed BC Hydro “to provide information to the BCUC for on-going review of Power Smart performance through:

- Executive Summaries of milestone evaluation reports and full final evaluation reports for each program;
- Semi-annual reports on DSM activities which, amongst others, will include:
 - ▶ detailed breakdown of OMA expenses related to support activities carried out within the Power Smart group and in other departments that support the Power Smart organization;
 - ▶ detailed description of the functions of portfolio level costs and how these costs are allocated to programs;
 - ▶ summaries of the overall performance of Power Smart with reference to program objectives; and

-
- ▶ variances of fiscal year budgeted and actual deferred capital expenditures and explanation of variances.”

Directive 16 of the 2006 IEP/LTAP Decision directed BC Hydro “to continue to file reports on DSM performance as described in Directive 69 of the F05/F06 RRA Decision included in Order No. G-96-04 and to file its Semi Annual Demand-Side Management Reports in the same format as the June 2005 Report with the following enhancements:

Provide annual and cumulative totals since program inception;

- (i) Express these values on a per unit basis; and
- (ii) Provide the benefit to cost ratios for the three DSM tests.”

Directive 36 of the 2006 IEP/LTAP Decision directed BC Hydro to switch from semi-annual to annual DSM performance reports. Directive 38 from the same Decision directed BC Hydro to include in these reports:

“metrics for each initiative, achievements in relation to milestones, and description of past or planned mitigation measures where warranted.

These mitigation measures should include shifting program resources and alternative supply options for each program. Ongoing DSM performance reporting should demonstrate how BC Hydro is continuously pursuing DSM and that specific programs are cost-effective.”

Directive 23 of the F17-F19 RRA Decision directs BC Hydro to “include a line item in BC Hydro’s Annual Report on DSM Activities to reflect the NIA activities that are tracked separately.”

BC Hydro files its evaluation reports pursuant to Directive 69 of the F05-F06 RRA Decision separately.

This annual report addresses the balance of Directives 69 and 16, as well as Directives 36 and 38 of the 2006 IEP/LTAP Decision and Directive 23 of the F17-F19 RRA Decision.

2 Expenditures and Electricity Savings for Fiscal 2019

BC Hydro's DSM expenditures¹ in fiscal 2019 totalled \$104.2 million while new incremental DSM electricity savings² totalled 836 GWh/year. Expenditures were \$23.7 million or 19 per cent below the Fiscal 2019 DSM Plan presented in BC Hydro's F17-F19 RRA. Overall, new incremental electricity savings as shown in [Table 1](#) were 100 GWh/year or 14 per cent above the DSM Plan.

[Table 1](#) presents planned and actual DSM expenditures and new incremental electricity savings in fiscal 2019.

¹ Comprising all DSM-related deferred operating expenditures. DSM operating expenditures are presented in [Table 7](#) of this report.

² This report presents new incremental electricity savings, whereas previous reports on DSM activities provided net incremental electricity savings. This new metric is a better reflection of performance within the fiscal year, since it is based on activity that is implemented within the fiscal year, and not impacted by past performance and/or adjustments made to energy savings in prior years (e.g., persistence, evaluations, measurement and verification).

