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Mr. Fred James
Chief Regulatory Officer
Regulatory & Rates Group
British Columbia Hydro and Power Authority
16th Floor – 333 Dunsmuir Street
Vancouver, BC V6B 5R3
By Email: bchydroregulatorygroup@bchydro.com

Dear Sir:

Re: Re: British Columbia Hydro and Power Authority F2020 to F2021 Revenue
Requirements Application, BCUC Project No. 1598990
B.C. Sustainable Energy Association Information Request No.2

Attached please find BCSEA's Information Request No.2 to BC Hydro. A version in Word format will be provided separately. If you have any questions, please do not hesitate to contact me.

Yours truly,
William J. Andrews



Barrister & Solicitor
Encl.

REQUESTOR NAME: **BC Sustainable Energy Association (BCSEA)**
INFORMATION REQUEST ROUND NO: **2**
TO: **BC Hydro and Power Authority**
DATE: **August 1, 2019**
PROJECT NO: **1598990**
APPLICATION NAME: **BC Hydro F2020 to F2021 Revenue Requirements Application**

Chapter 4. Cost of Energy

59.0 Topic: Biomass Energy Program and Retired Railway Ties
Reference: Application, Exhibit B-1, s.4.3.2, pdf p.237; Exhibit B-6, BC Hydro Response to BCSEA IR 1.13.1, pdf p.671

BCSEA asked in IR 1.13.1: “Is it BC Hydro’s intention that a long-term EPA with Atlantic Power for power from the Williams Lake biomass generation facility would include a requirement that power delivered under the agreement would be exclusively from clean or renewable resources?”

BC Hydro responded: “Under the Biomass Energy Program, BC Hydro intends to purchase energy generated from clean or renewable resources, and the terms of the Electricity Purchase Agreements are still under development.” [underline added]

BCSEA asked in IR 1.13.2: “More generally, is it BC Hydro’s intention that long-term EPAs with biomass generation facilities will require exclusively clean or renewable fuel?”

BC Hydro responded: “At this time, BC Hydro has not made any decisions regarding the terms and conditions for biomass Electricity Purchase Agreements awarded under any future procurement process beyond the Biomass Energy Program.” [underline added]

59.1 What is the status of BC Hydro’s new Electricity Purchase Agreements with Atlantic Power and other operators of biomass generation facilities?

59.2 Do the terms of BC Hydro’s new long-term EPA with Atlantic Power for power from the Williams Lake biomass generation facility preclude delivery of power from retired railway ties?

59.3 Has BC Hydro determined whether its long-term EPAs with biomass generation facilities will require exclusively clean or renewable fuel?

60.0 Topic: First Nations energy projects
Reference: Application, Exhibit B-1, s.4.3.2, pdf p.234

“BC Hydro is not acquiring new resources from IPPs, with the exception of a small number of new First Nations energy projects and some EPA renewals, such as new contracts under the Biomass Energy Program.” [underline added]

60.1 Apart from the small number of new First Nations energy projects referred to in the Application, is BC Hydro working toward additional electricity

purchase agreements with First Nations that may not be completed in the F2020-F2021 time period?

Chapter 5G. Operating Costs, Other

61.0 Topic: Repurposing of Unallocated Funds

Reference: Application, Exhibit B-1, 5G.7.2 Overview of Operating Costs and FTEs; Exhibit B-6, BC Hydro Response to BCSEA IR 1.26.1

In response to BCSEA IR 1.26.1, BC Hydro states:

“Yes, the re-purposing of the unallocated funds budget will, necessarily, have an impact on BC Hydro’s ability to manage unanticipated costs pressures during the test period.”

61.1 Has BC Hydro quantified the extent to which the re-purposing of unallocated funds will increase the risk of spending exceeding the approved revenue requirement during the test period? If so, what are the results? If not, why not?

