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September 19, 2019

Sent via eFile

BCH AND POWEREX 2019 LETTER AGREEMENT
EXHIBIT A-3

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

Re: British Columbia Hydro and Power Authority – Application for 2019 Letter Agreement with Powerex Corp. – Project No. 1599038 – Information Request No. 1

Dear Mr. James:

Further to British Columbia Utilities Commission Order G-204-19, enclosed please find BCUC Information Request No. 1 to British Columbia Hydro and Power Authority. In accordance with the Regulatory Timetable, please file your responses no later than Thursday, October 10, 2019.

Sincerely,

Original Signed By:

Patrick Wruck
Commission Secretary

/nd
Enclosure

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British Columbia Hydro and Power Authority
Application for 2019 Letter Agreement with Powerex Corp.

INFORMATION REQUEST NO. 1 TO BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

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A. MARKET DYNAMICS

1.0 Reference: COST OF ENERGY
British Columbia Hydro and Power Authority (BC Hydro) Letter Agreement between BC Hydro and Powerex Corp. – Forward Electricity Purchases, as amended (2018 Letter Agreement Application), dated May 23, 2019,[1] p. 3; BC Hydro responses to confidential BCUC IR No. 1, 2018 Letter Agreement Application, dated March 15, 2019, BCUC IR 3.2
Market electricity purchases

BC Hydro's response to BCUC IR 3.2 regarding the 2018 Letter Agreement Application included the below table along with accompanying notes:

High shortfall scenario: All quantities in GWh

Date	Domestic Load	BC Hydro Generation	Other Domestic Generation	Forward Electricity Purchases	Domestic Electricity Purchases	Domestic Electricity Sales	Trade Electricity Purchases	Trade Electricity Sales
Dec-18	[redacted]		1135	0	220	0	354	-185
Jan-19			984	164	25	0	355	-319
Feb-19			755	254	0	0	183	-267
Mar-19			873	496	0	0	756	-5
Apr-19			1015	356	0	0	913	0
May-19	[redacted]							
Jun-19								

Notes on data in Tables:

1. **Sign convention shows purchases as positive values, sales as negative values.**
2. **Domestic Load does not exactly equal the sum of the resources in the other columns due to losses and rounding.**
3. **At the time of writing, actual data on loads and resources were available for December 2018 and January 2019, with forecast data for February 2019 onwards from the February Energy Study. December 2018 and January 2019 data are preliminary only.**
4. **Other Domestic Generation includes energy from independent power producers as well as ICG.**
5. **Market Electricity Purchases and Sales represent consolidated (both domestic and trade) activity. The February Energy Study included 1269 GWh of ESA purchases made as of the study forecast date, with the balance assumed to be from the spot market. By the end of February 1159 GWh of ESA purchases were added, which would replace the modeled spot market purchases.**
6. **The high (2008) and low (2016) scenarios provided are the extremes of the 46 weather sequences modeled in the Energy Studies, as can be seen in the graphs provided in response to BCUC IR 1.3.2.1.**

[1] https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/regulatory-filings/fep/00-2019-05-23-bchydro-bcuc-wm.pdf.

BC Hydro's 2018 Letter Agreement Application states:

> BC Hydro's current system storage (combined Williston and Kinbasket reservoirs) is at a record low for this time of year. BC Hydro's October energy studies indicate a potential 1,700 GWh energy deficit for the period ending March 31, 2019 and an additional 1,000 GWh energy deficit for April 2019 due to low inflows into BC Hydro's reservoirs in September and October and an increase in BC Hydro's load forecast.

1.1 Please explain how purchases to satisfy domestic load, and trade electricity purchases and sales can occur in the same month.

1.2 Please explain whether purchases made under the BC Hydro 2019 Letter Agreement to satisfy domestic load, and trade electricity purchases and sales, could occur during the same delivery period.

2.0 Reference: NEED FOR 2019 LETTER AGREEMENT
Exhibit B-1, Application, pp. 4–6; BC Hydro responses to confidential BCUC IR No. 1, 2018 Letter Agreement Application, dated March 15, 2019, BCUC IR 11.2.1
Day-ahead market

On pages 4 to 5 of BC Hydro's Application for 2019 Letter Agreement with Powerex Corp. (Application), it states:

> BC Hydro's intention in entering into the 2019 Letter Agreement was to proactively ensure appropriate measures are in place to respond to future physical supply issues. The structural changes in the market, particularly the declining liquidity in the Mid-Columbia day-ahead market…continue to exist, therefore the ability to acquire wholesale electricity from Powerex on a forward basis remains a valuable tool for BC Hydro to have available to address short-term operational requirements. Forward purchases under the 2018 Letter Agreement helped provide BC Hydro with additional supply to allow it to meet its load-serving obligations during the 2018/2019 winter season.
>
> 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 under the 2003 TPA.
>
> In summary, the impending physical supply issue in 2018/2019 was largely caused by low system inflows and the Enbridge pipeline explosion in October 2018.The 2018 Letter Agreement was a response to those conditions and also accounted for the declining liquidity in Pacific Northwest wholesale day-ahead markets by providing for more certainty of supply through the forward physical purchases.

