**REQUESTOR NAME: Clean Energy Association of B.C. (CEABC)**

**INFORMATION REQUEST ROUND NO: #2**

**TO: BRITISH COLUMBIA HYDRO & POWER AUTHORITY**

**DATE: March 17, 2020**

**PROJECT NO: 1599053 Order G-327-19**

**APPLICATION NAME: Transmission Service Market Reference-Priced Rates Application ("Application")**

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9.0 **Reference: Exhibit B-1, Application, Appendix E, Freshet Rate Pilot Final Evaluation Report for Year 4, 2019, pages 13 to 16, Discussion of Ratepayer Impact Analysis, and summary Table 5, and Exhibit B-4, response to BCUC IR 1.8.2.**

In Section 1.8.3, BC Hydro explained the differences between Conditions 1, 2, and 3, and in Table 5, BC Hydro presented the Monthly Ratepayer Benefit by System Condition, over the 4 years from 2016 to 2019:

**Table 5 RS 1892 Monthly Ratepayer Impact by Marginal Resource for Years 1 - 4**

| Year 1 (2016) | Forced Export | Market Import | System Basin | Revenue gain (loss) |
|---|---|---|---|---|
| May | $ 61 | $ (6) | $ 481 | $ 536 |
| June | $ - | $ - | $ 806 | $ 806 |
| July | $ - | $ - | $ 917 | $ 917 |
| | **$ 61** | **$ (6)** | **$ 2,204** | **$ 2,259** |
| | | | | |
| **Year 2 (2017)** | **Forced Export** | **Market Import** | **System Basin** | **Revenue gain (loss)** |
| May | $ 56 | $ (93) | $ 424 | $ 387 |
| June | $ 117 | $ (55) | $ 402 | $ 464 |
| July | $ 38 | $ - | $ 1,305 | $ 1,343 |
| | **$ 211** | **$ (148)** | **$ 2,131** | **$ 2,194** |
| | | | | |
| **Year 3 (2018)** | **Forced Export** | **Market Import** | **System Basin** | **Revenue gain (loss)** |
| May | $ 205 | $ (78) | $ - | $ 127 |
| June | $ 170 | $ (77) | $ 50 | $ 143 |
| July | $ 65 | $ (4) | $ 1,541 | $ 1,602 |
| | **$ 440** | **$ (159)** | **$ 1,591** | **$ 1,872** |
| | | | | |
| **Year 4 (2019)** | **Forced Export** | **Market Import** | **System Basin** | **Revenue gain (loss)** |
| May | $ 45 | $ (107) | $ (275) | $ (337) |
| June | $ 65 | $ (91) | $ (55) | $ (81) |
| July | $ - | $ (94) | $ (31) | $ (125) |
| | **$ 110** | **$ (292)** | **$ (361)** | **$ (543)** |
| | | | | |
| **Totals** | **$ 822** | **$ (605)** | **$ 5,565** | **$ 5,782** |

In its response to BCUC IR 1.8.2, BC Hydro explains that, in Year 4 (2019), the system was under Condition 2 (Minimum generation with economic import) for [redacted] of the time and [redacted] of the total 111 GWh (i.e. [redacted] GWh) was sold during Condition 2 periods. Condition 1 accounted for [redacted] of the time and approximately [redacted] GWh of the total energy sold under RS 1892 (assuming a margin of $10/MWh was achieved). Condition 3 accounted for [redacted] of the time, and the remaining [redacted] GWh of energy.

9.1 Please confirm that the energy sold under Condition 1 was approximately [redacted] GWh and under Condition 3 was approximately [redacted] GWh

9.2 Please confirm that energy sold under Condition 1 confers a profit to BC Hydro of approximately $10/MWh, and that energy sold under Condition 2 results in a loss of approximately $4/MWh.

9.3 Please confirm that energy sold under Condition 3 is supplied from BC Hydro's system storage, and the cost of it is deemed to be the System Marginal Value set by BC Hydro.

