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June 24, 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: Project No. 1599190 British Columbia Utilities Commission (BCUC or Commission)
British Columbia Hydro and Power Authority (BC Hydro)
Public Electric Vehicle Fast Charging Rate Application - Intervener Evidence

In response to Order G-176-21, I am filing Intervener Evidence (attached) on the above application in accordance with the Regulatory Timetable set out in the Order.

Regards,

D. Flintoff.

Metering for Fast Charging Station Service

The Proposed Rates are time based. Each charging station has a built-in timing device, which will measure the charging time by the second. The total time for each charging session will be displayed in minutes and seconds shown on the billing receipt at the end of each charging session. Although customer and stakeholder support for an electricity-based or a combination electricity-and-time-based rate was expressed during BC Hydro's public and stakeholder consultations as discussed in section 3 below, only a time-based rate is possible at this time due to the lack of a Measurement Canadian approved standard to measure direct current (DC) power. [Exhibit B-1, p. 11]

However, several participants prefer energy billing rather than time-based billing.

Further, the CEA, Greenhouse Gas Reduction, sec. 18(2) states:

In setting rates under the Utilities Commission Act for a public utility carrying out a prescribed undertaking, the commission must set rates that allow the public utility to collect sufficient revenue in each fiscal year to enable it to recover its costs incurred with respect to the prescribed undertaking.

If one assumes that the rate set must recover the cost of a prescribed undertaking then the losses due to the conversion of AC energy to DC energy must be recovered in the rates. This being the case then AC metering (Smart Meters) could be used on the primary side of the charger with reasonable accuracy to satisfy the requirement and the other participants. I propose the Commission consider using AC primary metering for billing purposes. The charger efficiency¹ is about 94% at nominal output power. Depending on the electronics used in the conversion of AC to DC, the efficiency² may be even greater than 94% by using switching technology in the conversion.

Regardless the cost of energy losses during EV charging must be recovered. Using AC primary metering avoids estimating those losses.

1

<https://search.abb.com/library/Download.aspx?DocumentID=9AKK1074920233&LanguageCode=en&DocumentPartId=&Action=Launch>

² https://www.richardsonrfpd.com/docs/rfpd/Cost_Efficiency_Level3.pdf