



bcuc
British Columbia
Utilities Commission

Patrick Wruck
Commission Secretary

Commission.Secretary@bcuc.com
bcuc.com

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3
P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

June 27, 2019

Sent via email/eFile

BCH AMEND NET METERING SERVICE UNDER RS 1289 EXHIBIT A-5

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

Re: British Columbia Hydro and Power Authority – Application to Amend Net Metering Service under Rate Schedule 1289 – Project Number 1599004 – Information Request No. 1

Dear Mr. James:

Further to your April 29, 2019 filing of the above-noted application, enclosed please find British Columbia Utilities Commission Information Request No. 1. In accordance with the regulatory timetable established by Order G-144-19, please file your responses on or before Tuesday, July 23, 2019.

Sincerely,

Original signed by:

Patrick Wruck
Commission Secretary

HC/dg
Enclosure



British Columbia Hydro and Power Authority
Application to Amend Net Metering Service under Rate Schedule (RS) 1289

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

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A. GENERAL

**1.0 Reference: GENERAL
Exhibit B-1 (Application), p. 1; Appendix B, pp. 1–2
Effective date of the amended tariff**

British Columbia Hydro and Power Authority (BC Hydro) states on page 1 of the Application to Amend Net Metering Service under Rate Schedule 1289 (Application) that “If approved, BC Hydro requests that these amendments be made effective as of the first date of the month following the BCUC’s Order.”

In Appendix B to the Application, BC Hydro includes the following in its revised proposed tariff:

Energy Price:

For all Electricity represented by the Generation Account Balance remaining in the Customer’s Generation Account at any Anniversary Date, BC Hydro will pay:

- (a) Customers with an accepted Net Metering Application from April 21, 2018 or later:
 - a price calculated every January 1st based on the daily average Mid-Columbia prices for the previous calendar year, converted to Canadian dollars using the average annual exchange rate from the Bank of Canada for that year.

- (b) Customers with an accepted Net Metering Application from on or before April 20, 2018:

a transitional Energy Price of 9.99 ¢ per kWh. This transitional Energy Price will expire on April 30, 2024. After April 30, 2024, all Customers receiving Service under this Rate Schedule will be paid the Energy Price described in (a), above.

- 1.1 Please clarify what the effective date of the proposed tariff can be (date of the previous application in 2018, date of the current application in 2019, or a month from the date of the order).
- 1.1.1 Please discuss any potential issues by referencing a date in the revised terms that pre-dates: i) the effective date of the tariff, and ii) the date of the Application, respectively.
- 1.2 Please explain why the Energy Price that is applicable to existing versus future customers is based on the April 21, 2018 cut-off date, instead of, for example, the date of the Application or the effective date of the revised tariff.

**2.0 Reference: GENERAL
Exhibit B-1, Appendix B, pp. 6–7
Application and interconnection process**

Pages 6 to 7 of Appendix B details the Application and Interconnection Approval process.

- 2.1 Please provide a copy of the material provided to potential Net Metering (NM) customers regarding the Application and interconnection approval process and criteria.
- 2.2 Please provide a copy of the complete contractual agreement between BC Hydro and its NM customers.
- 2.3 Please explain whether any material in relation to the Application, interconnection approval process, or the contractual agreement between BC Hydro and its NM customer require revision in light of the proposed changes contained in the Application. If yes, please specify which document(s) will require revision to align with the proposed changes to the tariff.
- 2.3.1 Please confirm whether any revision to the material mentioned above will be available as of BC Hydro's proposed effective date of the amended tariff. If not confirmed, please provide a timeline of when the revised material will be available.

**3.0 Reference: GENERAL
Exhibit B-1, Section 2.2, p. 17, Appendix F, p. 16
Statistics to date**

On page 17 of the Application, BC Hydro provides the following table:

Table 5 Surplus Energy Payments (Fiscal 2018)

Amount Range (\$)	Number of Customers	% of Overall Participants	Total Amount in Range (\$)	% of Total Surplus Energy Payments
0	1,044	80.31	0	0
≤ 100	103	7.92	3,949	1
>100, < 500	112	8.62	27,789	9
≥ 500, ≤ 1,000	21	1.62	13,396	4
> 1,000, ≤ 6,000	15	1.15	35,652	11
28,000 – 74,000	5	0.38	243,573	75
Total	1,300	100	324,358	100

- 3.1 Please provide an updated table with an additional column that shows the generation facility size corresponding to the range of surplus payments.
- 3.2 Please replicate the table produced in response to the IR above for each generation type (solar PV, hydro, etc.), respectively.

On page 16 of Appendix F, BC Hydro provides the following table showing the number of customers with surplus energy, and the total amount of surplus energy purchased by BC Hydro for each year between F2012 and F2016:

	F2012	F2013	F2014	F2015	F2016
Number of customers	13	14	24	63	104
Surplus energy, MWh**	529	763	850	1,651	1,722

** Any excess Energy Credits (surplus energy) at the customer's anniversary date is paid at the Energy Price. The surplus energy purchases would include some energy delivered in the previous fiscal year.