Chapter 6. Capital Expenditures

62.0 Topic: Capital Expenditures

Reference: Exhibit B-6, BC Hydro Response to BCSEA IR 1.15.2; Exhibit B-5, BCUC 1.122.5

“BC Hydro anticipates collecting revenue from charging stations in fiscal 2020. BC Hydro intends to apply to the BCUC for approval of a rate design application for BC Hydro owned and operated EV Fast Charging Stations following the completion of the BCUC Inquiry into the Regulation of Electric Vehicle Charging Service, which is expected by fall 2019. BC Hydro anticipates collecting revenues from charging stations upon approval of the application.” [Exhibit B-5, BCUC 1.122.5, underline added]

The Phase Two Report of the BCUC Inquiry into the Regulation of Electric Vehicle Charging Services was issued on June 24, 2019 (https://www.bcuc.com/Documents/Proceedings/2019/DOC_54345_BCUC%20EV%20Inquiry%20Phase%20Two%20Report-web.pdf).

62.1 What is the current status of BC Hydro’s anticipated timing of an application to the BCUC for approval of a rate design for BC Hydro owned and operated EV Fast Charging Stations?

Chapter 10, Demand Side Management

63.0 Topic: DSM Envelope

Reference: Application, Exhibit B-1, Chapter 10, Demand Side Management; Exhibit B-6, BC Hydro Response to BCSEA IR 1.33.1

In its response to BCSEA IR 1.33.1, BC Hydro provided a table showing the traditional DSM expenditures on a plan and actual basis (where applicable) for

fiscal 2017 to fiscal 2021. Actual figures for F2019 were not available at the time of the response.

63.1 Please provide an updated version of the table in response to BCSEA IR 1.33.1 that provides actual figures for F2019.

64.0 Topic: Capacity-Focused DSM

Reference: Exhibit B-6, BC Hydro Response to BCSEA IR 1.39.2, 1.39.4

In its response to BCSEA IR 1.39.2, BC Hydro provides a table listing the capacity-focused solutions being tested at each of three substations: Pineview, Hope and Kent. The table also includes the expected relative savings contribution of each solution broken out by each identified constrained substation and customer sector. The table provides estimated Total Cumulative kW savings by the end of F2021 for each of the substations.

In its response to BCSEA IR 1.39.4, BC Hydro states:

“Success with each capacity-focused DSM trial or pilot will be in the learning gained with regards to the capability to reliably shift and/or reduce load. This information will help to inform our ability to bundle capacity focused initiatives to defer upgrades at the local level or as resource options to inform the next Integrated Resource Plan.

Beyond the trial or pilot stage, the success of capacity focused initiatives will be based on the ability to reliably shift or reduce loads at a lower cost than supply side resources and infrastructure.” [pdf p.765]

64.1 Recognizing that the capacity-focused DSM measures being tested in the three substation areas are in the nature of a pilot, are the estimated total cumulative kW savings material in relation to the size of the capacity constraints at the three substations? If the estimated total cumulative kW savings were achieved would this be a material contribution toward deferring capital investments at these substations, or would substantially larger kW savings be required?

64.2 If substantially larger kW savings would be required, how will BC Hydro assess whether such savings could be obtained through capacity-focused DSM?

65.0 Topic: Constrained Areas

Reference: Exhibit B-6, BC Hydro Response to BCSEA IR 1.39.3; BC Hydro Net Metering Application, pp.42-43

In the context of Capacity-Focused DSM, BC Hydro identified the Pineview, Hope and Kent substations as constrained substation areas in which CFDSM measures are being tested.

In the 2019 Net Metering Application, BC Hydro states on pages 42-43 of the Application:

“As explained in section 9.1.3 of the Evaluation Report, certain areas of the BC Hydro electrical grid are becoming constrained due to the number and size of generators injecting energy back into the grid. Additional generation at these locations, even from small projects in the Program, could require the replacement of substation transformers.” [Underline added]

- 65.1 Is there any geographic overlap between areas that are constrained in terms of substation capacity and areas that are constrained in terms of injection of incremental generation?
- 65.2 Are there circumstances in which new Net Metering installations could help to address capacity constraints at a particular substation?
- 65.3 With reference to the list of Trials and Pilots in the Capacity-Focused DSM program [Exhibit B-5, BCUC 1.183.1, p.3], has BC Hydro considered Net Metering as a potential measure to address local capacity constraints?

