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July 10, 2020

Ms. Marija Tresoglavic
Acting Commission Secretary and Manager
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British Columbia Utilities Commission
Suite 410, 900 Howe Street
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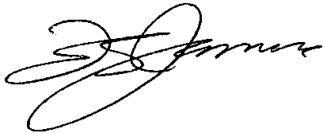
Dear Ms. Tresoglavic:

**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)
F2020 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, 2020.

For further information, please contact Chris Sandve at 604-974-4641 or by email at bchydroregulatorygroup@bchydro.com.

Yours sincerely,



Fred James
Chief Regulatory Officer

st/ma

Enclosure (1)



Report on Demand-Side Management Activities for Fiscal 2020

July 10, 2020



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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 2020 fiscal year, which is the twelve months ending March 31, 2020. 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 2020

BC Hydro's DSM expenditures¹ in fiscal 2020 totalled \$78.5 million, while new incremental DSM electricity savings totalled 722 GWh/year. Expenditures were \$12.4 million or 14 per cent below the Fiscal 2020 DSM Plan presented in BC Hydro's F20-F21 RRA. Overall, new incremental electricity savings as shown in [Table 1](#) were 22 GWh/year or 3 per cent above the DSM Plan.

[Table 1](#) presents planned and actual DSM expenditures and new incremental electricity savings in fiscal 2020.

¹ Comprising all DSM-related deferred operating expenditures. DSM operating expenditures are presented in [Table 6](#) of this report.



Table 1 Expenditures and New Incremental Electricity Savings for Fiscal 2020*

	Expenditures ¹				New Incremental Electricity Savings			
	Plan ² \$ 000	Actual \$ 000	Variance \$ 000	%	Plan ² GWh/yr	Actual ³ GWh/yr	Variance GWh/yr	%
Rate Structures								
Residential Inclining Block Rate	-	-	-	-	-	-	-	-
General Service Rate	-	-	-	-	-	-	-	-
Transmission Service Rate	452	294	(158)	(35%)	117	117	0	0%
Total Rate Structures	452	294	(158)	(35%)	117	117	0	0%
DSM Programs								
<i>Residential Sector</i>								
Low Income	5,819	5,165	(654)	(11%)	9	9	0	3%
Non Integrated Areas	1,208	920	(288)	(24%)	0.5	0.1	(0.3)	(69%)
Retail	2,120	2,392	272	13%	6	7	2	33%
Home Renovation Rebate	4,249	4,791	542	13%	8	9	1	12%
Residential Energy Management Activities	4,959	4,664	(295)	(6%)	13	19	6	42%
<i>Residential Sector Total</i>	18,354	17,932	(422)	(2%)	36	44	8	23%
<i>Commercial Sector</i>								
LEM-C	9,027	9,078	51	1%	51	48	(2)	(5%)
New Construction	3,676	3,296	(379)	(10%)	8	9	1	11%
Commercial Energy Management Activities	6,208	6,077	(130)	(2%)	n/a	n/a	n/a	n/a
<i>Commercial Sector Total</i>	18,910	18,452	(458)	(2%)	59	58	(1)	(2%)
<i>Industrial Sector</i>								
LEM-I	18,275	11,321	(6,954)	(38%)	132	129	(3)	(2%)
Thermo-Mechanical Pulp	-	-	-	-	-	-	-	-
Industrial Energy Management Activities	8,198	6,666	(1,532)	(19%)	n/a	n/a	n/a	n/a
<i>Industrial Sector Total</i>	26,474	17,987	(8,486)	(32%)	132	129	(3)	(2%)
Total Programs	63,738	54,371	(9,367)	(15%)	227	231	4	2%
Supporting Initiatives								
Public Awareness	7,423	7,328	(95)	(1%)	-	-	-	-
Indirect and Portfolio Enabling	7,133	6,851	(283)	(4%)	-	-	-	-
Supporting Initiatives Total	14,557	14,179	(378)	(3%)	-	-	-	-
Total Programs, Rates & Supporting Initiatives	78,747	68,844	(9,902)	(13%)	345	349	4	1%
Codes and Standards	5,185	5,246	61	1%	356	373	18	5%
Capacity Focused DSM	6,884	4,371	(2,513)	(37%)	-	-	-	-
PORTFOLIO TOTAL	90,816	78,462	(12,354)	(14%)	700	722	22	3%

* Numbers may not add due to rounding.

Notes:

¹ Including all DSM-related deferred operating expenditures.