Table 1 Expenditures and New Incremental Electricity Savings for Fiscal 2019

	Expenditures ¹				New Incremental Electricity Savings			
	Plan ² \$ 000	Actual \$ 000	Variance \$ 000	%	Plan ² GWh/yr	Actual ³ GWh/yr	Variance GWh/yr	%
Codes and Standards								
Residential	-	-	-	-	197	266	69	35%
Commercial	-	-	-	-	110	126	16	14%
<u>Industrial</u>	-	-	-	-	9	11	2	21%
Total Codes and Standards	4,918	4,881	(37)	(1%)	316	403	87	27%
Rate Structures								
Residential Inclining Block Rate	700	20	(680)	(97%)	9	-	(9)	(100%)
General Service Rate	-	-	-	-	-	-	-	-
<u>Transmission Service Rate</u>	496	595	99	20%	114	117	3	3%
Total Rate Structures	1,196	615	(581)	(49%)	123	117	(6)	(5%)
DSM Programs								
<u>Residential Sector</u>								
Behaviour	4,001	2,566	(1,435)	(36%)	19	21	3	15%
Refrigerator Buy-back	-	-	-	-	-	-	-	-
Low Income	2,660	3,645	985	37%	3	7	5	195%
Non Integrated Areas	-	9	9	-	-	-	-	-
New Home	-	-	-	-	-	-	-	-
Retail	2,396	2,042	(354)	(15%)	4	6	2	51%
Home Energy Retrofit Offer	3,048	3,236	187	6%	5	6	0	4%
<u>Sector Enabling Activities</u>	868	646	(222)	(26%)	n/a	-	n/a	n/a
<i>Residential Sector Total</i>	12,973	12,144	(829)	(6%)	31	41	10	33%
<u>Commercial Sector</u>								
Leaders in Energy Management - Commercial	19,414	13,163	(6,251)	(32%)	45	39	(7)	(15%)
New Construction	5,201	5,234	33	1%	5	9	4	90%
<u>Sector Enabling Activities</u>	1,040	630	(410)	(39%)	n/a	-	n/a	n/a
<i>Commercial Sector Total</i>	25,656	19,027	(6,629)	(26%)	50	48	(2)	(5%)
<u>Industrial Sector</u>								
Leaders in Energy Management - Transmission	16,718	15,236	(1,482)	(9%)	61	98	37	60%
Thermo-Mechanical Pulp	27,200	27,745	545	2%	131	102	(28)	(21%)
Leaders in Energy Management - Distribution	9,848	5,895	(3,953)	(40%)	24	27	3	14%
Load Displacement	-	(166)	(166)	-	-	-	-	-
<u>Sector Enabling Activities</u>	832	508	(324)	(39%)	n/a	-	n/a	n/a
<i>Industrial Sector Total</i>	54,598	49,219	(5,379)	(10%)	215	227	12	5%
Total Programs	93,227	80,390	(12,837)	(14%)	296	316	19	7%
Supporting Initiatives								
Public Awareness	7,075	7,559	484	7%	-	-	-	-
<u>Indirect and Portfolio Enabling</u>	7,082	7,478	396	6%	-	-	-	-
Supporting Initiatives Total	14,157	15,037	880	6%	-	-	-	-
ENERGY EFFICIENCY PORTFOLIO TOTAL	113,498	100,923	(12,575)	(11%)	-	-	-	-
Capacity Focused DSM	14,396	3,272	(11,123)	(77%)	-	-	-	-
PORTFOLIO TOTAL, EE & CF DSM	127,894	104,195	(23,698)	(19%)	736	836	100	14%

Notes:

- ¹ Including all DSM-related deferred operating expenditures.
- ² Plan figures are from BC Hydro's F17-F19 RRA, Appendix W with Thermo-Mechanical Pulp Plan adjustments from BCUC IR 2.314.3 and subsequent Compliance filing from April 27, 2018.
- ³ Reported savings from codes and standards and residential inclining block and general service rate structures are based on planned estimates as well as evaluated results.

The following corresponds to the information provided in [Table 1](#) and are explanations for the above variances:

Codes and Standards	
Residential	Expenditures were approximately on plan. Electricity savings were above plan due to an adjustment of the assumed replacement rate for incandescent lamps under the General Service Lighting (GSL) regulation.
Commercial	
Industrial	
Rate Structures	
Residential Inclining Block Rate	Expenditures and electricity savings were below plan due to the most recent evaluation of the Residential Inclining Block (RIB) Rate that concluded that there are no new incremental savings from the RIB rate structure.
Transmission Service Rate	Expenditures were above plan due to the advancement of rate design analysis. Electricity savings were approximately on plan.
DSM Programs	
Residential Sector	
Behaviour	Expenditures were below plan due primarily to reductions in participant engagement activities that were not required to achieve targets. Electricity savings were above plan due to higher than anticipated participation in select portions of the program.
Low Income	Expenditures and electricity savings were above plan due to higher than planned participation in the Energy Savings Kit component of the program which has a lower cost for energy compared to other components in the program.
Retail	Expenditures were below plan due to reduced lighting incentive costs associated with lower retail prices and multi-packs. Electricity savings were above plan due to strong sales of LED lighting multi-packs which provided more savings than planned.
Home Energy Retrofit Offer	Expenditures and electricity savings were approximately on plan.
Sector Enabling Activities	Sector enabling activities were able to be further reduced from what was planned in the F17-F19 RRA to align with a lower level of program activity resulting from the moderation strategy.
Commercial Sector	
Leaders in Energy Management - Commercial	Expenditures were below plan due to receiving more cost-effective projects requiring lower incentive levels than anticipated, lower participation than planned and a different mix of project technologies than planned. Electricity savings were below plan due to customer decisions to delay some projects, lower participation than planned and a different mix of project technologies than planned.
New Construction	Expenditures were approximately on plan and electricity savings were above plan due to higher than planned participation at lower costs per project.
Sector Enabling Activities	Sector enabling activities were able to be further reduced from what was planned in the F17-F19 RRA to align with a lower level of program activity resulting from the moderation strategy.