66.0 Topic: Capacity-Focused DSM

Reference: Application, Exhibit B-1; Exhibit B-6, BC Hydro Response to BCSEA IR 1.38.3; Exhibit B-5, BCUC 1.183.2, p.3

“BC Hydro expects the results of its capacity-focused DSM pilots and trials to inform the resource options that are considered in the next Integrated Resource Plan.” [Exhibit B-6, BCSEA 1.38.3]

“The results of the CFDSM activities will inform the next Integrated Resource Plan, which in turn will guide BC Hydro’s actions with respect to capacity and energy deficits.” [Exhibit B-5, BCUC 1.183.2, p.3]

- 66.1 When does BC Hydro expect to commence consultation regarding the resource option report that will inform the 2021 Integrated Resource Plan?

67.0 Topic: Capacity-Focused DSM

Reference: Application, Exhibit B-1; Exhibit B-6, BC Hydro Response to BCSEA IR 1.39.5.1; Exhibit B-5, BC Hydro Response to BCUC 1.183.2

In response to BCSEA IR 1.39.5.1, BC Hydro states:

“No, the reduced budget will not impact our ability to test and analyze opportunities [to use capacity-focused DSM to reduce infrastructure investments]. The budget reflects the expenditures needed to implement our capacity-focused DSM activities and is not constraining BC Hydro during the test period.

Please refer to BC Hydro’s response to BCUC IR 1.183.2 where we explain the reductions and shift in timing of our capacity-focused DSM expenditures.”

- 67.1 Will the results of BC Hydro's capacity-focused DSM trials and pilots be available in time to be fully included in the resource options report that will be used for the 2021 Integrated Resource Plan?
- 67.2 Would a larger budget for capacity-focused DSM during the test period produce more useful results sooner than the proposed budget?
- 68.0 Topic: Capacity-Focused DSM**
Reference: Application, Exhibit B-1; Exhibit B-5, BC Hydro Response to BCUC 1.183.1, page 6 of 9

In describing the Key Findings of its Capacity-Focused DSM trials and pilots, BC Hydro states:

"Baselines, which enable the comparison between what would have happened, absent the program intervention and what actually happened, can be complicated. They need to be clearly defined and consider the customer's operational behaviour and technology available."

- 68.1 Has BC Hydro considered using control groups to help evaluate the effectiveness of the various capacity-focused DSM measures? If so, would this require regulatory approval? If not, why not?
- 69.0 Topic: Capacity-Focused DSM**
Reference: Exhibit B-5, BC Hydro Response to BCUC 1.183.1, Attachment 1, pdf p.2032

"Smart electric vehicle (EV) charging – single family

- Status: Initiated in May 2017, completed.
- Description: The project involved EV owners in single family residential settings. Communicating level 2 electric vehicle supply equipment (EVSE) or charging stations replaced existing level 2 stations installed in each home. This allowed for signals to be sent to the EVSE to enact various smart charging tactics such as randomization of charging times, charge-by settings, decreased power charging etc.
- Results: 50 single family residences participated in the pilot that ran over two winters (fiscal 2018 and fiscal 2019). Preliminary results will be available later in 2019." [underline added]

- 69.1 Please provide (or summarize) the preliminary results of the "Smart electric vehicle (EV) charging – single family" project if they are available.
- 70.0 Topic: Capacity-Focused DSM**
Reference: Exhibit B-5, BC Hydro Response to BCUC 1.183.1, Attachment 1, pdf p.2032; Phase Two Report, BCUC Inquiry into the Regulation of Electric Vehicle Charging Services
(https://www.bcuc.com/Documents/Proceedings/2019/DOC_54345_BCUC%20EV%20Inquiry%20Phase%20Two%20Report-web.pdf), pp.30-31; BCUC Order G-92-19
(<https://www.ordersdecisions.bcuc.com/bcuc/orders/en/400728/1/document.do>)

- “High voltage utility charger – MURB and Commercial customers
- Status: Launched September 2017, ongoing.
 - Description: Current challenges for potential EV owners who live in multi-unit residential buildings include charger and related infrastructure costs as well as the need to disaggregate metered electricity consumption between EV charging and the building’s common facilities (i.e., non-EV loads). An integrated charger, and a metering and billing solution would potentially alleviate these concerns. We will be testing the ability to control the timing of the charge.
 - Results: Plan is to install 60 chargers in locations in the Lower Mainland. Roll out has been delayed due to testing. Expectations are the pilot will run during the winter of 2019 with results being available later in 2020.”