- 3.3 Please provide an update to the above table with the most recently available data.
- 3.4 For each of the customers who received a payout in F2018, please present the date of enrolment, generation type, generation project size (kW), and the amount of surplus energy and amount of payout (\$) in F2015, F2016, F2017, and F2018 (kWh).
- 3.5 Please provide the total number of NM customers, total capacity installed (incremental and cumulative), total energy (kWh) generated, and Surplus Energy (kWh) sold to BC Hydro for each year since the inception of the program to date.
- 3.6 Please provide the number of NM customer in each rate class as of June 1, 2019.

B. SIZE OF GENERATING FACILITY

**4.0 Reference: SURPLUS ENERGY
Exhibit B-1, p. 18
Sales of energy by distributed generation customers**

On page 18 of the Application, BC Hydro states:

BC Hydro believes that Oversized Generating Facilities are similar to an IPP and are not consistent with the intent of the Program to allow individual customers to meet all or part of their electricity demand, with generation limited to their own use.

- 4.1 Does BC Hydro consider that there are other programs better suited for customers with oversized generation facilities to sell annual excess energy? Please explain.
- 4.2 For customers denied access to the NM program due to generation greater than load under the proposed tariff, do those NM customers currently have the option to participate in other programs that facilitate distributed generation?

**5.0 Reference: SURPLUS ENERGY
Exhibit B-1, p. 18; Order G-5-17, Appendix A, pp. 2, 34
Cost-shifting to non-participants**

Page 2 of Appendix A to Order G-5-17¹ states that BC Hydro includes the following approval sought in its BC Hydro 2015 Rate Design Application:

Effective April 1, 2017, a one-time increase to RS 13xx basic charge that would allow the basic charge to recover approximately 45 percent of BC Hydro's customer-related costs attributable to the Small General Service (SGS) rate class in the F2016 Cost of Service (COS) study, and a one-time offsetting decrease in the energy rate to maintain forecast revenue neutrality based on the SGS revenue target calculated using any applicable rate increases arising from the F2017 Revenue Requirements Application.

The above approval was approved as explained on page 34 of Appendix A to Order G-5-17.

On page 18 of the Application, BC Hydro states:

Further, BC Hydro believes that Surplus Energy Payments ranging from \$28,000 to \$74,000 are unfair to non-participating customers, go far beyond any limited cost-shifting that may be warranted to support the Program and over time, if not addressed, could represent a substantial cost to BC Hydro and to all customers.

- 5.1 Please elaborate on how cost-shifting from NM customers to other non-participants occurs based on BC Hydro's rate design and cost of service for each of the customer classes eligible for the NM program.
- 5.2 Please quantify the "cost-shifting" to non-participants by illustrating the cost recovery from the following hypothetical customers, including a breakdown and an illustrative example of the bill that the customer would pay in each billing cycle: i) an average SGS customer non-NM customer; ii) a hypothetical average SGS customer who offsets 50% of his/her own consumption with NM generation within each billing cycle; iii) a hypothetical average SGS customer who offsets 100% of his/her consumption within each billing cycle.
 - 5.2.1 Please replicate the analysis above for each of the other rate classes that currently has customers enrolled in the NM program.
 - 5.2.2 Please compare the effect of cost-shifting on an annual basis versus on a billing cycle basis, including the effect from NM customers' ability to accumulate credits in the Generation Account Balance to offset Net Consumption in a subsequent billing period.
- 5.3 Please confirm, or explain otherwise, that the purpose of the proposed changes to the tariff to limit Annual Energy Output to the Annual Load is to limit cost-shifting.

¹ https://www.bcuc.com/Documents/Proceedings/2017/DOC_48618_01-20-2017_G-5-17_BCH-2015-RDA-Decision-WEb.pdf

- 5.3.1 Please discuss whether BC Hydro considers there would be a need to limit the proposed generation size if the Energy Price more accurately reflected BC Hydro's marginal cost of providing energy to NM customers.

**6.0 Reference: SIZE OF GENERATION FACILITY
Exhibit B-1, Section 2.3, p. 18, Appendix B, pp. 2–3
Annual Energy Output**

On page 18 of the Application, BC Hydro states:

The 2018 Amendment Application sought to amend RS 1289 so that customers could not bypass an existing load on their premises or size their Generating Facility to have an estimated Annual Energy Output that was greater than their estimated Annual Load.

BC Hydro proposes the following wording in its tariff, and is provided on pages 2 to 3 of Appendix B of the Application:

2. Annual Energy Output

The Annual Energy Output is the calculated annual energy output for a Generating Facility that will be calculated as follows:

Generating Facility's nameplate rating in kilowatts x capacity factor x 365 days x 24 hours, where the capacity factor is:

- 10 per cent for photovoltaic;
- 20 per cent for biogas, thermal and wind;
- 30 per cent for fuel cell; and
- 40 per cent for hydro.

For inverter based Generating Facilities, the nameplate rating for a Generating Facility is the total capacity of the inverters (AC capacity).

