

REQUESTOR NAME: **BC Sustainable Energy Association**

INFORMATION REQUEST ROUND NO: 1

TO: **BC Hydro and Power Authority**

DATE: **July 17, 2019**

PROJECT NO: **1599004**

APPLICATION NAME: **BC Hydro Application to Amend Net Metering Service under Rate Schedule 1289**

A. Proposed Ban on New Intentional Oversized Generation

1.0 Topic: New Intentional Oversized Generation

Reference: Application, Exhibit B-1, p.19

The following questions explore whether, in the event that the Commission approves a new Energy Price based on the value of annual net excess generation to BC Hydro, there needs to be a ban on new intentional Oversized Generation. These questions assume that the 100 kW maximum generator size and the Interconnection Approval requirement remain in place.

- 1.1 Please confirm, or otherwise explain, that BC Hydro seeks Commission approval, subject to transition provisions, to both (a) reduce the Energy Price to a level that reflects the value of annual net excess generation to BC Hydro and (b) make permanent the interim bar on accepting new applications to participate in the Net Metering Program by customers who propose intentional annual net excess generation (“Oversized Generating Facilities”).
- 1.2 If the Energy Price is approved at a level that reflects the value of annual net excess generation to BC Hydro then does BC Hydro agree that there would be no cost-shifting rationale for barring new applicants for net metering that have intentional annual net excess generation? If not, why not?
- 1.3 If the Energy Price is approved at a level that reflects the value of annual net excess generation to BC Hydro then does BC Hydro agree that there would be no need to bar new applicants for net metering who have intentional annual net excess generation? If not, why not?
- 1.4 If the Energy Price is approved at a level that reflects the value of annual net excess generation to BC Hydro, and if there was no new bar to new applicants for net metering who have intentional annual net excess generation, then does BC Hydro agree there would be no need to (a) create definitions of “Annual Energy Output” and “Annual Load,” (b) vet net metering applications for intentional annual net excess generation, and (c) conduct post-approval reassessment of “Annual Energy Output” and “Annual Load”?
 - 1.4.1 Does BC Hydro agree that this would meet the need to provide increased flexibility regarding the size of a Customer’s Generating Facility to enable participation by customers, for example, with premises built to the Passive House building standard who have

relatively low Annual Load, customers expecting to purchase an EV in the future, and customers whose energy use and behaviours may change in the future? [Reference: Application, p.19]

- 1.5 Would BC Hydro agree that if the Energy Price is approved at a level that reflects the value of annual net excess generation to BC Hydro, and if there was no new bar to new applicants for net metering who have intentional annual net excess generation, then customers would be able to make their own assessment of the value, financial and otherwise, to them of investing in new Oversized Generation taking into account their own predictions of their future load and future generation?

2.0 Topic: New Intentional Oversized Generation
Reference: Application, Exhibit B-1, s. 2.4, “Options to Address Oversized Generating Facilities”; s.2.7, “Proposed Amendments Would Prevent Oversized Generating Facilities and Support Program Intent, Fairness and Flexibility”

BCSEA disputes BC Hydro’s claim that the Engagement Survey results support BC Hydro’s proposal to both permanently ban new intentional annual NEG with certain flexibility provisions and to reduce the Energy Price.

BC Hydro states in the Application that the results of the Engagement Survey support BC Hydro’s proposals regarding new Oversized Generation and reduction of the Energy Price. BC Hydro states on page 23 that its proposals are supported by the fact that:

“43 per cent of Engagement Survey participants supported the proposal of maintaining the amendments included in the 2018 Amendment Application, with additional changes to provide greater flexibility, compared to the alternative proposal of having no requirement regarding the size of a customer’s Generating Facility and a reduction to the Energy Price.” [underline added]

The two specific options offered in the Survey (in addition to “Other Suggestions”) were:

- Make the amendments proposed in the 2018 Amendment Application [ban on new intentional annual NEG] ongoing, with adjustments to provide greater flexibility to customers.
 - No requirement regarding the size of a customer’s Generating Facility and a reduction to the Energy Price. [Application, p.19]
- 2.1 Would BC Hydro agree that the logic of the two options presented in the Engagement Survey is that each option provides a different way to address new Oversized Generation while also achieving the “greater flexibility to [NM] customers” that BC Hydro acknowledges is necessary: the first option finalizes the ban but retains the 9.99 cent/kWh Energy Price, while the second option eliminates the ban but reduces the Energy Price?

- 2.1.1 Would BC Hydro agree that this interpretation is supported by the statement on page 23, lines 12-16 that describes the first option in contradistinction to the second option: “compared to the alternative proposal of having no requirement regarding the size of a customer’s Generating Facility and a reduction to the Energy Price”?
- 2.2 Would BC Hydro agree that in the Application BC Hydro does not propose either the first or the second option set out in the Engagement Survey: rather, BC Hydro proposes both a permanent ban on new intentional annual NEG (with certain flexibility provisions) and a reduction in the Energy Price?
- 2.3 Would BC Hydro agree that the first option (supported by 43%) implies that in this option there would be no reduction in the Energy Price, or that it is at least unclear whether respondents selecting this option understood that they were supporting both a ban on Oversized Generation with flexibility and a reduction in the Energy Price?
- 2.4 Would BC Hydro agree that the results of the Engagement Survey do not support BC Hydro’s proposal to both finalize the ban and reduce the Energy Price?