On pages 5 to 6 of the Application, BC Hydro provides the following charts:

10. Market Liquidity

Figure 10.1: Mid-C Liquidity (Day-Ahead Peak)

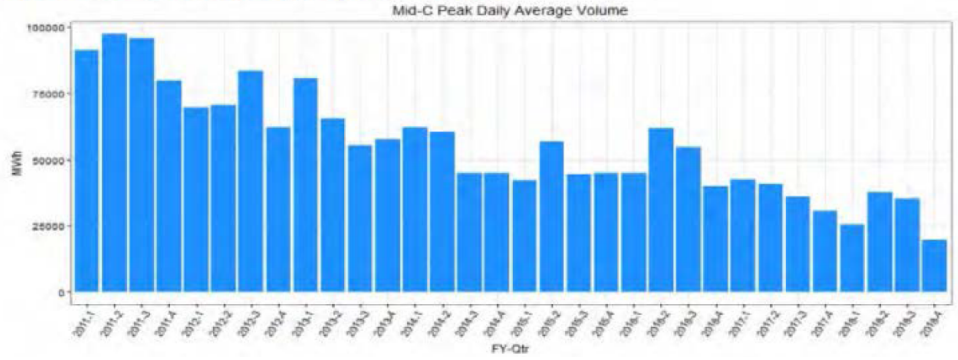
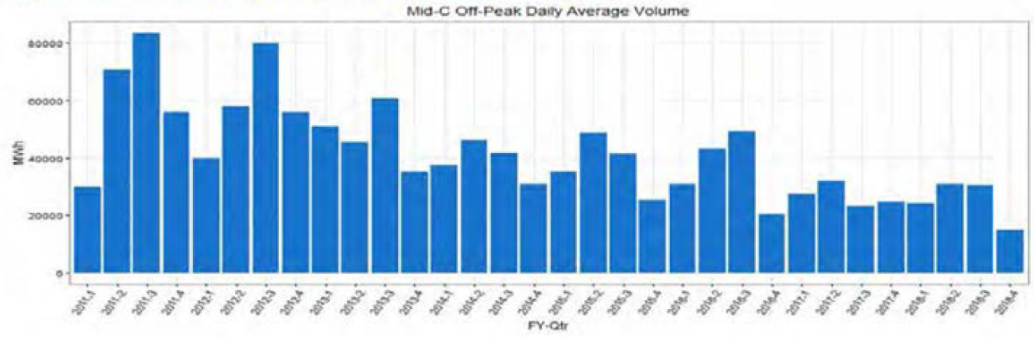


Figure 10.2: Mid-C Liquidity (Day-Ahead Off-Peak)



2.1 Please confirm or explain otherwise, that the Pacific Northwest wholesale day-ahead markets referred to in the preamble refers only to the Mid-C market.

2.1.1 Does BC Hydro transact on any other day-ahead market? Please discuss.

2.1.2 What alternative markets, if any, can BC Hydro use for short-term purchases?

2.2 Please confirm, or explain otherwise, that BC Hydro will continue to transact on the day-ahead markets through the 2003 Transfer Pricing Agreement (TPA).

2.3 Please discuss the factors behind the declining liquidity on the day-ahead markets.

2.4 Please discuss the effects the declining liquidity on the day-ahead markets had on the day-ahead price and volatility over the past 10 years.

2.4.1 Please explain how ratepayers are affected by the reduced liquidity in the day-ahead markets.

2.5 Please explain why BC Hydro filed the 2018 Letter Agreement in December 2018 when declining liquidity on the day-ahead market has been observed over the past 10 years.

2.6 Have other participants in the day-ahead market raised any concerns with BC Hydro as a result of the declining liquidity in Pacific Northwest wholesale day-ahead subsequent to the 2018 Letter Agreement? Please discuss, providing examples of such correspondence where possible.

2.7 How will the 2019 Letter Agreement affect liquidity in the Pacific Northwest wholesale day-ahead markets? Please discuss.