Industrial Sector	
Leaders in Energy Management – Transmission	Expenditures were below plan due to lower than expected study commitments/payments and lower energy manager activity. Electricity savings were above plan due to a shift in timing of customer project completions, and higher energy savings from strategic energy management activities undertaken by customers.
Thermo-Mechanical Pulping	Expenditures were on plan. Electricity savings were below plan due to revised technical specifications for a major pulp mill project.
Leaders in Energy Management – Distribution	Expenditures are below plan due to delays in customer project completions, and lower than expected energy manager, cohort and study payments. Electricity savings were above plan due to a different mix of projects than planned, including higher than expected cohort savings.
Sector Enabling Activities	Sector enabling activities were able to be further reduced from what was planned in the F17-F19 RRA to align with a lower level of program activity resulting from the moderation strategy.
Total Programs	Expenditures were below plan primarily due to more cost-effective projects in the Leaders in Energy Management – Commercial program and project delays and lower than expected energy manager and study costs in the Leaders in Energy Management – Distribution program. Electricity savings were above plan primarily due to a shift in timing of customer projects and higher energy savings from strategic energy management activities undertaken by customers in the Leaders in Energy Management – Transmission program.
Supporting Initiatives	
Public Awareness	Expenditures were above plan primarily due to increased advertising and public awareness activities.
Indirect and Portfolio Enabling	Expenditures were above plan primarily due to an upgrade for the program tracking system to a version supported by the vendor.
Capacity Focused DSM	Expenditures were below plan primarily due to a shift in timing of a number of initiatives, including the distributed energy resource management system and the DSM pilots in constrained substations.
Portfolio Total	Expenditures were below plan primarily due to timing shifts in Capacity Focused DSM initiatives and more cost effective projects in the Leaders in Energy Management – Commercial program. Electricity savings were above plan primarily due to an adjustment of the assumed replacement rate for incandescent lamps under the GSL regulation.

3 Non-Integrated Area Activity

Non-Integrated Area (**NIA**) activity in fiscal 2019 includes pilot project initiatives and DSM program activity. Pilot initiative objectives and activities undertaken to support NIA customers in fiscal 2019 include the following:

- Support for education and skills training related to energy management;
- Facilitate access to opportunity assessments and building energy upgrades;
- Provide salary support for energy-focused positions;
- Support the development and implementation of community energy plans; and
- Encourage energy efficient new construction through support for policy and integrated design.

In addition to the NIA pilot project initiatives, BC Hydro's DSM program activities that were available to NIA communities in fiscal 2019, and that can be tracked separately, include Behaviour, Low Income, the Appliance Rebate component of the Retail program and Home Energy Retrofit Offer. NIA customer participation in general offers such as the Retail program (with the exception of appliance rebates) is not tracked separately, and hence is not included here per Directive 23.

In addition to the program activity described above, BC Hydro has launched its new NIA program and incurred \$8,789 in program costs in fiscal 2019. No energy savings have been realized to date. Those costs are captured in [Table 2](#) under the DSM Program Activity line.

[Table 2](#) presents expenditures and new incremental electricity savings for NIA in fiscal 2019 that were tracked separately as well as benefit cost ratios and net levelized cost for fiscal 2018 to fiscal 2019. NIA expenditures and electricity savings included in [Table 2](#) are also included in [Table 1](#) within the applicable initiatives.