9.4 Please confirm that the 2019 sales under Condition 3 were approximately [redacted] GWh, which resulted in a loss of $361,000, which is approximately [redacted]/MWh.

9.5 It appears that in the first 3 years of the pilot RS 1892, it was profitable for BC Hydro to supply a large portion of the incremental RS 1892 load from its system storage, but in year 4, this resulted in a loss. Does this mean that in years 1 to 3, the System Marginal Value (SMV) was lower than the Mid-C price plus the $3 adder, but in year 4 the SMV was higher than the Mid-C price plus the adder?

9.6 Although the market prices in year 4 were higher than in previous years, it seems that the System Marginal Price, set by BC Hydro, was even higher. Why did BC Hydro set the SMV so high? And was that very high SMV justified by subsequent events?

9.7 If the SMV in year 4 was higher than the cost of importing (plus the $3 adder), then wouldn't that normally mean that BC Hydro should import as much as possible? In that case, why did BC Hydro choose to supply any of the energy from system storage rather than by importing it? Wouldn't BC Hydro have lost only $4/MWh if it supplied the energy from imports, rather than the [redacted]/MWh which it lost by supplying from system storage?

9.8 Please provide a table similar to Table 5, but showing the GWh in each of the 3 conditions for each of the 3 months in each of the 4 years. Please include the working Excel spreadsheet.

9.9 In each of the months and years under Condition 1 in the table provided for IR 2.9.7, what proportion of the total exports that would otherwise have been designated as "forced" was sold to customers pursuant to RS 1892? I.e. what proportion of the otherwise forced exports was avoided in each case as a result of sales under RS 1892?

9.10 If the proportions of avoided forced exports given in the response to IR 2.9.8 are less than 100%, what can be done to move these proportions closer to 100%?

9.11 What problems does BC Hydro foresee if it were to offer a similar freshet rate to the Large General Service customers? Does BC Hydro have a plan to do this?

10.0 **Reference: Exhibit B-4, BC Hydro response to BCUC IRs 1.10.1, and 1.10.3, concerning BC Hydro's Market Energy imports and exports,**

In it response to BCUC RI 1.10.1, BC Hydro states that *"F2020 total Market energy imports are not yet available but are forecast to be 5,488 GWh."*

10.1 BC Hydro normally reports three types of market energy transactions: Market Electricity Purchases, Surplus Sales, and Net Purchases (Sales) from Powerex. Is the 5,488 GWh

identified in the quoted response as "Market energy imports" the same as Market Electricity Purchases? If not, how is it different?

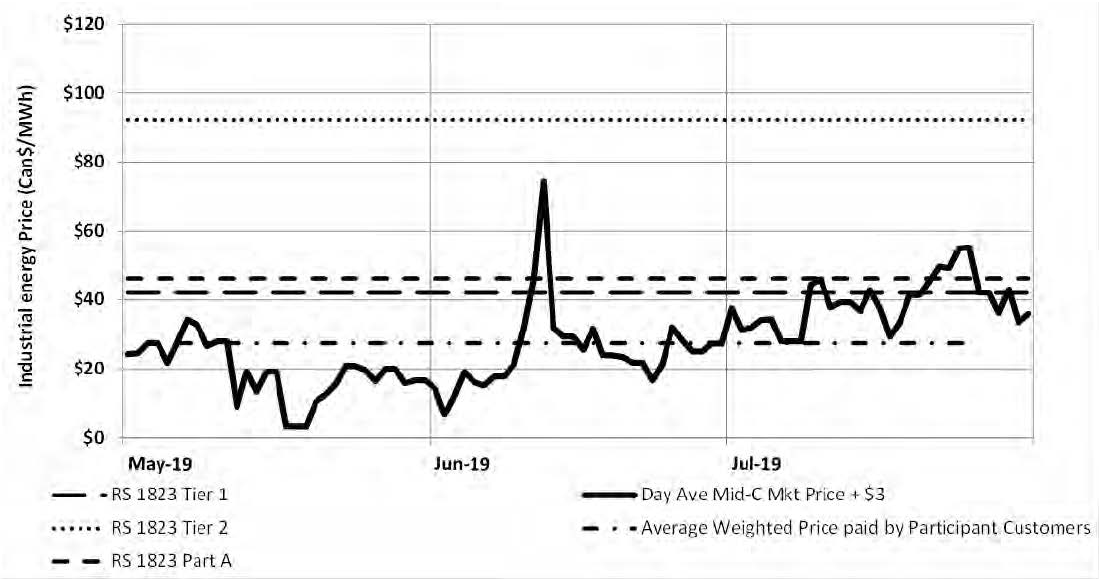
10.2 How much of the projected imports of 5,488 GWh was imported in each of the months April, May, June, and July of 2019? And how much were the Surplus Sales and the Net Purchases (Sales) from Powerex in those same months?