² Plan figures are from BC Hydro's F20-F21 RRA, Appendix X.

³ Reported savings from codes and standards and residential inclining block and transmission service rate structures are based on planned estimates as well as evaluated results.



The following provides explanations of the variances between planned and actual expenditures and savings shown in [Table 1](#) above:

Rate Structures	
Transmission Service Rate	Expenditures were below plan due to planned rate design activities to explore potential changes to RS 1823 being delayed. Electricity savings were on plan.
DSM Programs	
Residential Sector	
Low Income	Expenditures were below plan due to: <ul style="list-style-type: none"> • the development of a heap pump trial offer requiring more time than planned, resulting in the launch of the trial being shifted to fiscal 2021. • some activities within the Indigenous Communities Conservation program offer (in the integrated system) taking longer than planned, and thus shifting to fiscal 2021². Electricity savings were approximately on plan.
Non Integrated Areas	Expenditures and savings were below plan due to some activities within the Indigenous Communities Conservation program offer taking longer than planned to implement and thus shifting to fiscal 2021. Refer to section 3 on Non Integrated Area Activity for further detail.
Retail	Expenditures and electricity savings were above plan due to higher than expected participation in our new online smart thermostat offering.
Home Renovation Rebate	Expenditures and electricity savings were above plan due to higher than expected participation, particularly with heat pumps.
Residential Energy Management Activities	Expenditures were approximately on plan. Electricity savings were above plan due to higher than projected participation in energy reduction challenges as well as higher use of the Energy Visualization Portlet.
Commercial Sector	
LEM-C	Expenditures and electricity savings were approximately on plan.
New Construction	Expenditures were below plan due to the customer deferral of a project to fiscal 2021. Electricity savings were above plan due to updated assumptions from a recently approved program evaluation report.
Commercial Energy Management Activities	Expenditures were approximately on plan.
Industrial Sector	
LEM-I	Expenditures were below plan due to fewer Industrial customers advancing large incentive projects and energy studies than planned. Electricity savings were approximately on plan due to strategic energy management activity enabling additional energy savings at a lower cost.
Thermo-Mechanical Pulping	No expenditures or electricity savings were planned.
Industrial Energy Management Activities	Expenditures were below plan due to a number of energy manager positions becoming vacant, and the time required for customers to fill the vacancies.

² The Indigenous Communities Conservation program offer is available to communities in both the integrated system and the non-integrated areas. Refer to section [3](#) on the Non-Integrated Area Activity for more details on activities that took longer than planned.



Total Programs	Expenditures were below plan primarily due to fewer Industrial customers advancing large incentive projects and energy studies than planned. Electricity savings were approximately on plan.
Supporting Initiatives	
Public Awareness	Expenditures were approximately on plan.
Indirect and Portfolio Enabling	Expenditures were approximately on plan.
Codes and Standards	Expenditures and electricity savings were approximately on plan.
Capacity Focused DSM	Expenditures were below plan due to pilot project initiatives shifting out into future fiscal years, coming in with lower costs than budgeted, or being cancelled.
Portfolio Total	Expenditures were below plan primarily due to fewer Industrial customers advancing large incentive projects and energy studies than planned as well as Capacity Focused Demand-Side Management pilot project initiatives shifting out into future fiscal years, coming in with lower costs than budgeted, or being cancelled. Electricity savings were approximately on plan.

3 Non-Integrated Area Activity

BC Hydro's fiscal 2020 DSM expenditures, electricity savings and cost effectiveness results for the Non Integrated Areas program are shown as a line item within [Table 1](#) through [Table 5](#) and [Table 7](#) to [Table 8](#), along with all other programs.

Non-Integrated Area (**NIA**) activity in fiscal 2020 included the launch of new program offers for Indigenous communities, residential and commercial customers to support energy upgrades in homes and buildings. New program offers include:

- Indigenous Communities Conservation Program Offer:
 - ▶ Free energy saving products, salary support and installation training to conduct upgrades such as energy efficient lighting, high performance faucets and showerheads, and basic draft proofing.
 - ▶ Training to complete advanced energy upgrades to homes (e.g., insulation and air sealing, ventilation, heat pumps) and rebates to support the cost of those upgrades.
- Higher rebates for NIA residential customers through Home Renovation Rebates.
- Higher incentives for NIA commercial customers through Business Energy Savings Incentives.