7. Generating Facility

Generating Facility for the purposes of this Rate Schedule means a generating facility, including fuel cells and energy recovery generation, that:

- (a) Utilizes biogas, biomass, geothermal heat, hydro, solar, ocean, wind or other energy resources or technologies defined as a "clean or renewable resource" in the Clean Energy Act (as updated from time to time) to generate Electricity;

- 6.1 Please explain how each of the capacity factors under Annual Energy Output were determined.
- 6.2 Please discuss whether the capacity factor for the same type of generation can differ depending on the geographical location of the generation facility.
- 6.2.1 If yes, please discuss the advantages and disadvantages for the NM customer using a fixed capacity factor for each generation type
- 6.2.2 If yes, please discuss the advantages and disadvantages for BC Hydro of using a fixed capacity factor for each generation type.
- 6.3 Please explain whether the capacity factor for each type of qualifying "Generation Facility" (e.g. Biomass, geothermal heat, ocean) is specified under the "Annual Energy Output" section.

- 6.3.1 If all types of Generation Facilities are not specified under the “Annual Energy Output” section, please explain how the Annual Energy Output will be determined in those cases.

**7.0 Reference: SUPLUS ENERGY
Exhibit B-1, Appendix B, pp. 2–3
Definition of Annual Load**

BC Hydro proposes the following wording in its tariff, and is provided on pages 1-3 of Appendix B of the Application:

Availability	<p>For any Residential Service Customer and for any General Service Customer who:</p> <ol style="list-style-type: none"> 1. installs a Generating Facility to generate electricity to serve all or part of their Electricity requirements on the Customer’s Premises, and 2. has had their Net Metering Application for Service under this Rate Schedule accepted by BC Hydro in writing and has received Interconnection Approval. <p>With the consent of BC Hydro, Customers taking Service under other Rate Schedules may be admitted to Service under this Rate Schedule, provided that BC Hydro is satisfied that the metering, billing and other requirements of this Rate Schedule can be met.</p>
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3. Annual Load

The Annual Load is the estimated annual Electricity requirements on the Customer’s Premises, calculated based on:

- (a) The total kilowatt hours of Electricity supplied by BC Hydro to the Customer’s Point of Delivery based on the Customer’s billing data from the 12 consecutive months immediately preceding BC Hydro’s receipt of the Customer’s Net Metering Application;
- (b) if 12 consecutive months of billing data is not available, an estimate of the annual Electricity requirements, supported by the Customer’s billing data to the date of the Customer’s Net Metering Application and other relevant Customer information satisfactory to BC Hydro in its sole discretion; and
- (c) if the Customer provides BC Hydro with evidence of the purchase of new equipment, such as an electric vehicle, for use on the Customer’s Premises, BC Hydro may increase the Customer’s estimated Annual Load by the estimated amount of Electricity that the new equipment is expected to require, as determined by BC Hydro in its sole discretion.

- 7.1 Please explain whether the requirement “to generate electricity to serve all or part of their Electricity requirements on the Customer’s Premises” is assessed upon enrolment only or on an ongoing basis to maintain enrolment eligibility in the NM program.

- 7.1.1 If the above requirement must always be met when a customer is enrolled in the NM program, please discuss i) how often does BC Hydro evaluate whether a current NM customer continues to meet this requirement, and ii) how does BC Hydro account for fluctuations in a customer's generation and consumption.
- 7.2 For the purpose of determining the appropriate size of the generation facility, please discuss whether BC Hydro has considered calculating Annual Load based on a customer's peak load rather than annual average electricity requirement. If yes, please explain why calculating Annual Load based on peak load is not proposed. If not, why not?
- 7.3 Please explain whether the definition of Annual Load accounts for future changes in load, such as energy conservation, changes in occupancy, or other changes in needs on the premises that are not dependent on the purchase of new equipment.
- 7.4 Please explain what action BC Hydro would take, if any, if existing customer's energy consumption decreased to consistently result in Surplus Energy.

C. ANNIVERSARY DATE

8.0 Reference: **ANNIVERSARY DATE** **Exhibit B-1, pp. 6, 28, 29, 31** **Optimal and Flexible Anniversary Date**

On page 31 of the Application, BC Hydro states:

BC Hydro has considered the Engagement Survey Results, the Jurisdictional Review and the Evaluation Report and is requesting BCUC approval to:

- Assign all customers an Anniversary Date of March 1, an optimized Anniversary Date for customers with solar photovoltaic Generating Facilities, which is the type of Generating Facility installed by 98 per cent of current customers in the Program; and
- Allow customers to choose their Anniversary Date once.

On page 6, BC Hydro states:

BC Hydro is proposing to assign all customers a default Anniversary Date of March 1 and to allow customers to choose their own Anniversary Date once. This would provide all customers in the Program with increased opportunities and flexibility to apply their Generation Account Balance to reduce their supply from BC Hydro.

On page 31, BC Hydro states, "These amendments would allow customers to choose the Anniversary Date that is best for them while also setting a default Anniversary Date that is optimized for the vast majority of customers in the Program."

