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July 15, 2021

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)
Fiscal 2005 – Fiscal 2006 Revenue Requirements Application
BCUC Decision G-96-04 dated October 29, 2004: Directive 69
(AMENDED pursuant to 2006 Integrate Electricity Plan and
2006 Long-Term Acquisition Plan
BCUC Decision G-29-07 dated May 11, 2007: Directive 16)
2008 Long-Term Acquisition Plan
BCUC Decision G-91-09 dated July 27, 2009: Directives 36, 38 and 42
Fiscal 2017 – Fiscal 2019 Revenue Requirements Application
BCUC Decision G-47-18 dated March 1, 2018: Directive 23
Fiscal 2020 – Fiscal 2021 Revenue Requirements Application
BCUC Decision G-246-20 dated October 2, 2020: Directives 47, 49, 50 and
51**

BC Hydro writes to provide its Report on Demand Side Management Activities for the 12 months ending March 31, 2021.

For further information, please contact Joe Maloney at 604-623-4348 or by email at bchydroregulatorygroup@bchydro.com.

Yours sincerely,



Chris Sandve
Chief Regulatory Officer

st/rh

Enclosure



Report on Demand-Side Management Activities for Fiscal 2021

July 15, 2021

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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 2021 fiscal year, which is the twelve months ending March 31, 2021. This report also provides information on Low Carbon Electrification expenditures within the DSM Regulatory Account.

This annual report is filed in compliance with, or to reflect, the following BCUC Directives:

- Directive 69 from the BCUC Decision G-96-04 on BC Hydro's Fiscal 2005 to Fiscal 2006 Revenue Requirements Application (**F05-F06 RRA**);
- Directive 16 from the BCUC Decision G-29-07 on BC Hydro's 2006 Integrated Electricity Plan and Long-Term Acquisition Plan (**2006 IEP/LTAP**);
- Directives 36, 38, and 42 from the BCUC Decision G-91-09 on BC Hydro's 2008 Long-Term Acquisition Plan (**2008 LTAP**);
- Directive 23 from the BCUC Decision G-47-18 on BC Hydro's Fiscal 2017 to Fiscal 2019 Revenue Requirements Application (**F17-F19 RRA**); and
- Directive 47, 49, 50 and 51 from the BCUC Decision G-246-20 on BC Hydro's Fiscal 2020 to Fiscal 2021 Revenue Requirements Application (**F20-F21 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-9604 and to file its Semi Annual Demand-Side Management Reports in the same format as the June 2005 Report with the following enhancements:

- (i) Provide annual and cumulative totals since program inception;
- (ii) Express these values on a per unit basis; and
- (iii) Provide the benefit to cost ratios for the three DSM tests.”

Directive 36 of the 2008 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 42 of the 2008 LTAP Decision directed BC Hydro to continue to report on a Ratepayer Impact Measure (**RIM**) test values.

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 Non-Integrated Area (**NIA**) activities that are tracked separately.”

Directive 47 of the F20-F21 RRA Decision directed BC Hydro, among other things, to report on the progress of the NIA program in future annual DSM reports, and in the fiscal 2023 Revenue Requirements Application, “including an assessment of whether that program has been effective in reducing barriers for Non-Integrated Area customers in accessing DSM offerings and thereby meeting the objective of Directive 23 from the 2017 to 2019 Revenue Requirements Application.”

Directive 49 of the F20-F21 RRA Decision directed BC Hydro “to report on the Low Carbon Electrification expenditures within the DSM Regulatory Account annually in its annual DSM report to the BCUC, clearly allocated to the applicable classes defined in section 4(3) (a), (b), (c) or (d) of the GRR, including a consolidated table with a break down between the Initial LCE and BC Hydro LCE projects and programs.”

Directive 50 of the F20-F21 RRA Decision rescinded Directive 61 from Order G-96-04 on BC Hydro’s F05-F06 RRA.

Directive 51 of the F20-F21 RRA Decision determined that BC Hydro may make inter-year and inter-program area transfers, as follows:

- BC Hydro may transfer unspent accepted DSM expenditures in a program area to the same program area in the following year of the Test Period, on the condition that BC Hydro provides information regarding unspent amounts as part of its annual DSM reports so that all amounts transferred within a program area are transparently accounted for from one test year to the next; and

-
- The Panel accepted the DSM expenditure schedule including transfers of up to 25 per cent of DSM expenditures from any one existing program area to any other existing program area.

