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October 5, 2022

Sara Hardgrave
Acting Commission Secretary and Manager
Regulatory Services
British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC V6Z 2N3

Dear Sara Hardgrave:

**RE: British Columbia Utilities Commission (BCUC or Commission)
British Columbia Hydro and Power Authority (BC Hydro)
Fiscal 2022 Annual Report on Demand-Side Management Activities
Responses to Commission Staff Information Request No. 1**

BC Hydro writes to provide its responses to Commission Staff Information Request No. 1 on BC Hydro's Fiscal 2022 Annual Report on Demand-Side Management Activities.

For further information, please contact Shiau-Ching Chou at 604-623-3699 or by email at bchydroregulatorygroup@bchydro.com.

Yours sincerely,



Chris Sandve
Chief Regulatory Officer

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Enclosure

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**1.0 Reference: REPORT ON F2022 DEMAND-SIDE MANAGEMENT ACTIVITIES
Table 1, p. 5; Table 2, p. 6
Home Renovation Rebate**

Table 1 of the BC Hydro Demand-Side Management DSM F2022 Annual Report (DSM F2022 Annual Report) shows expenditure of \$9.9 million for the Home Renovation Rebate, a 99% increase compared to the plan total of \$4.99 million, but no gain in energy savings measured in GWh/yr relative to plan savings.

BC Hydro states in Table 2 on page 6 that

Expenditures were above plan due to higher participation and the time-limited ‘double the rebate’ offer (offered in fiscal 2021, but customers had until the end of Q1 fiscal 2022 to complete the installation). This offer was put in place to support contractors and customers impacted by the COVID-19 pandemic. Electricity savings were approximately on plan after the impact of increased participation was offset by evaluation adjustments.

Table 6 shows a mTRC result of 1.3, and a TRC of 0.8 for the Home Renovation Rebate.

1.1.1 Please provide a comparison of the plan and actual TRC, mTRC and UCT results for the Home Renovation Rebate Program, and discuss the impact of incentives on these results.

RESPONSE:

The Home Renovation Rebate Program’s Total Resource Cost (TRC) test, modified Total Resource Cost (mTRC) test and Utility Cost Test (UCT) benefit cost ratios for fiscal 2022 plan and actual are provided in the table below.

| | Benefit Cost Ratios | | |
|---------------|-----------------------------------|---|-----------------------------|
| | LRMC \$54/MWh (\$F2019) | | Market Price (\$33 per MWh) |
| | Modified Total Resource Cost Test | Total Resource Cost Test excluding NEBs | Utility Cost Test |
| Plan | 1.6 | 1.4 | 3.4 |
| Actual | 1.3 | 0.8 | 1.5 |

Utility incentives do not directly impact benefit cost ratios for mTRC and TRC because incentives are not included in the calculation. The TRC perspective

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includes the benefits and costs of DSM for both participants and the utility and includes the total cost of implementing the DSM measure, whether it is paid by the participant or the utility. Under the TRC, incentives are considered a transfer between parties (i.e., a benefit to the participant and a cost to the utility). However, the TRC does capture the impact of the increase in participation resulting from the ‘double the rebate’ offer.

The UCT perspective considers the benefits and costs of DSM to the utility, and as such, it includes incentives in the calculation of the benefit-cost ratios. Higher incentives may lead to a lower UCT benefit-cost ratio, if there is no proportional increase in savings.

Please refer to BC Hydro’s response to BCUC STAFF IR 1.1.2 where we explain that although participation increased during the ‘double the rebate’ offer, the savings per participant were lower than plan. This led to all three benefit-cost ratios shown above being lower than plan for fiscal 2022.

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Table 6 shows a mTRC result of 1.3, and a TRC of 0.8 for the Home Renovation Rebate.

1.1.2 Please discuss any lessons BC Hydro has learnt with respect to the use of higher incentives, and the proportional impact on savings.

RESPONSE:

Higher incentives were offered for a limited time early in the COVID-19 pandemic in response to the Home Renovation Rebate Program participation falling significantly below plan in the first quarter of fiscal 2021 and in consideration of the impacts to small businesses from public health mandates.

The higher incentives were not intended to increase the amount of savings achieved per participant; rather, they were intended to boost program participation, to help stimulate activity in the home energy retrofit sector and to maintain momentum with program contractors. Customers could access a code for the higher incentive from October 1, 2020 until December 31, 2020 and had until June 30, 2021 to complete the installation, which meant the impact from the incentive increase could impact both the second half of fiscal 2021 and the first quarter of fiscal 2022.

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This action was successful as program participation rebounded in the third and fourth quarters of fiscal 2021 and finished above plan for both fiscal 2021 and fiscal 2022.