Table 2 NIA Activity for Fiscal 2019

	Expenditures ¹	New Incremental Electricity Savings ²	Benefit Cost Ratios ^{3 & 4} Fiscal 2018 to Fiscal 2019				Net Levelized Fiscal 2018 to Fiscal 2019
	Actual \$	Actual kWh/yr	Utility Test	Total Resource Cost Test	Total Resource Cost Test as modified by DSM Regulation ⁵	Ratepayer Impact Measure Test	Utility Cost (\$/MWh)
DSM Program Activity	\$18,944	55,461	6.6	5.1	5.8	1.8	45
Pilot Project Initiatives	\$292,750	n/a	n/a	n/a	n/a	n/a	n/a

Notes:

- ¹ Including all DSM program incentives and pilot project expenditures tracked separately as well as an allocation of Low Income Program incentives.
- ² Including all new incremental electricity savings for DSM programs tracked separately.
- ³ Long Run Marginal Cost (**LRMC**) is based on NIA generation costs.
- ⁴ Not all components required to calculate cost effectiveness are tracked separately, therefore assumptions were developed for additional utility costs and customer cost in order to calculate cost effectiveness.
- ⁵ For the low income components included within DSM NIA Program Activity, the Total Resource Cost Test benefit cost ratio includes a 40 per cent adder to program benefits, rather than a 15 per cent value for non-energy benefits, in accordance with the DSM Regulation.

4 Expenditures to Date

BC Hydro’s DSM expenditures from fiscal 2016 through fiscal 2019 totalled \$429.1 million. [Table 3](#) presents DSM expenditures from April 1, 2015 to March 31, 2019.

Table 3 Expenditures since Fiscal 2016

	F2016 (\$ 000)	F2017 (\$ 000)	F2018 (\$ 000)	F2019 (\$ 000)	Total (\$ 000)
Codes and Standards					
Residential	-	-	-	-	-
Commercial	-	-	-	-	-
<u>Industrial</u>	-	-	-	-	-
Total Codes and Standards	4,688	5,057	4,797	4,881	19,422
Rate Structures					
Residential Inlining Block Rate	506	527	271	20	1,324
General Service Rate	487	-	-	-	487
<u>Transmission Service Rate</u>	<u>309</u>	<u>265</u>	<u>283</u>	<u>595</u>	<u>1,452</u>
Total Rate Structures	1,302	792	553	615	3,262
DSM Programs					
<u>Residential Sector</u>					
Behaviour	3,236	2,176	1,839	2,566	9,817
Refrigerator Buy-back	1,188	0	(0)	-	1,188
Low Income	2,425	2,890	3,542	3,645	12,502
Non Integrated Areas	-	-	-	9	9
New Home	1,255	(128)	1	-	1,128
Retail	4,712	4,658	2,926	2,042	14,337
Home Energy Retrofit Offer	2,241	2,246	2,891	3,236	10,614
<u>Sector Enabling Activities</u>	<u>973</u>	<u>677</u>	<u>612</u>	<u>646</u>	<u>2,908</u>
<i>Residential Sector Total</i>	<i>16,030</i>	<i>12,519</i>	<i>11,810</i>	<i>12,144</i>	<i>52,503</i>
<u>Commercial Sector</u>					
Leaders in Energy Management - Commercial	25,159	25,050	15,221	13,163	78,594
New Construction	7,360	8,781	8,901	5,234	30,276
<u>Sector Enabling Activities</u>	<u>1,089</u>	<u>682</u>	<u>591</u>	<u>630</u>	<u>2,993</u>
<i>Commercial Sector Total</i>	<i>33,609</i>	<i>34,513</i>	<i>24,714</i>	<i>19,027</i>	<i>111,862</i>
<u>Industrial Sector</u>					
Leaders in Energy Management - Transmission	18,771	14,365	14,050	15,236	62,422
Thermo-Mechanical Pulp	19,657	133	(1,900)	27,745	45,634
Leaders in Energy Management - Distribution	10,897	8,152	7,756	5,895	32,701
Load Displacement	14,481	-	-	(166)	14,315
<u>Sector Enabling Activities</u>	<u>968</u>	<u>523</u>	<u>582</u>	<u>508</u>	<u>2,582</u>
<i>Industrial Sector Total</i>	<i>64,774</i>	<i>23,173</i>	<i>20,488</i>	<i>49,219</i>	<i>157,654</i>
Total Programs	114,412	70,204	57,012	80,390	322,019
Supporting Initiatives					
Public Awareness	8,838	6,799	6,999	7,559	30,195
<u>Indirect and Portfolio Enabling</u>	<u>7,278</u>	<u>6,178</u>	<u>6,075</u>	<u>7,478</u>	<u>27,008</u>
Supporting Initiatives Total	16,116	12,977	13,074	15,037	57,204
ENERGY EFFICIENCY PORTFOLIO TOTAL	136,517	89,031	75,436	100,923	401,907
Capacity Focused DSM	8,644	8,377	6,868	3,272	27,162
PORTFOLIO TOTAL, EE & CF DSM	145,162	97,408	82,304	104,195	429,069