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, 38, and 42 of the 2008 LTAP Decision, Directive 23 of the F17-F19 RRA Decision and Directives 47, 49, 50 and 51 of the F20-F21 RRA.

2 Expenditures and Electricity Savings for Fiscal 2021 as a Result of DSM activities

BC Hydro's DSM expenditures¹ in fiscal 2021 totalled \$77 million, while new incremental DSM electricity savings totalled 780 GWh/year. Expenditures were \$12 million or 14 per cent below the Fiscal 2021 DSM Plan presented in BC Hydro's F20-F21 RRA. Overall, new incremental electricity savings as shown in [Table 1](#) were 27 GWh/year or 4 per cent above the DSM Plan.

BC Hydro confirms that no unspent accepted DSM expenditures from fiscal 2020 were transferred to fiscal 2021. BC Hydro also confirms that over fiscal 2021, no transfers between program areas were made beyond the allowed levels.

[Table 1](#) presents planned and actual DSM expenditures and new incremental electricity savings in fiscal 2021.

¹ Comprising all DSM-related deferred operating expenditures. DSM operating expenditures are presented in [Table 8](#) of this report.

Table 1 Expenditures and New Incremental Electricity Savings for Fiscal 2021*

	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	-	-	-	-	-	-	-	-
<u>Transmission Service Rate</u>	454	389	(65)	(14%)	118	119	2	1%
Total Rate Structures	454	389	(65)	(14%)	118	119	2	1%
DSM Programs								
<i>Residential Sector</i>								
Low Income	6,924	4,271	(2,654)	(38%)	9	5	(4)	(44%)
Non Integrated Areas	1,424	1,489	65	5%	0.6	0.4	(0.2)	(39%)
Retail	2,107	2,379	272	13%	5	9	4	74%
Home Renovation Rebate	4,360	5,952	1,592	37%	8	9	1	8%
<u>Residential Energy Management Activities</u>	4,888	4,245	(644)	(13%)	13	21	8	60%
<i>Residential Sector Total</i>	19,703	18,336	(1,367)	(7%)	36	44	8	23%
<i>Commercial Sector</i>								
LEM-C	9,102	9,121	19	0%	47	46	(1)	(2%)
New Construction	2,355	1,744	(610)	(26%)	5	5	(0)	(6%)
<u>Commercial Energy Management Activities</u>	6,091	5,288	(803)	(13%)	n/a	n/a	n/a	n/a
<i>Commercial Sector Total</i>	17,547	16,153	(1,395)	(8%)	52	51	(1)	(2%)
<i>Industrial Sector</i>								
LEM-I	18,525	14,913	(3,613)	(20%)	136	160	24	18%
Thermo-Mechanical Pulp	-	(2,672)	(2,672)	-	-	n/a	-	-
<u>Industrial Energy Management Activities</u>	8,362	6,905	(1,457)	(17%)	n/a	n/a	n/a	n/a
<i>Industrial Sector Total</i>	26,887	19,146	(7,741)	(29%)	136	160	24	18%
Total Programs	64,138	53,635	(10,503)	(16%)	224	255	31	14%
Supporting Initiatives								
Public Awareness	7,500	6,986	(514)	(7%)	-	-	-	-
<u>Indirect and Portfolio Enabling</u>	7,350	7,114	(236)	(3%)	-	-	-	-
Supporting Initiatives Total	14,851	14,101	(750)	(5%)	-	-	-	-
Total Programs, Rates & Supporting Initiatives	79,443	68,125	(11,318)	(14%)	342	375	33	10%
Codes and Standards	5,343	5,216	(127)	(2%)	411	405	(6)	(1%)
Capacity Focused DSM	4,266	3,664	(602)	(14%)	-	-	-	-
PORTFOLIO TOTAL	89,052	77,005	(12,047)	(14%)	753	780	27	4%

* 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.

[Table 2](#) provides explanations of the variances between planned and actual expenditures and savings shown in [Table 1](#) above:

Table 2 Variance Explanations between Planned and Actual Expenditures and Savings for Fiscal 2021