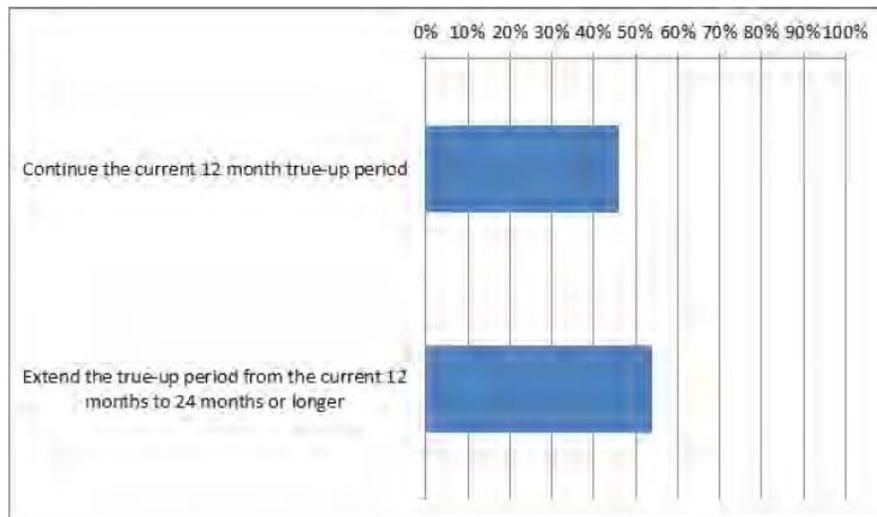
- 8.1 Please provide a breakdown of the internal costs associated with the administration of the current anniversary date and the proposed flexible anniversary date, including implementation cost, administration costs, management costs.
- 8.2 Please discuss whether BC Hydro considered allowing customers to reset the Anniversary Date more than once. Please also provide a discussion on the costs associated with multiple resets of the Anniversary Date.

- 8.3 Please explain whether BC Hydro foresees any issues with NM customers choosing an Anniversary Date that reduces opportunities to apply their Generation Account Balance to reduce their supply from BC Hydro.
- 8.4 Please discuss the scenarios where it would be economical for customers to choose an Anniversary Date that will result in the maximum amount of credit for payout in the Generation Account Balance (e.g. when the Mid-C price is higher than the customer's retail rate).

On pages 28 and 29 of the Application, BC Hydro states:

As shown in Figure 5 below, the Engagement Survey Results indicate that participants did not have a strong preference with regards to whether the period of time to accumulate and apply a Generation Account Balance between Surplus Energy Payments should be extended with 46 per cent supporting no change and 54 per cent supporting an extension.

Figure 5 Engagement Survey Results – Extending the Period Between Surplus Energy Payments



- 8.5 Please further elaborate on why BC Hydro has chosen to maintain the 12-month option instead of extending the true-up period to, for example, 24-months.

8.5.1 Please discuss the implications of extending the true-up period for both BC Hydro and NM customers.

D. PRICE OF SURPLUS ENERGY

- 9.0 Reference: PRICE OF SURPLUS ENERGY
Exhibit B-1, pp. 33, 35; Order G-45-11, Appendix A, p. 5²
Rate change against Bonbright rate design principles**

BC Hydro states on page 33 of the Application that it is proposing to update the Energy Price paid for the Generation Account Balance remaining in the Customer's Generation Account at their Anniversary Date from 9.99 cents per kWh to an amount determined by calculating the average of the daily average Mid-Columbia market prices over the previous calendar year.

² <https://www.ordersdecisions.bcuc.com/bcuc/orders/en/118000/1/document.do>

BC Hydro explains on page 35 of the Application that “setting the Energy Price on a long-run basis, when the energy received only has a short-run value, goes beyond limited cost-shifting and does not represent a fair value to non-participating customers.” BC Hydro further states that “It is important to recognize that the current design of the Program, which allows customers to apply a Generation Account Balance towards future consumption, means that energy received from the Program is valued at both the retail rate and the Energy Price.”

The Bonbright principles for rate design as referenced by the BCUC in Order G-45-11 regarding BC Hydro’s Residential Inclining Block Rate Re-Pricing Application include the following:

Principle 1: Recovering the Cost of Service; the aggregate of all customer rates and revenues must be sufficient to recover the utility’s total cost of service

Principle 2: Fair appointment of costs among customers (appropriate cost recovery should be reflected in rates)

Principle 3: Price signals that encourage efficient use and discourage inefficient use

Principle 4: Customer understanding and acceptance

Principle 5: Practical and cost-effective to implement (sustainable and meet long-term objectives)

Principle 6: Rate Stability (customer rate impact should be managed)

Principle 7: Revenue stability

Principle 8: Avoidance of undue discrimination (interclass equity must be enhanced and maintained)

- 9.1 In a table format, please explain in detail whether BC Hydro’s proposal to change the Energy Price from 9.99c/kWh to the average of the daily average Mid-Columbia market aligns with each of the Bonbright rate design principles referenced above.
- 9.2 Please provide the current weighted average cost of energy (including O&M cost of heritage assets) and discuss how it compares with the current Surplus Energy Price at 9.99c/kWh.
- 9.3 With reference Bonbright Principles #2 and #8 referenced above, please elaborate, and quantify where possible, how setting the Energy Price on a long-run basis goes beyond limited cost-shifting and does not represent a fair value to non-participating customers.

**10.0 Reference: PRICE OF SURPLUS ENERGY
Exhibit B-1, pp. 18, 34, 35
Long-run versus short-run value**

BC Hydro states on page 18 of the Application, “BC Hydro believes that Oversized Generating Facilities are similar to an IPP and are not consistent with the intent of the Program to allow individual customers to meet all or part of their electricity demand, with generation limited to their own use.”