BC Hydro's DSM electricity savings since fiscal 2016 totalled 2,507 GWh/year at March 31, 2019, which equates to 91 per cent of the planned savings of 2,758 GWh/year in the F17-F19 RRA. [Table 4](#) presents actual cumulative savings as a percentage of plan in fiscal 2016 to fiscal 2019.

**Table 4 Cumulative Electricity Savings:
Fiscal 2016 to Fiscal 2019**

Actual as a Percentage of Plan ¹	
Codes and Standards	
Residential	87%
Commercial	95%
<u>Industrial</u>	<u>89%</u>
Total Codes and Standards	90%
Rate Structures	
Residential Inclining Block Rate	0%
General Service Rate	n/a
<u>Transmission Service Rate</u>	<u>94%</u>
Total Rate Structures	67%
DSM Programs	
<i>Residential Sector</i>	
Behaviour	108%
Refrigerator Buy-back	100%
Low Income	211%
New Home	101%
Retail	149%
<u>Home Energy Retrofit Offer</u>	<u>102%</u>
<i>Residential Sector Total</i>	127%
<i>Commercial Sector</i>	
Leaders in Energy Management - Commercial	90%
<u>New Construction</u>	<u>105%</u>
<i>Commercial Sector Total</i>	93%
<i>Industrial Sector</i>	
Leaders in Energy Management - Transmission	102%
Thermo-Mechanical Pulp	70%
Leaders in Energy Management - Distribution	117%
<u>Load Displacement</u>	<u>99%</u>
<i>Industrial Sector Total</i>	93%
Total Programs	97%
PORTFOLIO TOTAL	91%

Notes:

¹ Reported savings for codes and standards and rates structures are based on planned estimates as well as evaluated results.

The cumulative portfolio DSM electricity savings from April 1, 2015 through March 31, 2019 have been achieved at an average net levelized utility cost of \$19 per MWh. [Table 5](#) presents net levelized utility cost that is calculated by subtracting capacity benefits from gross utility costs and then dividing the resulting net utility costs

by electricity savings. A negative net levelized utility cost means that the subtracted capacity benefits exceed gross utility costs.

**Table 5 Utility Cost of Electricity Savings:
Fiscal 2016 to Fiscal 2019**

	Net Levelized Utility Cost (\$/MWh)
Codes and Standards¹	
Residential	n/a
Commercial	n/a
<u>Industrial</u>	<u>n/a</u>
Total Codes and Standards	n/a
Rate Structures	
Residential Inclining Block Rate	n/a
General Service Rate	n/a
<u>Transmission Service Rate</u>	<u>-4</u>
Total Rate Structures	-1
DSM Programs	
<u>Residential Sector</u>	
Behaviour	4
Refrigerator Buy-back	57
Low Income	38
Non Integrated Areas	n/a
New Home	93
Retail	-7
Home Energy Retrofit Offer	-1
<u>Sector Enabling Activities</u>	<u>n/a</u>
<i>Residential Sector Total</i>	<i>4</i>
<u>Commercial Sector</u>	
Leaders in Energy Management - Commercial	26
New Construction	30
<u>Sector Enabling Activities</u>	<u>n/a</u>
<i>Commercial Sector Total</i>	<i>28</i>
<u>Industrial Sector</u>	
Leaders in Energy Management - Transmission	21
Thermo-Mechanical Pulp	15
Leaders in Energy Management - Distribution	21
Load Displacement	15
<u>Sector Enabling Activities</u>	<u>n/a</u>
<i>Industrial Sector Total</i>	<i>19</i>
Total Programs	18
Rate Structures and Programs	17
Portfolio Total	19

Notes:

¹ Codes and standards savings have been excluded from levelized cost calculations and codes and standards costs are included at the portfolio level.