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 approximately on plan.
DSM Programs	
Residential Sector	
Low Income	Expenditures and savings were below plan due to the COVID-19 pandemic that forced the Energy Conservation Assistance Program (ECAP) portion of the program to suspend operations for four months. Participation was slow to recover once in-home visits resumed.
Non-Integrated Areas	Expenditures were approximately on plan. Electricity savings were below plan primarily due to the impact of the COVID-19 pandemic, which prevented on-site visits in some participating communities due to local health and safety protocols. In response, the program re-allocated dollars from incentives to provide more enabling support to Indigenous Nations, which brought program expenditures in approximately on plan.
Retail	Expenditures and savings were above plan due to higher participation in most product categories than planned during Q3 campaign, driven in large part by COVID-19 pandemic influenced demand in retail do-it-yourself home improvements.
Home Renovation Rebate	Expenditures and savings were above plan due to strong participation driven by the increased rebate promotion which was implemented in Q3 to support contractors and customers impacted by the COVID-19 pandemic.
Residential Energy Management Activities	Expenditures were below plan due to planned activities being deferred. Savings were above plan due to higher than planned participation in energy reduction challenges and higher than planned participation in the Energy Visualization Portlet where customers can see their detailed consumption history to determine when they are using electricity and opportunities to conserve.
Commercial Sector	
Leaders in Energy Management – Commercial (LEM-C)	Expenditures and electricity savings were approximately on plan.
New Construction	Expenditures were below plan due to a customer project being deferred to fiscal 2022 and resulting adjustments to project incentives. Electricity savings were approximately on plan.

Commercial Energy Management Activities	Expenditures were below plan due to energy manager positions becoming vacant at customers' sites, and the time required for customers to fill the vacancies.
Industrial Sector	
Leaders in Energy Management – Industrial (LEM-I)	Expenditures were below plan due to fewer incentive projects with customers than planned. Electricity savings were above plan due to higher savings from strategic energy management activity and customer-funded projects.
Thermo-Mechanical Pulp	No expenditures or electricity savings were planned. However, historical electricity savings were reduced based on actual performance of a project. The total incentive provided for the project was reduced to reflect the adjusted electricity savings. This resulted in a negative variance in expenditures.
Industrial Energy Management Activities	Expenditures were below plan due to energy manager positions becoming vacant, and the time required for customers to fill the vacancies.
Total Programs	Expenditures were below plan primarily due to fewer Industrial customers advancing incentive projects than planned, a reduction in incentives paid out to a customer in the Thermo-Mechanical Pulping program and Low-Income program operation suspensions due to the COVID-19 pandemic. Electricity savings were above plan primarily due to Industrial strategic energy management and customer-funded projects achieving higher savings than planned.
Supporting Initiatives	
Public Awareness	Expenditures were below plan due to Public Awareness activities being impacted by the COVID-19 pandemic restrictions which limited the opportunities for in-person community outreach and in-person school education programs and related expenses.
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 delays in activities resulting from the impact of the COVID-19 pandemic.
Portfolio Total	Expenditures were below plan primarily due to fewer Industrial customers advancing incentive projects than planned, a reduction in the incentive provided to a customer in the Thermo-Mechanical Pulp program and Low-Income program operation suspensions due to the COVID-19 pandemic. Electricity savings were above plan primarily due to Industrial strategic energy management and customer-funded projects achieving higher savings than planned.

3 Non-Integrated Areas Activity

BC Hydro's fiscal 2021 DSM expenditures, electricity savings and cost effectiveness results for the NIA program are shown as a line item within [Table 1](#) and [Table 3](#) through [Table 6](#), along with all other programs.

The barriers that BC Hydro has identified and is trying to address with the NIA program include awareness, acceptability, affordability, availability, and accessibility. The main components of the NIA program include:

- Indigenous Communities Conservation Program, which contains two streams:
 - ▶ Stream 1 provides free energy saving products, salary support and installation training for Indigenous Nations to hire local installers to conduct home energy upgrades such as energy efficient lighting, high performance faucets and showerheads, and basic draft proofing and to assess homes for additional energy-saving opportunities.
 - ▶ Stream 2 provides training to Indigenous Nations and their contractors to complete advanced home energy upgrades and provides rebates to support the cost of those upgrades (e.g., insulation, windows, doors, ventilation, heat pumps, etc.).

For communities that choose not to participate in the Indigenous Communities Conservation Program and for all other customers within the NIA, the following offers are available:

- Energy Savings Kits: free energy saving products are offered to NIA residential customers that they can install in their own homes;
- Home Renovation Rebates: NIA residential customers are offered bonus rebates on eligible home energy upgrades; and
- Business Energy Savings Incentives: NIA commercial customers, including Indigenous Nations, are eligible for bonus incentives through this program.

In addition to the above activities, BC Hydro has also implemented the following initiatives to help address barriers:

- Creation of a new role at BC Hydro that works directly with Indigenous Nations to support their participation in our programs; and
- Provision of funding for Energy Champion positions for the Indigenous communities, plus associated peer networks and training opportunities for Indigenous Nations.