10.3 Even though that 5,488 GWh is not generated in British Columbia, it is still **"electricity <u>in</u> British Columbia"** as referenced in the Clean Energy Act Section 2 (c). That Section requires that 93% of the **electricity in British Columbia** must be generated from clean or renewable resources. Since that 5,488 GWh is roughly 10% of the **electricity in British Columbia**, please describe how BC Hydro ensures that this additional imported electricity does not cause the **electricity in British Columbia** to fall below the threshold of 93% generated from clean or renewable resources.

11.0 **Reference: Exhibit B-1, Application, Appendix E, Freshet Rate Pilot Final Evaluation Report for Year 4, 2019, pages 8-9, RS 1892 Energy Pricing.**

In its discussion of the energy pricing, BC Hydro provided the following Figure 3, comparing RS 1892 to RS 1823 prices.

**Figure 3 RS 1823 and RS 1892 energy prices (May to July 2019**

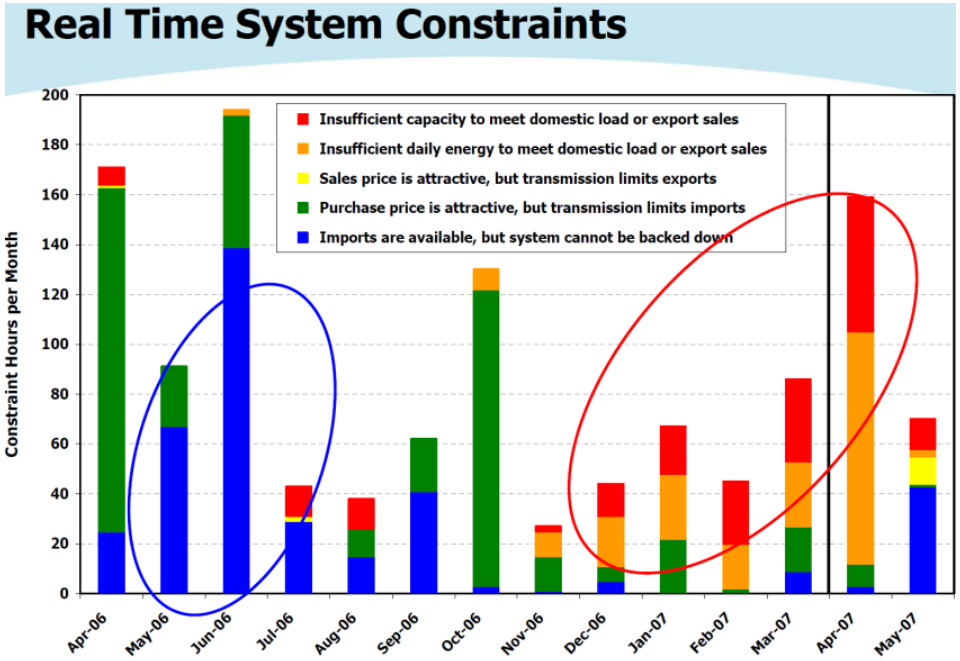



In the description that followed, it identified the RS 1823 Tier 1 rate as $45.35/MWh, the Tier 2 rate as $101.60, and the Part A rate as $50.98 (essentially the weighted average of Tier 1 and Tier 2 at the hypothetical ratio of 90% to 10%). Originally, the Tier 2 rate was intended to be a price signal based on the cost of new energy. However, BC Hydro has acknowledged that it is no longer an accurate price signal, but is only retained for consistency with the past.