The table below provides details of the fiscal 2021 planned and actual participation and fiscal 2022 planned and actual participation.

| | F2021 Plan | F2021 Actual | F2022 Plan | F2022 Actual |
|---------------|------------|--------------|------------|--------------|
| Participation | 4,488 | 5,532 | 5,947 | 6,861 |

Although program participation surpassed plan in fiscal 2021 and fiscal 2022 following the introduction of higher incentives, the annual savings did not increase proportionally, as savings per participant values were lower than plan. The savings per participant values used for fiscal 2022 actuals were informed by the most recent program evaluation, which was not complete when the fiscal 2022 DSM expenditure plan was submitted to the BCUC. Without the increase in participation driven by the higher incentive, overall program savings would have been lower than planned.

BC Hydro believes that the principal reasons for the lower than expected savings determined by the evaluation were the volume of participant homes that used non-electric heating systems to offset their baseboard heaters as well as participants installing ductless heat pump systems that were not sized to meet the majority of a home's heating requirements.

Since the evaluation report, BC Hydro has made adjustments to the program design in order to address these two issues:

- We have analyzed the evaluation data related to participant savings by home size to determine the thresholds below which participant savings are well below modeled expectations. This informed the development of the minimum electricity consumption threshold which is now required for program participation to target participants that are primarily heated with electric heat and are therefore most likely to realize savings as modeled.
- Further analysis has been conducted to determine heat load requirements relative to home size and the average size of heat pump being installed by participants compared to home size. This work informed changes to heat pump sizing requirements implemented on October 1, 2022 so that the heat pump is able to provide the majority of a home's heating requirements.

As a result of these adjustments, BC Hydro expects savings per participant to be higher in fiscal 2023 and onwards.

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**1.0 Reference: REPORT ON F2022 DEMAND-SIDE MANAGEMENT ACTIVITIES
Table 1, p. 5; Table 2, p. 6
Home Renovation Rebate**

BC Hydro states in Table 2 on page 6 with respect to the Residential Energy Management Activities:

Expenditures were below plan primarily due to reduced advertising activities and an Energy Insights enabling trial not proceeding. Electricity savings were above plan as both Team Power Smart challenge and Energy Visualization Portlet participants were higher than forecast.

- 1.1.3 Please explain how BCH determined the actual level of savings achieved for fiscal 2022 for the Residential Energy Management Program.

RESPONSE:

The energy savings for Residential Energy Management Activities come from the residential Behaviour program.

BC Hydro offers two energy saving activities under the Behaviour program: Team Power Smart and the Energy Visualization Portlet. Team Power Smart is an opt-in program where participants can enroll in a reduction challenge and receive information, education and monetary rewards if they achieve the required goals. The Energy Visualization Portlet provides customers with detailed feedback on their consumption, including comparisons to similar homes, which increases awareness and enables them to look for opportunities to reduce their consumption.

Overall savings for fiscal 2022 were derived by multiplying the savings per participant (kWh) by participation volumes, for each of the energy saving activities under the Behaviour program. Savings per participant for fiscal 2022, for each of the participation categories, were informed by the most recent program evaluation. Participation volumes reflected the actual participants in fiscal 2022 as tracked in BC Hydro's tracking system.

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**2.0 Reference: REPORT ON F2022 DEMAND-SIDE MANAGEMENT ACTIVITIES
Table 7, p. 14
Mitigating Measures to Address Cumulative Energy Savings Below Plan**

BC Hydro states in Table 7 on page 14 that cumulative electricity savings in fiscal 2022 in the Low Income Residential Program were below plan. Communications plans from fiscal 2022 are being reviewed and adjustments will be made to fiscal 2023 Energy Conservation Assistance Program and Energy Saving Kits promotional campaigns.

1.2.1 Please clarify the type of adjustments being made, and the purpose of these adjustments.

RESPONSE:

Adjustments to promotional campaigns are being made to increase program participation.

Changes include updating the messaging and images, and adjusting the mix of the paid media channels and campaign timing for more targeted outreach. Additional promotional activities are also being explored, including mail and email campaigns to specific customer segments, promotion at targeted retailers in specific communities, and enhancement of the website and online application.

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3.0 Reference: REPORT ON F2022 DEMAND-SIDE MANAGEMENT ACTIVITIES
Table 9, p. 16; BC Hydro F2020 to F2021 Revenue Requirements Application (F2020-F2021 RRA) proceeding, Exhibit B-1, p. 10-18
Low Carbon Electrification Expenditures

Directive 49 of the F2020-F2021 RRA Decision (G-246-20) directed BC Hydro “to report on the Low Carbon Electrification [LCE] 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.”