NIA program activities in fiscal 2021 focused on the continued ramp up of the program as well as identifying ways to try to mitigate the impacts of the COVID-19 pandemic on NIA program delivery. Despite the COVID-19 pandemic, BC Hydro saw continued interest and a 30 per cent increase in program participation over fiscal 2020. In particular, BC Hydro continued provide support to Indigenous Nations to hire local installers and contractors so that home energy upgrades could continue in many communities, with protocols in place to adhere to provincial and local health orders.

For residential customers in the NIA, BC Hydro continued to offer bonus rebates on weatherization upgrades and introduced an increased rebate promotion on heat pumps. In addition, a direct mail campaign in the fall of 2020 encouraged NIA residential customers to order free Energy Savings Kits ahead of the winter heating season. With participation and energy savings below plan, BC Hydro provided more enabling support (e.g., funding energy focused staff positions, community energy planning, etc.) to Indigenous Nations. This support will help to build community capacity to pursue conservation and energy management activities and community goals.

BC Hydro is in the process of developing a performance measurement framework with Indigenous communities for the NIA program, which it expects to use to report on how the program is addressing community goals and barriers.

4 Expenditures to Date

BC Hydro's DSM expenditures for fiscal 2021 totalled \$77 million. [Table 3](#) presents DSM expenditures from April 1, 2020 to March 31, 2021.

Table 3 Expenditures for Fiscal 2020 to Fiscal 2021*

	F2020 (\$ 000)	F2021 (\$ 000)	Total (\$ 000)
Rate Structures			
Residential Inclining Block Rate	-	-	-
General Service Rate	-	-	-
Transmission Service Rate	294	389	684
Total Rate Structures	294	389	684
DSM Programs			
<i>Residential Sector</i>			
Low Income	5,165	4,271	9,436
Non Integrated Areas	920	1,489	2,409
Retail	2,392	2,379	4,771
Home Renovation Rebate	4,791	5,952	10,743
<u>Residential Energy Management Activities</u>	4,664	4,245	8,909
<i>Residential Sector Total</i>	17,932	18,336	36,268
<i>Commercial Sector</i>			
LEM-C	9,078	9,121	18,199
New Construction	3,296	1,744	5,041
<u>Commercial Energy Management Activities</u>	6,077	5,288	11,365
<i>Commercial Sector Total</i>	18,452	16,153	34,605
<i>Industrial Sector</i>			
LEM-I	11,321	14,913	26,234
Thermo-Mechanical Pulp	-	(2,672)	(2,672)
<u>Industrial Energy Management Activities</u>	6,666	6,905	13,571
<i>Industrial Sector Total</i>	17,987	19,146	37,133
Total Programs	54,371	53,635	108,006
Supporting Initiatives			
Public Awareness	7,328	6,986	14,315
<u>Indirect and Portfolio Enabling</u>	6,851	7,114	13,965
Supporting Initiatives Total	14,179	14,101	28,280
Total Programs, Rates & Supporting Initiatives	68,844	68,125	136,969
Codes and Standards	5,246	5,216	10,462
Capacity Focused DSM	4,371	3,664	8,035
PORTFOLIO TOTAL	78,462	77,005	155,467

* Numbers may not add due to rounding.

BC Hydro's DSM electricity savings since the beginning of fiscal 2020 totalled 1,340 GWh/year at March 31, 2021, which equates to 103 per cent of the planned savings of 1,300 GWh/year in the F20-F21 RRA. [Table 4](#) presents actual cumulative savings as a percentage of plan as of the end of fiscal 2021.

**Table 4 Cumulative Electricity Savings:
Fiscal 2020 to Fiscal 2021**

Actual as a Percentage of Plan¹	
Rate Structures	
Residential Inclining Block Rate	n/a
General Service Rate	n/a
<u>Transmission Service Rate</u>	<u>103%</u>
Total Rate Structures	103%
DSM Programs	
<i><u>Residential Sector</u></i>	
Low Income	79%
Non Integrated Areas	47%
Retail	153%
Home Renovation Rebate	110%
<u>Residential Energy Management Activities</u>	<u>145%</u>
<i>Residential Sector Total</i>	120%
<i><u>Commercial Sector</u></i>	
LEM-C	94%
New Construction	101%
<u>Commercial Energy Management Activities</u>	<u>n/a</u>
<i>Commercial Sector Total</i>	95%
<i><u>Industrial Sector</u></i>	
LEM-I	108%
Thermo-Mechanical Pulp	n/a
<u>Industrial Energy Management Activities</u>	<u>n/a</u>
<i>Industrial Sector Total</i>	108%
Total Programs	106%
Codes and Standards	101%
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, 2021 have been achieved at an average net levelized utility cost of \$23 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 2020 to Fiscal 2021**