On page 34, BC Hydro states, “The link between the SOP price and the Energy Price is based on the premise that the Energy Price should reflect a long-run value instead of a short-run value. BC Hydro believes that this premise is incorrect and should be re-considered.”

BC Hydro states on page 35 that “energy from the Program does not have a long-run value because it cannot be used to displace or reduce BC Hydro’s need to acquire new generation resources, over the

long-term.” And that “the Energy Price on a long-run basis, when the energy received only has a short-run value, goes beyond limited cost-shifting and does not represent a fair value to non-participating customers.”

- 10.1 Please explain whether there has been a change in circumstance since the inception of the NM program such that the Energy Price should now reflect a short-run value rather than a long-run value. If yes, please elaborate.
- 10.2 Please demonstrate how the Net Generation from NM customers provides short-term rather than long-term value to BC Hydro. Specifically, please include the energy profile of energy supplied to BC Hydro by generation type, separating out generation energy, losses, ancillary services, generation capacity and network capacity.
 - 10.2.1 Please explain whether the value of energy delivered to the grid differs among generation types. If yes, please explain any differences and present the short-term and long-term energy value by generation type.
- 10.3 Once a customer makes an investment in distributed generation (DG), please estimate (by generator type) the typical life of that DG investment.
 - 10.3.1 Does BC Hydro consider that the energy generated from a distribution connected DG customer with DG should generally be considered long-term or short-term in nature? Please explain.
- 10.4 Please elaborate on the similarities and differences between the energy supplied from Oversized Generating Facilities and IPPs.
- 10.5 Please discuss whether BC Hydro considers energy from Independent Power Producers (IPPs) to be short-term or long-term in nature.
 - 10.5.1 If energy from IPPs is considered long-term in nature, please explain why energy from NM customer’s generation is considered short-term in nature.

**11.0 Reference: PRICE OF SURPLUS ENERGY
Exhibit B-1, Appendix F, pp. 18–19
Value of Energy from NM customers to BC Hydro**

BC Hydro states on pages 18-19 of Appendix F to the Application:

- Generally speaking, the economic value of customer self-generation to BC Hydro and non-participating customers is measured in terms of the amount of RS 1289 energy purchased by BC Hydro that can be used to defer purchasing new energy. In addition to the avoided energy value, customer generation may also allow BC Hydro to avoid or defer system costs or regional transmission, such as upgrades to enhance the reliability of the system in a particular area.
- 11.1 Please discuss, and quantify if possible, any benefits to BC Hydro from load reduction and energy supply from NM customers, including capacity savings, energy savings and deferred capital expenditure such as on transmission or generation.
 - 11.1.1 Please explain whether the benefits to BC Hydro differs depending on the generation type. If so, please elaborate on the differences.
 - 11.2 Does BC Hydro consider that, on an aggregate basis, its NM customer generation can provide generation and network capacity benefits? Please explain.

12.0 Reference: PRICE OF SURPLUS ENERGY
Exhibit B-1, p. 7
Average of daily average Mid-C market price

BC Hydro states on page 7 of its Application:

BC Hydro is proposing to update the Energy Price paid for the Generation Account Balance remaining in the Customer's Generation Account at their Anniversary Date from 9.99 cents per kWh to an amount that reflects the price BC Hydro can sell the electricity for on the regional wholesale market. This amount would be determined every January 1st based on the daily average Mid-Columbia prices for the previous calendar year, converted to Canadian dollars using the average annual exchange rate from the Bank of Canada for that year.

- 12.1 Please clarify whether the proposed Surplus Energy Price refers to the daily average Mid-C market price based on light load hours, heavy load hours, or weighted average between light load and heavy load within the day.
- 12.2 Please provide the daily average Mid-C market price during: i) light load hours ii) heavy load hours, and iii) daily average, for each day in the previous year, respectively, in a data table in excel format and in a graph.
 - 12.2.1 Please provide the definition of light load hours and heavy load hours.
- 12.3 Please provide, in table form and in a line graph, the total daily Net Generation supplied to BC Hydro by NM customers for each day in the previous year during i) light load hours and ii) heavy load hours for each generation type, respectively.
- 12.4 Please explain how the average Mid-C price fairly reflects the value of the energy supplied to BC Hydro. Please include a comparison of the monthly and daily generation profiles of NM energy, by generation type, compared to the Mid-C prices at these times.
- 12.5 Please provide the annual average of the daily average Mid-C market price in the past 10 years, in US dollars and Canadian dollars, respectively, as well as the average annual exchange rate from the Bank of Canada for each of the past 10 years.
 - 12.5.1 Please comment on the year-to-year volatility in the annual average daily Mid-C price presented above.
 - 12.5.2 Please discuss how much of the volatility in the average Mid-C price in Canadian dollars is due to currency volatility.
 - 12.5.3 Please explain whether, and if so how, BC Hydro addresses currency risk associated with the Mid-C price.
- 12.6 Please confirm, or explain otherwise, that the proposed Surplus Energy Price will change from year to year, depending on the average of the daily average Mid-Columbia market prices and exchange rate over the previous calendar year.
 - 12.6.1 If confirmed, please discuss any anticipated challenges regarding: i) rate stability and ii) customer acceptance and understanding from the unpredictability in the Surplus Energy Price due to anticipated annual adjustments.
- 12.7 Please discuss the pros and cons of adjusting the Surplus Energy Price only if the annual average of the daily average Mid-C market price deviates from the previous year's annual average by a threshold difference (either a c/kWh difference or a percentage difference).