2.7.1 Will the effects of the 2019 Letter Agreement on the day-ahead liquidity be the same as those observed after BC Hydro entered into the 2018 Letter Agreement? Please explain.

2.7.2 Please discuss the impact, if any, the 2019 Letter Agreement could have on the prices observed and the volumes transacted on the day-ahead markets.

2.8 Please explain how the 2019 Letter Agreement affects BC Hydro's ability to transact on the day-ahead markets.

2.9 Could the 2019 Letter Agreement impact the viability of the day-ahead market? Please discuss.

2.10 Please discuss the extent to which a decrease in the volume of wholesale electricity traded on a day-ahead basis affects long-term forward wholesale prices and trade volumes.

2.11 Please discuss the extent to which a decrease in the volume of wholesale electricity traded on a day-ahead basis affects hourly and sub-hourly wholesale prices and trade volumes.

2.12 Please discuss how a decline on wholesale volumes traded on a day-ahead basis in the Pacific Northwest affects the day-ahead price. As part of your response, please comment on the effect of a decline in wholesale trading volumes on the supply and demand of wholesale electricity at Mid-C.

3.0 Reference: NEED FOR 2019 LETTER AGREEMENT AND THE 2003 TRANSFER PRICING AGREEMENT
Exhibit B-1, pp. 2–6; BC Hydro responses to confidential BCUC IR No. 1, 2018 Letter Agreement Application, dated March 15, 2019, BCUC IR 9.4
Supply risks

On page 2 of the Application, BC Hydro states: "the 2019 Letter Agreement was entered into proactively to ensure appropriate measures are in place should similar supply issues arise from time to time and generally to allow BC Hydro to manage the type of risks that led to the 2018 Letter Agreement in a timely way."

BC Hydro further states on page 6:

> On a go-forward basis BC Hydro observes that, since the beginning of the current fiscal year, it has continued to have low system inflows, and has no basis to believe that the long-term decline in day-ahead market liquidity will quickly reverse itself. There are numerous other events that could result in similar supply shortfalls that threatened BC Hydro last winter, which may not reliably be addressed through purchases from Powerex on a day-ahead basis under the 2003 TPA. In these circumstances, BC Hydro believes it is prudent and in the interests of its ratepayers to have in place an additional mechanism that will allow it to respond to system conditions and reliably manage potential electricity shortages in a timely and cost-effective way. The 2019 Letter Agreement serves this objective.

In response to BCUC IR 9.4, BC Hydro stated:

> The need for forward purchases continues even though the T-South capacity has increased. BC Hydro's forward purchases are being made to meet expected domestic needs, considering the risk associated with spot market supply availability from Powerex for the Winter 2018/19 season. Although there have been some improvements in the T-South capacity, BC Hydro understands that western spot market supply availability to Powerex remains relatively limited given (1) low natural gas storage levels for this time of year in the west; (2) de-rates to T-South capacity down to approximately 70 per cent for the month of March, associated with scheduled inspections that are planned to continue through the summer of 2019; (3) higher demand in the Pacific Northwest associated with colder weather, particularly in February; (4) lower hydro conditions in the US Pacific Northwest; and (5) a continued trend of reduced spot market liquidity over the past decade.

3.1 Please discuss whether constraints on the Enbridge T-South pipeline will continue to have long-term effects on western spot market supply availability.

3.2 What supply risks does BC Hydro forecast over the short to medium term? As part of your response, please explain how the 2019 Letter Agreement mitigates those risks.

3.3 Does BC Hydro anticipate similar supply issues observed in 2018 to reoccur in 2019 and/or the future? Please elaborate.

3.4 Please discuss which, if any, of the other reasons as stated in the preamble are still applicable under the 2019 Letter Agreement.

3.4.1 Is BC Hydro forecasting low system inflows this coming winter and in the foreseeable future? Please discuss.

3.5 Please discuss the risks and benefits to ratepayers of transacting longer term wholesale power compared to transacting on the day-ahead market.

3.6 Has BC Hydro identified any risks to the wholesale electricity market in the Pacific Northwest that could arise as a result of BC Hydro entering into the 2019 Letter Agreement? Please discuss.

3.6.1 Does the 2019 Letter Agreement introduce new or exacerbate any existing supply risks? Please discuss.

3.7 Please identify any other reasons to explain spot market supply availability that have not yet been stated.

B. NEED FOR 2019 LETTER AGREEMENT

4.0 Reference: NEED FOR 2019 LETTER AGREEMENT AND THE 2003 TRANSFER PRICING AGREEMENT
Exhibit B-1, pp. 2, 5–6
Duration of the 2019 Letter Agreement

On page 2 of the Application, BC Hydro states: "the 2019 Letter Agreement is a longer term arrangement in effect until terminated by either party. That is, the 2019 Letter Agreement does not have a fixed term or expiry date."