The June 24, 2019 Phase Two Report of the BCUC’s Inquiry into the Regulation of Electric Vehicle Charging Services refers to an April 29, 2019 BCUC Order G-92-19 that the Panel describes as follows:

“A recent example of this participation [by a non-exempt public utility in facilitating the development of EV charging infrastructure in strata and rental properties] is BCUC Order G-92-19 that approved amendments to the residential tariff to allow for the electricity metering of parking stalls in a MURB and combining the bill with that of the parking stall owner’s dwelling unit, thereby eliminating the separate basic charge for the parking stall’s electric meter.”

- 70.1 Is BCUC Order G-92-19 related to BC Hydro’s “High voltage utility charger – MURB and Commercial customers” pilot?
- 70.2 What plans does BC Hydro have to inform owners and residents of strata and rental properties of the new potential billing arrangements enabled by Order G-92-19?

71.0 Topic: Capacity-Focused DSM
Reference: Application, Exhibit B-1; Exhibit B-5, BC Hydro Response to BCUC 1.183.1

BC Hydro reports on its exploration of localized demand-side management to defer local transmission and distribution investments.

- 71.1 Does BC Hydro anticipate that localized demand-side management measures will require specific regulatory approval to do with the fact that the measures are not available to ratepayers outside the local target area?
- 71.2 Does BC Hydro anticipate any difficulty with customer acceptance of localized DSM measures?
- 71.3 If yes, what steps will BC Hydro undertake to overcome those objections?

72.0 Topic: Capacity-Focused DSM
Reference: Exhibit B-5, BC Hydro Response to BCUC 1.183.1, pages 8-9 of 9; Exhibit B-5, BC Hydro Response to BCUC 1.183.3; Exhibit B-6, BC Hydro

Response to BCSEA 1.38.3; Exhibit B-6, BC Hydro Response to BCSEA 1.39.4

“The pilots are providing information that will inform the savings potential and cost effectiveness of different technologies and behaviours. The results are based on smaller scale pilots that may not translate to broader populations. Information from the pilots will be used to inform potential opportunities at the distribution system level as well as broader potential resource options to inform the next Integrated Resource Plan.” [Exhibit B-5, BC Hydro Response to BCUC 1.183.1, pages 8-9 of 9]

“Continuation and completion of planned trials, as well as further experience gained through localized capacity initiatives at the substation level (combined with DERMS development), are the next steps prior to estimating potential program savings...” [Exhibit B-5, BC Hydro Response to BCUC 1.183.3]

“BC Hydro expects the results of its capacity-focused DSM pilots and trials to inform the resource options that are considered in the next Integrated Resource Plan.” [Exhibit B-6, BC Hydro Response to BCSEA 1.38.3]

“Success with each capacity-focused DSM trial or pilot will be in the learning gained with regards to the capability to reliably shift and/or reduce load. This information will help to inform our ability to bundle capacity focused initiatives to defer upgrades at the local level or as resource options to inform the next Integrated Resource Plan. [Exhibit B-6, BC Hydro Response to BCSEA 1.39.4]

Beyond the trial or pilot stage, the success of capacity focused initiatives will be based on the ability to reliably shift or reduce loads at a lower cost than supply side resources and infrastructure.” [Exhibit B-6, BC Hydro Response to BCSEA 1.39.4]

72.1 Please outline the various next steps and the associated timing that BC Hydro anticipates will come out of the capacity-focused DSM activity during the test period.