BC Hydro stated in Table 10-8 of the F2020-F2021 RRA that:

- The incremental revenue from low-carbon electrification undertakings reduces forecast rate increases.
- BC Hydro’s planned LCE undertakings are focused on reducing GHG [greenhouse gas] emissions.

As stated on page 16 of the DSM F2022 Annual Report, BC Hydro’s LCE expenditures within the DSM Regulatory Account for fiscal 2022 totalled \$8.4 million.

Table 9 Low Carbon Electrification Expenditures for Fiscal 2022*

| Initial LCE Projects | | |
|---|----------------------------|----------------|
| GRR Regulation Subsection | Projects | F2022 (\$ 000) |
| 4(3)(a) | Project 3 | (\$985) |
| | Project 4 | \$1,153 |
| 4(3)(c) | Thompson Rivers University | |
| | Translink | |
| Project Total | | \$168 |
| BC Hydro LCE Programs | | |
| GRR Regulation Subsection | Programs | F2022 (\$ 000) |
| 4(3)(a)(b) | BC Hydro LCE Program | \$7,161 |
| 4(3)(c) | BC Hydro LCE Program | \$147 |
| 4(3)(d) | BC Hydro LCE Program | \$968 |
| Program Total | | \$8,276 |
| Summary of LCE Projects/Programs | | F2022 |
| Initial LCE Projects | | \$168 |
| BC Hydro LCE Programs | | \$8,276 |
| Total BC Hydro LCE Projects/Programs | | \$8,443 |

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1.3.1 Please provide additional information on the BC Hydro LCE Program expenditures under 4(3)(a), (b), (c) and (d), including a breakdown of the BC Hydro LCE Program expenditures into the following components, under each of the GGRR Regulation subsections:

- Energy management studies and incentives;
- Public awareness campaigns;
- Research and pilots;
- Standards enabler; and
- Education and training.

RESPONSE:

The table below shows the BC Hydro Low Carbon Electrification Program expenditures broken out into the requested components.

| Project or Program Type | GGRR Regulation Subsection | GGRR Regulation Subsection Component | Project or Program | F2022 (\$000) |
|-----------------------------|----------------------------|--|----------------------------|---------------|
| Initial LCE Projects | 4(3)(a) | Energy Management Studies and Incentives | Project 3 | (985) |
| | | | Project 4 | 1,153 |
| Initial LCE Projects Total | | | | 168 |
| BC Hydro LCE Programs | 4(3)(a), 4(3)(b) | Energy Management Studies and Incentives | BC Hydro LCE Program | 1,247 |
| | | | BC Hydro LCE Program | 3,977 |
| | 4(3)(a) | Energy Management Studies and Incentives | BC Hydro LCE Program | 1,910 |
| | | | Public Awareness Campaigns | 27 |
| | 4(3)(b) | Education and Training | BC Hydro LCE Program | 147 |
| | 4(3)(c) | Research and Pilots | BC Hydro LCE Program | 968 |
| 4(3)(d) | Standards Enabler | BC Hydro LCE Program | | |
| BC Hydro LCE Programs Total | | | | 8,276 |
| Grand Total | | | | 8,443 |

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For a description of activities under each of these components in fiscal 2022, please refer to section 4.2 (pages 13 to 17) of the Fiscal 2022 Greenhouse Gas Reduction (Clean Energy) Regulation Annual Report, which was filed with the BCUC on June 29, 2022.

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1.3.2 Please provide any other summary information which BC Hydro tracks as part of the LCE expenditures to enable it track progress, such as incremental revenue from LCE customers, the number of projects funded by type, annual GHG reductions attributed to these projects.

RESPONSE:

BC Hydro tracks information on Low Carbon Electrification (LCE) activities and reports on these activities through the Greenhouse Gas Reduction (Clean Energy) Regulation (GGRR) Annual Report. The Fiscal 2022 GGRR Annual Report was filed with the BCUC on June 29, 2022.

Information on electric energy consumption (MWh/yr), demand (MW), and greenhouse gas emissions reductions (tCO₂e/yr) relating to LCE projects and programs are shown in Table 5 (page 23) of the Fiscal 2022 GGRR Annual Report, and includes both fiscal 2022 values and cumulative values since 2018.

Information on the number of projects by type in fiscal 2022 is included in Table 2 (page 13) and Table 3 (page 15) of the Fiscal 2022 GGRR Annual Report. Graphical depictions of LCE activities by region and by customer sector are provided in section 4.7.

Incremental revenues are not reported in the GGRR Annual Report, but BC Hydro estimates the annual incremental revenues for projects that completed in fiscal 2022 to be \$2.9 million.

BC Hydro is continuing to refine its reporting related to Low Carbon Electrification.