BC Hydro's Low Income Program, including Energy Savings Kits and the Energy Conservation Assistance Program, continue to be available to NIA customers. Starting in fiscal 2020, NIA participants in these program offers were funded through the NIA program.

In addition, BC Hydro supported various capacity building activities with NIA Indigenous communities including energy-focused staff positions on Band Administrations, community energy planning and new construction policy development.

As seen in [Table 1](#), savings and expenditures in the Non-Integrated Areas program were below plan for Fiscal 2020. Expenditures were closer to plan than energy savings as a result of the capacity building activities (components of the program which do not directly generate energy savings) tracking closer to plan than the components that generate energy savings (implementation of home energy upgrade projects). For example, capacity building activities planned and undertaken in Fiscal 2020 involved support for staff positions in NIA Indigenous communities, training, planning, and analysis. While these activities do not generate savings in the short term, they are critical activities which form the foundation of the program and will enable communities to advance DSM energy savings projects over time. With these foundational activities in place, participation is expected to ramp up to the scale where cost-effectiveness aligns more closely with planned levels.

For the components of the program that generate energy savings (home energy upgrade projects), it took longer than planned for participation to gain momentum. To assist with this, BC Hydro hired a Relationship Manager in June 2019, whose role is to foster relationships with Indigenous Communities and find and assist local champions. While this approach has now gained traction, few projects were ready for implementation in time for the summer 2019 construction period. However, based on signed agreements and interest from communities, we expect an increased volume of implementation projects in fiscal 2021. This will improve the cost-effectiveness of the overall program.



4 Expenditures to Date

BC Hydro's DSM expenditures for fiscal 2020 totalled \$78.5 million. [Table 2](#) presents DSM expenditures from April 1, 2019 to March 31, 2020.

Table 2 Expenditures since Fiscal 2020*

	F2020 (\$ 000)	F2021 (\$ 000)	Total (\$ 000)
Rate Structures			
Residential Inclining Block Rate	-	-	-
General Service Rate	-	-	-
Transmission Service Rate	294	-	294
Total Rate Structures	294	-	294
DSM Programs			
<i>Residential Sector</i>			
Low Income	5,165	-	5,165
Non Integrated Areas	920	-	920
Retail	2,392	-	2,392
Home Renovation Rebate	4,791	-	4,791
Residential Energy Management Activities	4,664	-	4,664
<i>Residential Sector Total</i>	17,932	-	17,932
<i>Commercial Sector</i>			
LEM-C	9,078	-	9,078
New Construction	3,296	-	3,296
Commercial Energy Management Activities	6,077	-	6,077
<i>Commercial Sector Total</i>	18,452	-	18,452
<i>Industrial Sector</i>			
LEM-I	11,321	-	11,321
Thermo-Mechanical Pulp	-	-	-
Industrial Energy Management Activities	6,666	-	6,666
<i>Industrial Sector Total</i>	17,987	-	17,987
Total Programs	54,371	-	54,371
Supporting Initiatives			
Public Awareness	7,328	-	7,328
Indirect and Portfolio Enabling	6,851	-	6,851
Supporting Initiatives Total	14,179	-	14,179
Total Programs, Rates & Supporting Initiatives	68,844	-	68,844
Codes and Standards	5,246	-	5,246
Capacity Focused DSM	4,371	-	4,371
PORTFOLIO TOTAL	78,462	-	78,462

* Numbers may not add due to rounding.



BC Hydro's DSM electricity savings since fiscal 2020 totalled 722 GWh/year at March 31, 2020, which equates to 103 per cent of the planned savings of 700 GWh/year in the F20-F21 RRA. [Table 3](#) presents actual cumulative savings as a percentage of plan in fiscal 2020.

Table 3 Cumulative Electricity Savings: Fiscal 2020

Actual as a Percentage of Plan ¹	
Rate Structures	
Residential Inclining Block Rate	n/a
General Service Rate	n/a
<u>Transmission Service Rate</u>	<u>100%</u>
Total Rate Structures	100%
DSM Programs	
<i><u>Residential Sector</u></i>	
Low Income	103%
Non Integrated Areas	31%
Retail	133%
Home Renovation Rebate	112%
<u>Residential Energy Management Activities</u>	<u>142%</u>
<i>Residential Sector Total</i>	123%
<i><u>Commercial Sector</u></i>	
LEM-C	95%
New Construction	111%
<u>Commercial Energy Management Activities</u>	<u>n/a</u>
<i>Commercial Sector Total</i>	98%
<i><u>Industrial Sector</u></i>	
LEM-I	98%
Thermo-Mechanical Pulp	n/a
<u>Industrial Energy Management Activities</u>	<u>n/a</u>
<i>Industrial Sector Total</i>	98%
Total Programs	102%
Codes and Standards	105%
Capacity Focused DSM	n/a
PORTFOLIO TOTAL	103%