73.0 Topic: Demand-Side Management Plan Evolution
Reference: Exhibit B-6, BC Hydro Response to BCSEA 1.43.1

Asked to discuss the implications of reducing the commercial and industrial programs budgets in terms of expected savings and participants, BC Hydro states:

“BC Hydro expects energy savings in the commercial sector to be lower due to lower expected participation in incentive projects. BC Hydro expects energy savings in the industrial sector to be higher due to similar participation in incentive projects and increased energy savings through energy management activities.

During the process of updating the DSM plan, BC Hydro considered a number of factors, including participation projections, technology costs, energy management activities, and customer barriers. BC Hydro’s projections of commercial sector participants forecast to submit incentive projects over the test period was lower than previously planned. As a

result, BC Hydro was able to reduce the expenditures to reflect the updated expectations of commercial sector participation over the test period. In addition, of those projects submitted, lower incentives will be required due to lower technology costs, the mix of projects, and an increase in customer funded projects.

In the industrial sector, BC Hydro expects energy management activities to assist in achieving additional energy savings.” [underline added]

- 73.1 In BC Hydro’s view, why were its projections of commercial sector participants forecast to submit incentive projects over the test period lower than previously planned? Does this represent a ‘vicious circle’ in which future reductions in spending on commercial DSM programs results in fewer proposals for commercial DSM projects?

**74.0 Topic: DSM Evaluation, Measurement and Verification
Reference: Application, Exhibit B-1, Appendix AA, DSM Measurement, Verification and Evaluation; Appendix AA, Attachment 1, F2017 Demand Side Management Milestone Evaluation Summary Report**

In Attachment 1 of Appendix AA [pdf p.2296], BC Hydro provides a copy of its F2017 Demand Side Management Milestone Evaluation Summary Report, dated December 2017. The Report summarizes the impact evaluations completed during F2017 for the following:

1. Residential Lighting: F2013-F2015 Q1;
2. Continuous Optimization: F2011-F2013;
3. High Performance Buildings and Commercial New Construction: F2008-F2011; and
4. Power Smart Partner - Transmission: F2012-F2014.

- 74.1 Is BC Hydro concerned about the lag between the date of the data and the date of the reports of the impact evaluations?

- 74.2 For Commercial New Construction, can BC Hydro provide an impact evaluation of data that is more recent than F2008-F2011?

In Appendix AA, pdf pp.2288-2289, BC Hydro provides an evaluation work plan for the test years (F2020 and F2021) that includes the list of planned evaluations and various data collection activities that provide inputs to evaluations.

- 74.3 For the impact evaluations and process evaluations slated for F2020, when and in what form will the results be provided?

**75.0 Topic: CleanBC Better Buildings Program
Reference: Application, Exhibit B-1, section 10.4.3 re Energy EfficiencyBC program funding for LCE, pdf 1052; Exhibit B-6, BC Hydro Response to BCSEA IR 55.2 (Energy EfficiencyBC funding for low carbon electrification initiatives)**

- 75.1 Please confirm, or otherwise explain, that the estimated \$12.3 million allocated to BC Hydro to implement offers to fuel switch to electricity is the full extent of the Better Buildings program budget that is administered

by BC Hydro. That is, it is not the case the BC Hydro administers some aspects of the Better Buildings program that do not involve fuel-switching to electricity.

- 75.2 Who administers the portion of the Better Buildings budget that is not administered by BC Hydro? Is it FortisBC Energy Inc., or FortisBC Inc. (electric)?
- 75.3 Please explain how the administration responsibilities for the Better Buildings program are divided between BC Hydro and the other entity(ies). Does BC Hydro administer all Better Buildings measures that occur within BC Hydro's service territory, and none that occur outside its service territory? In what circumstances, if any, would an entity other than BC Hydro administer a Better Buildings measure that occurs within BC Hydro's service territory.
- 75.4 Please provide a table showing each of the measures supported by Better Buildings, the entity or entities that administers each the measure, and where more than one entity administers a measure the criteria for determining which entity administers the measure. If possible, please provide the approximately budget allocation.