- 12.7.1 Please comment on whether BC Hydro would be amenable to including a threshold difference between the average Mid-C price and the Surplus Energy Price that would trigger the need for an adjustment to the Surplus Energy Price. If so, please provide and explain the range of the threshold that BC Hydro considers appropriate.
- 12.8 Please discuss BC Hydro’s communications plan to its NM customers regarding what the Energy Price will be for the upcoming year.
- 12.9 Please provide a detailed timeline regarding the change in Surplus Energy Price every year, from the calculation of the annual average of daily Mid-C price, communication to customers, to the implementation of the revised Surplus Energy Price.

**13.0 Reference: PRICE OF SURPLUS ENERGY
Order G-63-18, Appendix A, p. 11; BC Hydro electric tariff, p. 5-36
Alternative options to value surplus energy**

On Page 11 to Appendix A to Order G-63-18 states, “The Panel finds that the RS 3808 Tranche 1 rate is a reasonable proxy for the cost of FBC’s energy supply alternatives; it reflects the non-firm nature of the energy generated; and it sends a pricing signal that is more closely aligned with the design of the NM program to offset own consumption.” The current RS 3808 Tranche 1 rate is at 5.098 ¢ per kWh as of April 24, 2019.

- 13.1 Please explain in table form the advantages/disadvantages of using the following values as a proxy for the value of Surplus Energy delivered to the grid by BC Hydro NM customers. In all cases please provide a ¢/kWh estimate of the amount that would be paid and whether they represent *delivered* energy values (i.e. include transmission and distribution line losses):
- Zero;
 - Status quo;
 - BC Hydro’s proposal (average of the daily average Mid-Columbia market prices over the previous calendar year);
 - FBC’s price of net excess generation (BC Hydro RS 3808 Tranche 1); and
 - BC Hydro LRMC used for the DSM Application contained in Chapter 10 to BC Hydro’s F2020-2021 Revenue Requirement Application (excluding capacity).
- 13.2 Please explain the value of energy represented by BC Hydro’s RS 3808 Tranche 1 rate and discuss how the RS 3808 Tranche 1 rate compare to the “true value” of energy supplied to BC Hydro under the NM program.

**14.0 Reference: PRICE OF SURPLUS ENERGY
Exhibit B-1, Appendix F, pp. 23–24
Value of energy storage to NM customer**

On pages 23 to 24 of Appendix F to the Application, BC Hydro presents the Net Metering Evaluation Report No. 4. BC Hydro produces a Net Metering Energy Charge/Credit and Analysis of Residential Service Customers (RS 1101) and Small General Service Customer (RS 1300) in Table 4 and Table 5, respectively.

- 14.1 Please reproduce Table 4 and Table 5 in the Net Metering Evaluation Report No. 4 with information available to date.
- 14.2 Please compare NM customers’ generation and consumption patterns as observed by BC Hydro. Please include data by rate class and by generation source, respectively.

- 14.2.1 Based on the information presented above, please discuss whether there is a difference between the value of Net Generation supplied to BC Hydro versus BC Hydro's cost to meet the NM customers' Net Consumption on a real-time basis.
- 14.3 Please explain in detail, from a BC Hydro energy system management perspective, how BC Hydro facilitates the ability for NM customers to "store" Net Generation as a credit on the Generation Account to meet future Net Consumption.
- 14.3.1 Please discuss, and quantify where possible, if there is any cost to BC Hydro and other non-participants associated with providing NM customers with "storage" that allows a NM customer to generate excess in one time period for future consumption.

**15.0 Reference: PRICE OF SURPLUS ENERGY
Exhibit B-1, pp. 44–45, 47; Appendix B, p. 2; Comprehensive Review of BC Hydro:
Phase 1 Final Report, p. 4
Transition for existing customers**

Page 6-2 of the revised tariff as included in Appendix B to the Application states that "This transitional Energy Price will expire on April 30, 2024. After April 30, 2024, all Customers receiving Service under this Rate Schedule will be paid the Energy Price described in (a), above." BC Hydro also states on page 44 of the Application that "During this five-year period, BC Hydro will monitor the impact of the proposed changes to determine if further measures are required."

BC Hydro states on page 45 of the Application that "in fiscal 2018, the vast majority of customers in the Program (1,044 or 80 per cent) received no Surplus Energy Payment and of the 256 customers who received a Surplus Energy Payment, 215 or 84 per cent received a payment of less than \$500."

BC Hydro also states on page 47 that it "believes that providing a transitional Energy Price for a five-year period strikes a fair balance between existing customers and other ratepayers, recognizing that existing customers in the Program have incurred significant capital investments and that changing the basis of the Energy Price from a long-run to a short-run value, is a significant change." [emphasis added]

Comprehensive Review of BC Hydro: Phase 1 Final Report states on page 4: "BC Hydro stopped taking any applications under the Standing Offer Program in August 2017. The Standing Offer Program will be suspended indefinitely by BC Hydro in accordance with a regulation being issued by the government under the Clean Energy Act."