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, 2019 through March 31, 2020 have been achieved at an average net levelized utility cost of \$25 per MWh. [Table 4](#) 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 4 Utility Cost of Electricity Savings: Fiscal 2020

	Net Levelized Utility Cost (\$/MWh)
Rate Structures	
Residential Inclining Block Rate	n/a
General Service Rate	n/a
Transmission Service Rate	-6
Total Rate Structures	-6
DSM Programs	
<i>Residential Sector</i>	
Low Income	22
Non Integrated Areas	609
Retail	2
Home Renovation Rebate	-2
<i>Residential Sector Total</i>	9
<i>Commercial Sector</i>	
LEM-C	11
New Construction	13
<i>Commercial Sector Total</i>	12
<i>Industrial Sector</i>	
LEM-I	8
Thermo-Mechanical Pulp	n/a
<i>Industrial Sector Total</i>	8
Total Programs	9
Energy Management Activities	n/a
Supporting Initiatives ¹	n/a
Codes & Standards	n/a
Portfolio Total²	25

Notes:

- 1 Supporting initiatives costs have not been allocated to programs. Refer to section [6](#) for net levelized utility cost with supporting initiative costs allocated to programs.
- 2 Energy management activities, supporting initiatives costs and codes and standards costs are included at the portfolio level. Capacity focused DSM is not included in cost-effectiveness calculations because this initiative is still in the trial and pilot project stage and therefore the associated benefits have not yet been quantified.

[Table 5](#) presents benefit cost-ratios of actual DSM electricity savings achieved from April 1, 2019 through March 31, 2020.

**Table 5 Benefit Cost Ratios of Electricity Savings:
Fiscal 2020**

	Benefit Cost Ratios ¹			
	LRMC (\$105 per MWh)			Market Price (\$30 per MWh)
	Modified Total Resource Cost Test ²	Total Resource Cost Test excluding NEBs	Ratepayer Impact Measure Test ³	Utility Cost Test
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
Transmission Service Rate	<u>4.7</u>	<u>4.7</u>	<u>1.0</u>	<u>23.2</u>
Total Rate Structures	4.7	4.7	1.0	23.2
DSM Programs				
<i>Residential Sector</i>				
Low Income ⁴	4.5	4.7	0.9	1.2
Non Integrated Areas ⁵	0.6	0.6	0.4	0.5
Retail	3.7	3.8	1.1	2.1
Home Renovation Rebate	<u>1.8</u>	<u>1.4</u>	<u>0.9</u>	<u>2.0</u>
<i>Residential Sector Total</i>	2.5	2.2	0.9	1.6
<i>Commercial Sector</i>				
LEM-C	3.4	2.1	1.1	1.8
New Construction	<u>1.8</u>	<u>1.5</u>	<u>1.1</u>	<u>1.7</u>
<i>Commercial Sector Total</i>	2.9	1.9	1.1	1.8
<i>Industrial Sector</i>				
LEM-I	5.3	3.8	1.1	2.2
Thermo-Mechanical Pulp	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
<i>Industrial Sector Total</i>	5.3	3.8	1.1	2.2
Total Programs	3.4	2.5	1.1	1.8
Energy Management Activities	n/a	n/a	n/a	n/a
Supporting Initiatives ⁶	n/a	n/a	n/a	n/a
Codes & Standards	n/a	n/a	n/a	n/a
Portfolio Total⁷	2.5	2.0	0.9	1.1

Notes:

- ¹ To align with BC Hydro's F20-F21 RRA, this report uses a long-run marginal cost (LRMC) of \$105 per MWh. As described in BC Hydro's F20-F21 RRA, Chapter 10, this value is based on an outdated assessment of greenfield wind projects, including BC Hydro's cost to integrate and deliver energy to the load centre (Lower Mainland). BC Hydro plans to update the LRMC in the next IRP. Internal decisions on demand-side measures are based on the Utility Cost Test at market price and not on the LRMC.
- ² In accordance with the DSM Regulation, the avoided cost of natural gas is valued at BC Hydro's LRMC of acquiring electricity generated from clean or renewable resources in B.C. converted to \$/gigajoule (GJ) in all time periods. Non-energy benefits in the DSM Regulation are valued at 15 per cent of the energy and capacity benefits of electricity and natural gas, or as quantified by the Utility.
- 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 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 Avoided costs in all cost tests are based on NIA generation costs.
- ⁶ Supporting initiatives costs have not been allocated to programs. Refer to section 6 for benefit cost ratios with supporting initiative costs allocated to programs.
- ⁷ Energy management activities, supporting initiatives costs and codes and standards costs are included at the portfolio level. Capacity focused DSM is not included in cost-effectiveness calculations because this initiative is still in the trial and pilot project stage and therefore the associated benefits have not yet been quantified.