[Table 6](#) presents benefit cost-ratios of actual DSM electricity savings achieved from April 1, 2015 through March 31, 2019. [Table 6](#) shows both the Total Resource Cost test as modified by the Demand-Side Measures Regulation and the Total Resource Cost test without modifications.

**Table 6 Benefit Cost Ratios of Electricity Savings:
Fiscal 2016 to Fiscal 2019**

	Benefit Cost Ratios			
	Utility Test	Total Resource Cost Test ¹	Total Resource Cost Test as modified by DSM Regulation ²	Ratepayer Impact Measure Test ³
Codes and Standards⁴				
Residential	n/a	n/a	n/a	n/a
Commercial	n/a	n/a	n/a	n/a
<u>Industrial</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
Total Codes and Standards	n/a	n/a	n/a	n/a
Rate Structures				
Residential Inclining Block Rate	n/a	n/a	n/a	n/a
General Service Rate	n/a	n/a	n/a	n/a
<u>Transmission Service Rate</u>	<u>46.9</u>	<u>2.3</u>	<u>2.6</u>	<u>1.0</u>
Total Rate Structures	20.1	2.1	2.4	1.0
DSM Programs				
<u>Residential Sector</u>				
Behaviour	5.2	5.7	6.6	1.0
Refrigerator Buy-back	1.7	2.3	2.4	0.6
Low Income ⁵	2.1	3.2	3.1	0.8
Non Integrated Areas	n/a	n/a	n/a	n/a
New Home	1.1	1.0	1.1	0.6
Retail	6.4	14.4	15.7	1.1
Home Energy Retrofit Offer	4.2	1.7	2.3	0.9
<u>Sector Enabling Activities</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
<i>Residential Sector Total</i>	4.4	4.2	4.8	1.0
<u>Commercial Sector</u>				
Leaders in Energy Management - Commercial	3.0	2.3	2.5	1.0
New Construction	2.7	1.7	2.3	1.0
<u>Sector Enabling Activities</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
<i>Commercial Sector Total</i>	2.9	2.1	2.4	1.0
<u>Industrial Sector</u>				
Leaders in Energy Management - Transmission	3.7	2.5	2.6	1.0
Thermo-Mechanical Pulp	4.3	3.0	3.5	1.3
Leaders in Energy Management - Distribution	3.5	2.5	2.7	1.0
Load Displacement	4.3	1.1	1.3	1.3
<u>Sector Enabling Activities</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
<i>Industrial Sector Total</i>	3.8	2.3	2.5	1.1
Total Programs	3.6	2.5	2.8	1.0
Rate Structures and Programs	3.8	2.5	2.8	1.0
Portfolio Total	3.6	2.4	2.7	1.0

Notes:

- ¹ The Total Resource Cost Test benefit-cost ratios include non-energy benefits where quantified.
- ² In accordance with the DSM Regulation, the avoided cost of natural gas is valued at BC Hydro's LRMIC of acquiring electricity generated from clean or renewable resources in B.C converted to \$/gigajoule (**GJ**) in all time periods. Non-energy benefits are valued at 15 per cent of the energy and capacity benefits of electricity and natural gas.
- ³ While subsection 4(6) of the DSM Regulation precludes the use of the Ratepayer Impact Measure Test in determining cost-effectiveness of a demand-side measure, this benefit-cost ratio is included in the table to comply with Directive 42 from the BCUC decision on BC Hydro's 2008 LTAP.
- ⁴ Codes and standards savings have been excluded from benefit cost ratio calculations and codes and standards costs are included at the portfolio level.
- ⁵ The Total Resource Cost Test benefit-cost ratios for the Low Income Program include a 40 per cent adder to program benefits, in accordance with the DSM Regulation.

5 Mitigation Measures

Based on the experience gathered over the past few years through initiative tracking, the following are mitigation measures that have been undertaken or are planned for the future.