- 15.1 Please explain the rationale for proposing a 5-year transition period, including what other alternative durations were contemplated and the reason why the alternatives are, in BC Hydro's view, less favorable to the proposed duration of the transition period.
- 15.1.1 Please discuss whether BC Hydro sought input from existing or potential NM customers on the contemplated alternatives identified above.
- 15.1.2 Please explain whether any other transition options were presented to customers and stakeholders during BC Hydro's consultation process.
- 15.2 Please explain why an expiry date has been proposed for the Tariff considering BC Hydro has indicated that further review will be conducted at the end of the 5-year period.
- 15.3 Please explain if the expiry date was communicated to participants in the Webinar or the Engagement survey.
- 15.4 Please provide the number of customers who entered the NM program prior to April 20, 2018 and identify how many of them had Surplus Energy eligible for payout in the full year immediately preceding April 20, 2018.

- 15.4.1 Assuming the consumption and generation pattern of the NM customers who are eligible for payout identified above remain the same in the future, please provide the estimated financial impact to i) the affected NM customers, and ii) to BC Hydro (and its ratepayers) if the transition period was 0 (i.e. no transition period), 1, 2, 3, 4, and 5 years from April 20, 2018, respectively.
- 15.4.2 Please replicate the analysis provided in response to questions 15.4 and 15.4.1 above for customers who entered the NM program prior to April 29, 2019.
- 15.5 Please explain whether the enrolment into the NM program entails any contractual agreement between BC Hydro and the NM customer that provides assurance on i) the cost recovery of capital investments by NM customers and ii) stability of the terms and conditions, including the Energy Price, contained in RS 1289, respectively.
- 15.6 Please clarify the objective of BC Hydro's NM program, including whether cost recovery of customer's capital investment is one of the NM program objectives.
- 15.6.1 Please elaborate on the relevance of considering NM customer's capital investments in determining the appropriate transition period.
- 15.7 In consideration the SOP is suspended indefinitely, please comment on the appropriateness for BC Hydro to continue referencing the Standing Offer Program (SOP) price for purpose of the NM program until April 30, 2024.

E. OTHER TARIFF CHANGES

**16.0 Reference: OTHER TARIFF CHANGES
Exhibit B-1, Appendix B, p. 5 of 12**

BC Hydro provides the clean version of the revised tariff in Appendix B to the Application. It states on page 5 of 12 that:

3. BC Hydro will assess the proposed Generating Facility described in the Net Metering Application. Specifically..

- 16.1 Please confirm whether the paragraph referenced above contains any typographical errors. If yes, please provide a revised version.

F. ISSUES FOR FUTURE APPLICATION

**17.0 Reference: ISSUES FOR FUTURE APPLICATION
Exhibit B-1, Section 7.2, pp. 48–49;
Virtual Net Metering**

On page 49 of the Application, BC Hydro states:

While BC Hydro has received several requests to support Virtual Net Metering, including through the Engagement Survey Results, enabling customers to share credits would require significant modifications to our billing process.

In the meantime, BC Hydro has suggested that one customer "own" the net metering installation and perform the administrative task of allocating credits between the participating customers.

- 17.1 Please provide the number of requests BC Hydro has received related to Virtual Net Metering support.
- 17.2 Please provide the number of known shared NM projects in BC Hydro's service area.

**18.0 Reference: ISSUES FOR FUTURE APPLICATION
Exhibit B-1, Section 7.3, p. 50; BC Hydro's 2017 Evaluation Report, p. 19
Broader costs and benefits of the NM program**

On page 50 of the Application, BC Hydro states:

Given the installed capacity and volume of the energy generated by customer Generating Facilities in the Program at this time, the cost-shifting between participating and non-participating customers is not material. However, over time, as the Program grows, the cost-shifting could become material.

- 18.1 Please discuss and quantify how much cost-shifting is considered material.
- 18.2 In BC Hydro's judgment, based on the proposed tariff change, at what capacity and volume would cost-shifting become material?
- 18.3 Please comment on how BC Hydro expects the size of the NM program to change in 5 years' time (2024) in terms of i) number of customers enrolled, and ii) total energy generated under the program.
- 18.4 If the NM program is expected to grow, please comment on how demand and supply from NM customers fit into the resource plan, including how NM demand and supply affect BC Hydro's supply portfolio and system load shaping.
- 18.5 Based on the current and projected growth of the NM program, please explain when the cost-shifting would become material to BC Hydro.

Page 50 of the Application states:

As discussed in section 8.1 of the Evaluation Report, at this time, the installed capacity and volume of energy generated by customer Generating Facilities in the Program is too small to result in any appreciable avoided cost benefits to BC Hydro and non-participating customers.

On page 19 of BC Hydro's 2017 Evaluation Report:

At this time, the installed capacity of RS 1289 generators and the volume of energy generated by those customers is simply too small to result in any appreciable avoided cost benefits to BC Hydro and other ratepayers, both in terms of the impact on BC Hydro's LRB and avoided system costs.