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 to address areas where cumulative energy savings are below plan. For some initiatives where cumulative energy savings are on or above plan, the table includes planned actions to ensure performance is maintained.

Rate Structures	
Industrial Transmission	Cumulative electricity savings in fiscal 2020 were on plan.
DSM Programs	
Residential Sector	
Low Income	Cumulative electricity savings in fiscal 2020 were approximately on plan. Promotional activities have broadened to include social media and online advertising to further raise program awareness.
Non Integrated Area	Cumulative electricity savings in fiscal 2020 were below plan. The addition of a Relationship Manager to foster relationships with Indigenous Communities and find and assist local champions has gained traction and is expected to help keep identified project opportunities progressing to completion in fiscal 2021. This will improve cost effectiveness.
Retail	Cumulative electricity savings in fiscal 2020 were above plan. The program is exploring more online sales through partnerships and means of increasing online education on efficient products.
Home Renovation Rebate	Cumulative electricity savings in fiscal 2020 were above plan. The program continues to drive contractor engagement and development of education to ensure installation best practice through Program Registered Contractors.
Residential Energy Management Activities	Cumulative electricity savings were above plan. A mobile device friendly version of the Energy Visualization Portlet was launched and a mobile device friendly version of Team Power Smart will launch in early fiscal 2021 to further align with customer migration away from desktop devices.
Commercial Sector	
LEM-C	Cumulative electricity savings in fiscal 2020 were approximately on plan. Going forward, the program will continue to make adjustments based on market feedback, working with large key account customers to remove their barriers to adoption, providing energy advisors to assist small and medium businesses, and reviewing the list of eligible energy conservation measures.
New Construction	Cumulative electricity savings in fiscal 2020 were above plan. The program is ramping down.
Industrial Sector	
LEM-I	Cumulative savings in fiscal 2020 were approximately on plan. The program will continue to leverage strategic energy management activities and the program offer will be adjusted to stimulate participation in the incentive and study offers.
Thermo-Mechanical Pulping	The Thermo Mechanical Pulp program was implemented pursuant to Government direction, and was subject to specific criteria and timelines. The deadline for project submission has passed and no further projects are planned through this program.
Capacity Focused DSM	No capacity savings in fiscal 2020 as these are pilot initiatives.

5 Operating Expenditures for Fiscal 2020

BC Hydro's DSM operating expenditures in fiscal 2020 totalled \$569,234.³ [Table 6](#) presents DSM operating expenditures in fiscal 2020.

Table 6 Operating Expenditures for Fiscal 2020

	(\$000)
Labour	504
Consultants/Contractors/Temp Labour	4
Other	61
Total	569

6 Allocation of Supporting Initiatives Costs to Programs

Directive 61 from the BCUC decision on the F05-F06 RRA requires supporting initiatives costs to be allocated to programs. In its Fiscal 2020 to Fiscal 2021 Revenue Requirements Application, BC Hydro has requested that Directive 61 be rescinded, as costs should only be attributed to programs if they are solely connected to a specific program. As described in the application, this approach is more consistent with the Demand-Side Measures Regulation and industry practice, and also facilitates more appropriate marginal cost decision making when designing a DSM portfolio.

Accordingly, [Table 4](#) and [Table 5](#) do not allocate supporting initiatives to programs.

Since the BCUC has not yet made a decision on whether to rescind Directive 61, we are also providing levelized costs and benefit cost ratios with supporting initiatives costs allocated to programs in [Table 7](#) and [Table 8](#) below.

Fiscal 2025 has been used as the year for energy savings allocation. As an example, if rate structures and programs are forecast to save roughly 700 GWh/year in fiscal 2025, a program that is forecast to save 7 GWh/year in fiscal 2025 represents 1 per cent of the total. In turn, 1 per cent of supporting initiatives 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.