3.0 Topic: New Intentional Oversized Generation
Reference: Application, Exhibit B-1, Appendix F, Net Metering Evaluation Report No. 4, Figure 3, Barriers [pdf p. 205]

Figure 3 of BC Hydro’s Net Metering Evaluation Report No. 4 shows that 40% of respondents to BC Hydro’s survey of customers, installers and other stakeholders identified the 9.99¢/kWh Energy Price as being a barrier to participating in the NM program.

- 3.1 Does BC Hydro anticipate that reducing the Energy Price would lead to fewer applications for participation in the NM program? If so, by how much?
- 3.2 If the Commission approves BC Hydro’s proposed reduction of the Energy Price, what actions would BC Hydro take to counter any negative impact on the number of applications for participation in the NM program?

B. Purpose of Net Metering Program

4.0 Topic: Purpose of Net Metering Program
Reference: Application, Exhibit B-1, p.2

BC Hydro says that “The [Net Metering] Program is designed for customers who install a Generating Facility to generate electricity for their own use.” BC Hydro also acknowledges that prior to April 2018 it did approve some applications for participation in the Net Metering Program by customers with intentional annual net excess generation.

- 4.1 Would BC Hydro agree that the purpose of the Net Metering Program prior to April 2018 is more important to the transition provisions if the Application is approved than it is to whether or not new intentional Oversized Generation should be banned permanently?

5.0 Topic: Purpose of Net Metering Program
Reference: Application, Exhibit B-1; BC's CleanBC Plan¹

BC's 2018 CleanBC Plan states on page 56:

“Utilities. BC Hydro and FortisBC have a long history of partnering with people and communities to help conserve energy and switch to cleaner options. For example, FortisBC offers rebates on high-efficiency appliances, equipment and more. Meanwhile, BC Hydro has 900 customers on its net metering program, which allows them to generate their own electricity and sell what they don't use back to BC Hydro. As we move forward with CleanBC, utilities will continue to support, encourage and enable the transition to clean energy as we ensure their policies align with the Province's electrification goals and emission reduction targets.” [p.56, underline added]

- 5.1 Does BC Hydro agree that the CleanBC Plan characterizes BC Hydro's Net Metering Program as a positive example of a measure to support, encourage and enable the transition to clean energy, aligned with the Province's electrification goals and emission reduction targets?
- 5.2 Does BC Hydro agree that where the CleanBC Plan says the Net Metering program enables participants “to generate their own electricity and sell what they don't use back to BC Hydro” the sales of electricity to BC Hydro include annual net excess generation?
- 5.3 Does BC Hydro agree that the Commission should take the CleanBC Plan into consideration in determining the Energy Price and whether new intentional annual NEG should be allowed under the Net Metering Program?

C. Energy Price

6.0 Topic: Energy Price
Reference: Application, Exhibit B-1, section 4.1, 4.2; Exhibit A-5, BCUC IR 5.3 to BC Hydro

BC Hydro proposes to change the reference for the Energy Price from the SOP price to the market price. BC Hydro justifies this proposed change as reducing cost-shifting and reducing unfairness between NM participants and non-participant customers.

¹ https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/cleanbc/cleanbc_2018-bc-climate-strategy.pdf

In BCUC IR 5.3, the Commission asks BC Hydro to “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.”

6.1 Please confirm, or otherwise explain, that BC Hydro’s proposed change to the reference for the Energy Price is intended to address only the value for money aspect of the NM Energy Price and that the change is not intended to address any cost of service factors (other than the value of annual NEG if that is considered a cost of service factor).

6.1.1 If the proposed change to the reference for the Energy Price is intended to address cost of service factors other than the value for money aspect of the Energy Price, then please explain what these cost of service factors are and why they would be appropriately recovered only from the minority of NM participants who have annual NEG.

6.2 If not addressed in the response to BCUC IR 5.3, please define exactly what type(s) of (asserted) cost-shifting the proposed change to the Energy Price is intended to address.

7.0 Topic: Energy Price

Reference: Application, Exhibit B-1, section 1.4.3, “2007 Energy Plan and Subsequent Applications Increased Energy Price” [pdf p. 18]; section 4.6, “Evaluation Report Committed to Updating Energy Price” [pdf p. 44]

BC Hydro states on pdf p. 18 of the Application:

“In February 2007, the Government of B.C. released the 2007 Energy Plan: The BC Energy Plan: A Vision for Clean Energy Leadership. Policy Action No. 11 stated that BC Hydro would be directed to establish a Standing Offer Program (**SOP**) to purchase electricity from small, clean power projects at a set price, based on the prices paid in BC Hydro’s most recent energy call. It further stated that the Energy Price should be generally consistent with the SOP price. Accordingly:

- In October 2008, BC Hydro submitted an application to the BCUC to increase the Energy Price from 5.40 to 8.16 cents per kWh. In January 2009, by Order No. G-4-09, the BCUC approved the proposed increase to the Energy Price; and
- In September 2011, BC Hydro submitted an application to the BCUC to increase the Energy Price from 8.16 to 9.99 cents per kWh. In May 2012, by Order No. G-57-12, the BCUC approved the proposed increase to the Energy Price.”