BC Hydro states on page 5:

> The 2003 TPA has worked well in the context of a consistently liquid wholesale day-ahead market for electricity in the Pacific Northwest. As such, the 2003 TPA did not provide, and did not need to provide, any mechanism for forward physical sales or purchases between BC Hydro and Powerex.
>
> 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 under the 2003 TPA.

On page 6 of the Application, BC Hydro states:

> BC Hydro and Powerex are considering updating the 2003 TPA, including considering how the 2003 TPA might usefully be revised to accommodate forward transactions… to the extent that Powerex and BC Hydro do update the 2003 TPA for that purpose, the 2019 Letter Agreement can be considered a bridging mechanism.

4.1 Please discuss the circumstances under which BC Hydro would terminate the 2019 Letter Agreement.

4.2 Given the TPA worked well in a consistently liquid wholesale day-ahead market and the 2018 Letter Agreement was in response to physical supply issues in 2018/2019, please explain why BC Hydro seeks to enter into the 2019 Letter Agreement which does not have a fixed term or expiry date?

4.2.1 Please discuss how BC Hydro can ensure that without an expiry date, the 2019 Letter Agreement remains suitable in a dynamic wholesale power market?

4.3 Did BC Hydro consider alternative proposals related to the term or expiry date of the 2019 letter Agreement?

4.3.1 If yes, why were alternative proposals not chosen?

4.3.2 If not, why not?

4.4 What alternatives, if any, does BC Hydro have to the 2019 Letter Agreement? Please explain.

4.5 In the event that the 2019 Letter Agreement was not found to be in the public interest in its current form, how would BC Hydro restructure the Letter Agreement? Please discuss.

4.5.1 Would a restructured Letter Agreement include an expiry or termination date? Please explain why or why not.

4.6 Please confirm, or explain otherwise, that BC Hydro would terminate the 2019 Letter Agreement in the event BC Hydro and Powerex update the 2003 TPA.

C. CONTRACT TERMS

5.0 Reference: DESCRIPTION OF THE 2019 LETTER AGREEMENT PRICING AGREEMENT
Exhibit B-1, pp. 3–6
2019 Letter Agreement mechanism

BC Hydro states on page 3 of its Application:

> [T]he 2019 Letter Agreement is an additional tool for BC Hydro to employ to address short-term operational requirements. It does so by allowing BC Hydro to secure physical wholesale electricity from Powerex on a forward basis (ie outside of the pre-schedule day-ahead wholesale markets) but still within the operating time horizon. There is no other mechanism currently in place that allows BC Hydro to purchase wholesale electricity in that manner.

5.1 Please explain what is meant by short-term operational requirements.

5.1.1 Does short-term refer to a maximum forward contract duration or the maximum forward delivery period? For example, would this indicate delivery of electricity that begins now for a six-month period, or would delivery begin six months from now? Please explain.

5.2 Please explain what is meant by operating time horizon.

5.3 How would BC Hydro manage any shortfalls in supply in the absence of the 2019 Letter Agreement and forward power purchases? Please elaborate.

5.4 Can BC Hydro sell any forward power purchased surplus to demand back into the real time or day-ahead market? Please discuss.

5.4.1 Please explain the benefits to ratepayers, if any.

5.5 Does the ability to transact on the day-ahead market through the TPA and longer term though the 2019 Letter Agreement allow BC Hydro to arbitrage price differentials? Please discuss, including ratepayer benefit, if any.

On page 6 of its Application, BC Hydro states:

> BC Hydro believes it is prudent and in the interests of its ratepayers to have in place an additional mechanism that will allow it to respond to system conditions and reliably manage potential electricity shortages in a timely and cost-effective way. The 2019 Letter Agreement serves this objective.

5.6 Please define the term "cost-effective" as stated in the preamble.

5.7 Please explain how the 2019 Letter Agreement provides a cost-effective way to manage electricity shortages.

5.8 Please discuss how BC Hydro measures the cost-effectiveness of forward purchases made under the 2019 Letter Agreement when the day-ahead price of a future delivery period is unknown.

5.8.1 Is the 2019 Letter Agreement more cost-effective than the transacting on the day-ahead market through the 2003 TPA? Please elaborate.

5.9 Do cost savings as a result of transactions made through the 2019 Letter Agreement directly affect the ratepayer? Please elaborate.