Table 7 Utility Cost of Electricity Savings with Supporting Initiative Costs Allocated to Programs: Fiscal 2020

	Net Levelized Utility Cost (\$/MWh)
Rate Structures	
Residential Inclining Block Rate	n/a
General Service Rate	n/a
<u>Transmission Service Rate</u>	<u>0</u>
Total Rate Structures	0
DSM Programs	
<u>Residential Sector</u>	
Low Income	32
Non Integrated Areas	618
Retail	12
Home Renovation Rebate	<u>6</u>
<i>Residential Sector Total</i>	19
<u>Commercial Sector</u>	
LEM-C	21
New Construction	<u>23</u>
<i>Commercial Sector Total</i>	21
<u>Industrial Sector</u>	
LEM-I	15
Thermo-Mechanical Pulp	<u>n/a</u>
<i>Industrial Sector Total</i>	15
Total Programs	18
Energy Management Activities	n/a
Supporting Initiatives ¹	n/a
Codes & Standards	n/a
Portfolio Total²	25

Notes:

- Supporting initiatives costs have been allocated to programs.
- Energy management activities and codes and standards costs are included at the portfolio level. Capacity focused DSM is not included in cost-effectiveness calculations because this initiative is still in the trial and pilot project stage and therefore the associated benefits have not yet been quantified.

Table 8 Benefit Cost Ratios of Electricity Savings with Supporting Initiative Costs Allocated to Programs: Fiscal 2020

	Benefit Cost Ratios ¹			
	LRMC (\$105 per MWh)			Market Price (\$30 per MWh)
	Modified Total Resource Cost Test ²	Total Resource Cost Test excluding NEBs	Ratepayer Impact Measure Test ³	Utility Cost Test
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
Transmission Service Rate	<u>3.8</u>	<u>3.8</u>	<u>0.9</u>	<u>4.7</u>
Total Rate Structures	3.8	3.8	0.9	4.7
DSM Programs				
<i>Residential Sector</i>				
Low Income ⁴	3.6	3.7	0.8	1.0
Non Integrated Areas ⁵	0.6	0.6	0.4	0.5
Retail	2.8	2.9	1.0	1.5
Home Renovation Rebate	<u>1.7</u>	<u>1.3</u>	<u>0.9</u>	<u>1.7</u>
<i>Residential Sector Total</i>	2.2	2.0	0.9	1.3
<i>Commercial Sector</i>				
LEM-C	2.9	1.8	1.0	1.3
New Construction	<u>1.7</u>	<u>1.3</u>	<u>1.0</u>	<u>1.2</u>
<i>Commercial Sector Total</i>	2.5	1.7	1.0	1.3
<i>Industrial Sector</i>				
LEM-I	4.3	3.0	1.1	1.5
Thermo-Mechanical Pulp	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
<i>Industrial Sector Total</i>	4.3	3.0	1.1	1.5
Total Programs	2.9	2.1	1.0	1.4
Energy Management Activities	n/a	n/a	n/a	n/a
Supporting Initiatives ⁶	n/a	n/a	n/a	n/a
Codes & Standards	n/a	n/a	n/a	n/a
Portfolio Total⁷	2.5	2.0	0.9	1.1

Notes:

- ¹ To align with BC Hydro's F20-F21 RRA, this report uses a long-run marginal cost (LRMC) of \$105 per MWh. As described in BC Hydro's F20-F21 RRA, Chapter 10, this value is based on an outdated assessment of greenfield wind projects, including BC Hydro's cost to integrate and deliver energy to the load centre (Lower Mainland). BC Hydro plans to update its LRMC in the next IRP. Internal decisions on demand-side measures are based on the Utility Cost Test at market price and not on the LRMC.
- ² In accordance with the DSM Regulation, the avoided cost of natural gas is valued at BC Hydro's LRMC of acquiring electricity generated from clean or renewable resources in B.C. converted to \$/gigajoule (GJ) in all time periods. Non-energy benefits in the DSM Regulation are valued at 15 per cent of the energy and capacity benefits of electricity and natural gas or as quantified by the Utility.
- 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 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 Avoided costs for all cost tests are based on NIA generation costs.
- ⁶ Supporting initiatives costs have been allocated to programs.
- ⁷ Energy management activities and codes and standards costs are included at the portfolio level. Capacity focused DSM is not included in cost-effectiveness calculations because this initiative is still in the trial and pilot project stage and therefore the associated benefits have not yet been quantified.