	Net Levelized Utility Cost (\$/MWh)
Rate Structures	
Residential Inclining Block Rate	n/a
General Service Rate	n/a
<u>Transmission Service Rate</u>	<u>-5</u>
Total Rate Structures	-5
DSM Programs	
<u>Residential Sector</u>	
Low Income	31
Non Integrated Areas	363
Retail	-2
Home Renovation Rebate	0
<i>Residential Sector Total</i>	11
<u>Commercial Sector</u>	
LEM-C	7
New Construction	<u>14</u>
<i>Commercial Sector Total</i>	8
<u>Industrial Sector</u>	
LEM-I	9
Thermo-Mechanical Pulp	<u>n/a</u>
<i>Industrial Sector Total</i>	7
Total Programs	8
Energy Management Activities	n/a
Supporting Initiatives ¹	n/a
Codes & Standards	n/a
Portfolio Total²	23

Notes:

- Supporting initiatives costs have not been allocated to programs per Directive 50 of the F20-F21 RRA Decision, which rescinds Directive 61 from Order G-96-04 on BC Hydro's F05-F06 RRA. Directive 61 had directed BC Hydro to add a prorated amount of costs from supporting initiatives to the cost of each DSM program to assess cost-effectiveness.
- 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 stage and therefore the associated benefits have not yet been quantified.

[Table 6](#) presents benefit cost-ratios of actual DSM electricity savings achieved from April 1, 2019 through March 31, 2021.

Table 6 Benefit Cost Ratios of Electricity Savings: Fiscal 2020 to Fiscal 2021

	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>3.3</u>	<u>3.3</u>	<u>1.0</u>	<u>29.0</u>
Total Rate Structures	3.3	3.3	1.0	29.0
DSM Programs				
<i>Residential Sector</i>				
Low Income ⁴	4.0	4.2	0.9	1.0
Non Integrated Areas ^{4&5}	1.1	1.1	0.7	0.9
Retail	3.6	3.7	1.1	2.4
Home Renovation Rebate	<u>1.9</u>	<u>1.4</u>	<u>0.9</u>	<u>1.9</u>
<i>Residential Sector Total</i>	2.4	2.1	0.9	1.6
<i>Commercial Sector</i>				
LEM-C ⁴	4.2	2.8	1.2	2.2
New Construction	<u>1.8</u>	<u>1.3</u>	<u>1.1</u>	<u>1.6</u>
<i>Commercial Sector Total</i>	3.5	2.3	1.2	2.1
<i>Industrial Sector</i>				
LEM-I	6.1	4.4	1.1	2.1
Thermo-Mechanical Pulp	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
<i>Industrial Sector Total</i>	6.1	4.4	1.1	2.3
Total Programs	3.7	2.8	1.1	2.0
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	2.6	2.0	0.9	1.2

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, Non-Integrated Areas and Social Housing Retrofit component of the LEM-C Program include a 40 per cent adder to program benefits, in accordance with the DSM Regulation.
5. Avoided costs in all NIA cost tests are based on NIA generation costs \$300 per MWh (F2015\$).
6. Supporting initiatives costs have not been allocated to programs per Directive 50 of the F20-F21 RRA Decision.
7. Energy management activities, supporting initiatives costs and codes and standards costs are included in cost effectiveness calculations at the portfolio level. Capacity focused DSM is not included in cost effectiveness calculations because this initiative is still in the trial and pilot stage and therefore the associated benefits have not yet been quantified.

Based on the experience gathered over the past few years through initiative tracking, [Table 7](#) sets out the mitigation measures that have been undertaken or are planned for 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.