- 18.6 In BC Hydro's judgment, based on the proposed tariff change, at what capacity and volume would avoided cost benefits become material?
- 18.7 Based on the current and projected growth of the Program, when would the avoided cost benefits become material to BC Hydro?

**19.0 Reference: ISSUES FOR FUTURE APPLICATION
Exhibit B-1, Section 7.4, p. 51
Future costs and benefits of the NM program**

On page 51 of the Application BC Hydro states:

In the Application, BC Hydro has proposed to update the Energy Price to reflect the value received for that energy on the regional wholesale electricity market. This proposal allows customers to sell electricity to BC Hydro at its marginal cost and is consistent with the application of Marginal Cost Pricing.

Through Phase Two of the Comprehensive Review, BC Hydro and the Government of B.C. intend to explore the potential application of Marginal Cost Pricing, including its potential application to the Program.

- 19.1 Please discuss if BC Hydro has considered alternate methods of determining BC Hydro’s marginal cost, in addition to using the market clearing price for the regional wholesale market.
- 19.1.1 If yes, please explain the rationale for selection of the market clearing price for the regional wholesale market.
- 19.1.2 If not, please explain why not.

G. CUSTOMER AND STAKEHOLDER ENGAGEMENT

**20.0 Reference: CUSTOMER AND STAKEHOLDER ENGAGEMENT
Exhibit B-1, Appendix C, p. 1; Appendix D, p. 18
Review of the NM program since 2018**

BC Hydro states on page 1 of its 2018 Application attached to Appendix C to the Application that:

BC Hydro is targeting to complete this review of the Program and file an application with the Commission for approval of further amendments by the end of calendar year 2018. In its review, BC Hydro will be considering other options to address the issue of oversized generating facilities. Our future application may propose maintaining the amendments requested in this Application to Amend or may propose different amendments that reflect the outcome of the review.

Page 18 of Appendix D of the Application provides the following timeline:

March 18, 2019 and April 1, 2019 <ul style="list-style-type: none">• Webinars for customers and interested parties• Survey on proposed changes available	April 9, 2019 <ul style="list-style-type: none">• Deadline to complete Net Metering survey	April 30, 2019 <ul style="list-style-type: none">• Application filed with BCUC (with consideration of feedback from webinar/survey participants)• BCUC directed process to follow
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BC Hydro filed its Net Metering Evaluation Report No. 4 dated April 26, 2017 as Appendix F to the Application.

- 20.1 Please elaborate on what analysis was done on the NM program by BC Hydro since the filing of the previous NM Application in 2018.

- 20.1.1 Please explain whether BC Hydro produced a report on its analysis. If yes, please provide a copy of the report. If not, please explain why not.
- 20.2 Please explain whether BC Hydro produced an updated Net Metering Evaluation Report since the one filed in 2017. If yes, please provide a copy.
 - 20.2.1 If no, please explain how often BC Hydro produces a Net Metering Evaluation Report, and when will BC Hydro produce its next Evaluation Report.
- 20.3 Please discuss how frequently BC Hydro conducts a review of its NM program.
- 20.4 Please explain whether all of the options contemplated by BC Hydro to address the issue of oversized generating facilities were presented to potential stakeholders in the webinars and in the Net Metering Survey.
 - 20.4.1 If all options contemplated were not presented, please explain what other options were considered by BC Hydro and why those options were dismissed.
- 20.5 Excluding the webinars held on March 18, 2019 and on April 1, 2019, and the Engagement Survey completed by April 9, 2019, please provide the details of all stakeholder consultation that has taken place after April 2018, following BC Hydro's Net Metering Amendment application.
- 20.6 Please explain whether, and if so how, BC Hydro has modified its proposal contained in the Application based on the feedback from stakeholders from the webinars and Net Metering Survey.

**21.0 Reference: Customer and Stakeholder Engagement
Exhibit B-1, Appendix D, p. 2-18
Webinar materials**

Page 2 of the webinar materials states that that one of the purposes of the Webinar was to "Seek your input on proposed changes to inform BC Hydro's April 30, 2019 application."

- 21.1 Please explain how customers and stakeholders provided input during the webinar.
- 21.2 Please provide a list of questions and comments received from the webinar participants, including BC Hydro's responses.

**22.0 Reference: Engagement Survey Results
Exhibit B-1, Appendix E, pp. 12-13**

On pages 12 and 13 of Appendix E to the Application BC Hydro states it received 352 additional comments in response to the proposed changes to the Net Metering program. Further to that customers and stakeholders also provided feedback through written submissions.

- 22.1 Please provide a copy of the additional comments.
- 22.2 Please provide a copy of the written submissions received during the Engagement Survey.
- 22.3 Please discuss how BC Hydro has considered the comments and submissions received in preparation for the Application.

**23.0 Reference: Net Metering Evaluation Report No. 4
Exhibit B-1, Appendix F, p. 11
RS 1289 – Customer Data**

In the summary of inquiries, BC Hydro states that between April 2013 and March 2016 it responded to 616 phone calls and 401 emails.

- 23.1 Please provide a summary of any Net Metering related complaints received between April 2013 to date, including the nature of these complaints.
- 23.2 Please discuss whether, and if so how, BC Hydro has addressed the complaints identified above.