6.0 Reference: DESCRIPTION OF THE 2019 LETTER AGREEMENT PRICING AGREEMENT
Exhibit B-1, p. 3; Appendix 1, pp. 8–9; BC Hydro Letter Agreement between BC Hydro and Powerex Corp. – Forward Electricity Purchases (Original 2018 Filing), dated December 6, 2018, Appendix 1, pp. 1, 2, 7
Terms of Purchase Interest Request

On page 3 of the Application, BC Hydro states:

> A Purchase Interest Request is a binding written offer to purchase wholesale electricity from Powerex on its terms, including the maximum price that BC Hydro is willing to pay, maximum volumes of electricity, and delivery period(s). In response to a Purchase Interest Request, Powerex is obliged to use commercially reasonable efforts to sell and deliver wholesale electricity on a forward basis to BC Hydro, as confirmed in writing in an instrument referred to as a 'Confirmation'. When the deliveries of electricity contemplated by the Confirmation are made, BC Hydro pays for the electricity at the price as detailed in the Confirmation in accord with the pricing mechanism in the 2019 Letter Agreement. Generally, that price is a wholesale market price.

6.1 Does the maximum price included in the Purchase Interest Request provide Powerex with flexibility regarding the price it transacts at on BC Hydro's behalf? Please explain.

6.2 Does the 2019 Letter Agreement allow for a price within the Purchase Interest Request that is not a wholesale market price? Please explain.

6.3 Please discuss whether an alternative price to a wholesale market price could be specified in a Purchase Interest Request.

BC Hydro states on page 8 of Appendix 1 to the Application: "'Delivery Term' means the period comprising one or more continuous Delivery Periods as set forth in a Purchase Interest Request."

Page 9 of Appendix 1 to the Application states: "'Maximum Quantity', as specified in the initial and any revised Purchase Interest Request, means the total maximum quantity (in MWh) for all Transactions (in aggregate) for the applicable Delivery Term."

Page 2 of Appendix 1 to the Original 2018 Filing (attached to the 2018 Letter Agreement Application) states: "Delivery Period: full calendar month(s) for delivery of electricity during the Delivery Term."

Page 7 of Appendix 1 to the Original 2018 Filing states: "'Delivery Term' means December 1, 2018, through June 30, 2019, inclusive, unless extended by mutual agreement of the parties."

6.4 Please define the minimum and maximum limits of an individual Delivery Period as set forth in a Purchase Interest Request in the current Letter Agreement. For example, could BC Hydro enter into a 10-year Delivery Period to purchase forward market electricity?

6.4.1 If there are no minimum or maximum limits on the Delivery Period, please discuss the advantages and disadvantages of an undefined Delivery Term.

6.5 Please define the term "short-term" as it relates to "short-term operational needs." As part of your response, please explain whether the period over which short-term operational needs are required sets the maximum limit of an individual Delivery Period.

BC Hydro states on page 1 of Appendix 1 to the Original 2018 Filing:

> Purchase Interest Request. During the term, BC Hydro may deliver to Powerex a binding written offer to purchase electricity on a forward basis ('Purchase Interest Request'). A Purchase Interest Request shall be substantially in the form set forth in Schedule 'B' and, at a minimum, shall specify [redacted], the maximum hourly quantity (in MW) flat across all Peak Hours or Off-Peak Hours (or both) for each Delivery Period (as defined in Section 5) and the total quantity (in MWh) for the entire Delivery Term ('**Maximum Quantity**').

6.6 Please explain why the Purchase Interest Request in the 2018 Letter Agreement specified the total quantity (in MWh) for the entire delivery term (Maximum Quantity), but the 2019 Letter Agreement does not.

6.7 Please define the maximum Delivery Term as set forth in a Purchase Interest Request in the 2019 Letter Agreement. For example, could BC Hydro enter into a Delivery Term comprised of consecutive 10-Year Delivery Periods?

6.8 Please provide the steps followed in purchasing wholesale market electricity under the 2019 Letter Agreement, beginning with the submission of a Purchase Interest Request and ending with how parameters specified in the Purchase Interest Request are met. As part of your response, please explain how BC Hydro ensures that the volume and price of electricity purchased are sufficient to satisfy short-term operating needs.

Page 9 of Appendix 1 to the Application states that: "References to 'Dollars' or to '$' are to United States Dollars."

6.9 Please confirm, or explain otherwise, that BC Hydro will settle any transactions made with Powerex in Canadian Dollars.

6.9.1 If confirmed, please provide the foreign exchange rate that will be used, referencing the appropriate section of the 2019 Letter Agreement.

6.9.2 If not confirmed, please explain how BC Hydro will settle transactions with Powerex in U.S. Dollars.