Table 7 Mitigating Measures to Address Cumulative Energy Savings Below Plan

Rate Structures	
Industrial Transmission	Cumulative electricity savings in fiscal 2021 were on plan.
DSM Programs	
Residential Sector	
Low Income	Cumulative electricity savings in fiscal 2021 were below plan. As public health measures due to the COVID-19 pandemic subside, ECAP promotion and activity are expected to increase.
Non-Integrated Areas	Cumulative electricity savings in fiscal 2021 were below plan. Providing enabling support to Indigenous Nations places them in a stronger position to advance demand-side management projects in their communities in the future. As public health measures subside, DSM projects are expected to increase.
Retail	Cumulative electricity savings in fiscal 2021 were above plan. Program staff will work closely with partners to examine expected participation levels in fiscal 2022 with recent COVID-19 pandemic related retail activities.
Home Renovation Rebate	Cumulative electricity savings in fiscal 2021 were above plan. New tools continue to focus the program towards the highest consuming electrically heated homes and the creation of registered contractor directories helps customers engage contractors with strong program knowledge.

Residential Energy Management Activities	Cumulative electricity savings were above plan. We are continuing to explore new tools to help customers understand their electricity consumption to determine areas of high use and potential savings.
Commercial Sector	
LEM-C	Cumulative electricity savings in fiscal 2021 were approximately on plan. Going forward, the program will continue to work with customers to remove barriers including providing energy advisors to assist small and medium businesses and working with non-profit housing providers to reduce electricity consumption in multi-unit residential buildings.
New Construction	Cumulative electricity savings in fiscal 2021 were above plan. The program is ramping down.
Industrial Sector	
LEM-I	Cumulative electricity savings in fiscal 2021 were approximately on plan. The program will continue to leverage strategic energy management activities.
Thermo-Mechanical Pulp	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	There are no capacity savings in fiscal 2021 as these are pilot initiatives.

5 Conservation and Energy Management KBU Operating Expenditures for Fiscal 2021

BC Hydro's Conservation and Energy Management KBU operating expenditures in fiscal 2021 totalled \$533,211.² [Table 8](#) presents Conservation and Energy Management KBU operating expenditures in fiscal 2021.

Table 8 Conservation and Energy Management KBU Operating Expenditures for Fiscal 2021

	(\$000)
Labour	489
Consultants/Contractors/Temp Labour	4
Other	40
Total	533

² DSM operating expenditures are not included in earlier tables.

6 Low Carbon Electrification Expenditures

In accordance with Directive 49 of the F20-F21 RRA Decision, BC Hydro reports on the Low Carbon Electrification expenditures within the DSM Regulatory Account. BC Hydro's Low Carbon Electrification expenditures within the DSM Regulatory Account for fiscal 2021 totalled \$4.1 million. [Table 9](#) presents Low Carbon Electrification expenditures allocated to the applicable classes defined in section 4(3) (a), (b), (c) or (d) of the GRR, including a consolidated table with a break down between the Initial Low Carbon Electrification and BC Hydro Low Carbon Electrification projects and programs.

Table 9 Low Carbon Electrification Expenditures for Fiscal 2020 to Fiscal 2021*

Initial LCE Projects		Expenditures		
GRR Regulation Subsection	Projects	F2020 (\$ 000)	F2021 (\$ 000)	Total (\$ 000)
4(3)(a)	Project 3	\$1,418	\$158	\$1,575
	Project 4	\$11,250		\$11,250
	Thompson Rivers University		(\$69)	(\$69)
4(3)(c)	Translink	\$500		\$500
Project Total		\$13,168	\$89	\$13,256

BC Hydro LCE Programs		Expenditures		
GRR Regulation Subsection	Programs	F2020 ¹ (\$ 000)	F2021 (\$ 000)	Total (\$ 000)
4(3)(a)(b)	BC Hydro LCE Program	\$3,091	\$2,852	\$5,943
4(3)(c)	BC Hydro LCE Program	\$438		\$438
4(3)(d)	BC Hydro LCE Program	\$232	\$1,184	\$1,416
Program Total		\$3,761	\$4,036	\$7,797

Summary of LCE Projects/Programs	F2020	F2021	Total
Initial LCE Projects	\$13,168	\$89	\$13,256
BC Hydro LCE Programs	\$3,761	\$4,036	\$7,797
Total BC Hydro LCE Projects/Programs	\$16,929	\$4,124	\$21,053

* Numbers may not add due to rounding.

Notes:

¹ GRR regulation subsection program totals differ from the F2020 GRR report due to reclassification of a study within the GRR subsections. The study was completed and included under the classification 4(3)(a)(b) in the F2020 GRR report, and then it was subsequently reclassified to 4(3)(c). The completion documentation was submitted by the customer in time for fiscal year end. However, the classification of the file trailed into fiscal 2021, after completion of the F2020 GRR report. This reclassification does not have a rate or cost recovery impact as the study is maintained as a prescribed undertaking.