Codes and Standards	
Residential	Cumulative electricity savings in fiscal 2019 were below plan. Based on market data, it is expected that as incandescent lamps subject to the General Service Lighting regulation burn out they will continue to be replaced with efficient LED lamps that meet the regulation. Replacement rate assumption has been adjusted in plans moving forward.
Commercial	
Industrial	
Rate Structures	
Residential Inclining Block	No further conservation is forecast from the residential inclining block rate.
General Service Rate	No further conservation is forecast from the general service rate.
Industrial Transmission	Cumulative electricity savings in fiscal 2019 were approximately on plan.
DSM Programs	
Residential Sector	
Behaviour	Cumulative electricity savings in fiscal 2019 were above plan. The program will use a variety of customer engagement tools to continue to ensure the program meets its targets.
Refrigerator Buy-Back	Cumulative electricity savings in fiscal 2019 were on plan. The program has ended per the DSM Plan in the F17-F19 RRA.
Low Income	Cumulative electricity savings in fiscal 2019 were above plan. Adjustments were made to the program to address priorities around affordability and these have been reflected in future program targets.
New Home	Cumulative electricity savings in fiscal 2019 were on plan. The program has ended per the DSM Plan in the F17-F19 RRA.
Retail	Cumulative electricity savings in fiscal 2019 were above plan. The program will be investigating new delivery channels to continue to ensure the program meets its targets.
Home Energy Retrofit Offer	Cumulative electricity savings in fiscal 2019 were on plan. Adjustments were made to the program to address priorities around affordability and these have been reflected in future program targets.
Commercial Sector	
Leaders in Energy Management - Commercial	Cumulative electricity savings in fiscal 2019 were below plan. The plan going forward has been adjusted to reflect lower expected participation levels, in addition there have been some program adjustments, including utilizing Business Energy Advisors to work with small medium businesses, to ensure the program meets its targets.
New Construction	Cumulative electricity savings in fiscal 2019 were above plan.
Industrial Sector	
Leaders in Energy Management - Transmission	Cumulative electricity savings in fiscal 2019 were on plan. The program will continue to leverage strategic energy management activities and will continue to monitor the program offer to achieve targets.
Thermo-Mechanical Pulping	Cumulative electricity savings in fiscal 2019 were below plan. Two projects completed on schedule in fiscal 2019. The expected project applications for two remaining projects did not occur before the February 1 2019 deadline therefore no more projects will be completed in this program. There are no mitigation strategies.
Leaders in Energy Management – Distribution	Cumulative electricity savings in fiscal 2019 were above plan.
Load Displacement	Cumulative electricity savings in fiscal 2019 were on plan. The program has ended per the DSM Plan in the F17-F19 RRA.
Capacity Focused DSM	No capacity savings were planned in fiscal 2019 as these are pilot initiatives.

6 Operating Expenditures for Fiscal 2019

BC Hydro's DSM operating expenditures in fiscal 2019 totalled \$548,715.³ [Table 7](#) presents DSM operating expenditures in fiscal 2019.

Table 7 Operating Expenditures for Fiscal 2019

	(\$000)
Labour	457
Consultants/Contractors/Temp Labour	13
Other	79
Total	549

7 Allocation of Supporting Initiative Costs to Programs⁴

This section describes how supporting initiative costs are allocated to programs for the purpose of cost test calculations.

In accordance with Directive 61 from the BCUC decision on the F05-F06 RRA, when calculating levelized costs and benefit cost ratios for this report, supporting initiative costs are allocated to DSM programs and rate structures based on their share of DSM electricity savings. Fiscal 2025 has been used as the year for energy savings allocation. As an example, rate structures and programs are forecast to save roughly 700 GWh/year in fiscal 2025, so a program that is forecast to save 7 GWh/year in fiscal 2025 represents one per cent of the total. In turn, one per cent of supporting initiative costs would be allocated to that program in each year when calculating the program's levelized cost or benefit-cost ratio.

³ DSM operating expenditures are not included in earlier tables.

⁴ In its Fiscal 2020 – Fiscal 2021 Revenue Requirements Application, BC Hydro has requested that Directive 61, which requires supporting initiative costs to be allocated to programs, be rescinded. A decision has not yet been made on this proceeding.