11.1 When all of BC Hydro's current RS 1823 customers are considered, how much of their total load was billed at the Tier 1 rate, the Tier 2 rate, and the Part A rate, for each of the past 4 years (F2017 to F2020)?

12.0 **Reference: Exhibit B-5, BC Hydro response to CEABC IR 1.7.1 – BC Hydro System Constraints.**

In IR 1.7.1, CEABC asked BC Hydro to provide an updated time analysis of its operating system constraints, as depicted in the following chart, taken from a BC Hydro workshop:




Although this is apparently information BC Hydro does keep track of on an ongoing basis, it declined to provide it, on the grounds that this information would enable competitors to somehow forecast BC Hydro's potential import and export requirements.

12.1 CEABC hereby makes a similar request, but reduced to only the 4 months, April to July of each of the 4 years 2016 to 2019 (including the working Excel model containing the data).

12.2 Since the requested data is only for partial years and only for historic periods, a year or more in the past, and since weather and other operating conditions vary dramatically from one year to the next, CEABC is in need of some help to understand exactly how any such data could be usefully employed to predict BC Hydro's future import or export requirements. Therefore, if BC Hydro still declines to provide this data, then please provide a detailed step-by-step description of exactly how a 3rd party competitor could use this historical, partial year information to successfully predict BC Hydro's future import or export requirements.

13.0 **Reference: Exhibit B-5, BC Hydro response to CEABC IR 1.4.2, and Exhibit B-1 from the 2019 Powerex Letter Agreement Application**

In the 2019 Powerex Letter Application, BC Hydro described the liquidity of the Mid-C as declining over time, in the following way (on pages 5 and 6 of that Application, emphasis added):

> *"Over the past decade* ***there has been a steady decline in the volume of wholesale electricity traded on a day-ahead basis in the Pacific Northwest****; that was one of the factors that prompted the 2018 Letter Agreement as a solution to the impending electricity*

*supply issue BC Hydro faced in winter of 2018/2019, rather than attempting to rely on day-ahead purchases…*

*…it is apparent that an alternative solution to the on-going operational supply issues* ***arising from the liquidity decline in day-ahead markets*** *would be a revised Transfer Pricing Agreement. BC Hydro and Powerex are considering updating the 2003 TPA, including considering how the 2003 TPA might usefully be revised to accommodate forward transactions."*

In IR 1.4.2, CEABC asked why, in the face of this declining liquidity of the Mid-C day-ahead trading volumes, BC Hydro continued to choose the Mid-C market price as its pricing point fot this Freshet Rate. BC Hydro's response denied that the Mid-C market was "illiquid", only that there was a decline in liquidity over time (emphasis added):

*"…BC Hydro specifically stated that there is an observed decline in the volume of wholesale electricity traded on a day-ahead basis in the Pacific Northwest.* ***While there is observed declining liquidity in the Mid-Columbia day-ahead market, Mid-C is still the most liquid market in the Pacific Northwest,*** *and there is a large amount of transmission capacity between B.C. and the Pacific Northwest."*

13.1 CEABC would like to know at what point in the decline of liquidity, a market would be judged to be too illiquid to provide a proper pricing benchmark? What are BC Hydro's criteria for market liquidity? And what is the alternative pricing benchmark for the Freshet Pricing Rate (RS 1892), should the Mid-C market become, in BC Hydro's assessment, too illiquid?