BC Hydro states on pdf p. 44 of the Application:

“Section 15 of the *Clean Energy Act* states that BC Hydro must establish and maintain a standing offer program to acquire electricity from eligible facilities, except in the prescribed circumstances. In February 2019, following the Comprehensive Review of BC Hydro (**Comprehensive**

Review), which updated the prescribed circumstances, BC Hydro indefinitely suspended the SOP." [underline added]

- 7.1 Does BC Hydro consider that energy under an SOP electricity purchase agreement is contractually firm? Is there a penalty for non-delivery of energy under a typical SOP EPA?
- 7.2 Please confirm, or otherwise explain, that BC Hydro includes SOP energy as a supply resource for planning purposes.
- 7.3 Would BC Hydro agree that the provision in the 2007 Energy Plan that the NM Energy Price should be generally consistent with the SOP price took into account any differences in energy delivery obligations between NM annual NEG and SOP energy? If not, why not?
- 7.4 Is it BC Hydro's view that the provision in the 2007 Energy Plan that the Net Metering Energy Price should be generally consistent with the SOP price is no longer operative? If so, why?
- 7.5 Please confirm in more detail how the first phase of the Comprehensive Review of BC Hydro (February 2019 report) updated the prescribed circumstances concerning the standing offer program required by section 15 of the *Clean Energy Act*.
- 7.6 Please confirm, or otherwise explain, that the Comprehensive Review of BC Hydro Phase One Report does not contemplate, or result in, any change to the energy price in existing electricity purchase agreements under the SOP.
- 7.7 Please confirm, or otherwise explain, that the Comprehensive Review of BC Hydro Phase One Report is silent regarding both the Net Metering Energy Price and the 2007 Energy Plan's provision that the NM Energy Price should be generally consistent with the energy price for SOP EPAs.
- 7.8 In BC Hydro's view, what conclusions, if any, can be drawn from the Comprehensive Review of BC Hydro Phase One Report regarding existing NM participants with annual net excess generation, existing SOP EPAs, and the 2007 Energy Plan's provision that the NM Energy Price should be generally consistent with the energy price for SOP EPAs. Please provide references to the Report if applicable.
- 7.9 Please provide an update on whether and how the Net Metering Program is or will be addressed in the second phase of the Comprehensive Review of BC Hydro.
 - 7.9.1 In the second phase of the Comprehensive Review of BC Hydro, will the consideration of Net Metering include the NM Energy Price?
 - 7.9.2 If so, will the consideration be limited to the Energy Price for new NM participants or will it include the Energy Price for existing NM participants?

- 7.10 If the Energy Price for existing and/or new NM participants will be addressed in the second phase of the Comprehensive Review of BC Hydro, then does BC Hydro expect to consider additional changes to the Energy Price for existing or new NM participants when the second phase is completed? If so:
- 7.10.1 Would successive changes to the NM Energy Price be undesirable from a rate stability and customer acceptance perspective?
- 7.10.2 Would there be merit in deferring consideration of any changes to the Energy Price until after the results of the second phase of the Comprehensive Review of BC Hydro are known?
- 7.11 Can BC Hydro confirm that the prices under existing SOP EPAs will not be reduced as a consequence of the second phase of the Comprehensive Review of BC Hydro?
- 7.12 Does BC Hydro anticipate that net metering as supply-side and demand-side resources will be addressed in the 2021 Integrated Resource Plan?
- 7.12.1 If so, would there be merit in deferring consideration of any changes to the Energy Price until the Commission review of BC Hydro's 2021 IRP?

8.0 Topic: Energy Price

Reference: Application, Exhibit B-1, section 4.2; 2007 Energy Plan²

BC Hydro states on page 34 of the Application:

"The link between the SOP price and the Energy Price is based on the premise that the [NM] 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." [underline added]

The 2007 Energy Plan states on page 10:

"The price offered in the standing offer contract would be based on the prices paid in the most recent BC Hydro energy call. This will provide small electricity suppliers with more certainty, bring small power projects into the system more quickly, and help achieve government's goal of maintaining a secure electricity supply. As well, BC Hydro will offer the same price to those in BC Hydro's Net Metering Program who have a surplus of generation at the end of the year."

- 8.1 Does BC Hydro agree that the 2007 Energy Plan took the same approach to the SOP price and the NM annual NEG price:
- (a) both prices would be based on the prices paid in the most recent BC Hydro energy call,

² https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/bc_energy_plan_2007.pdf

- (b) both prices were intended to incent new clean small power projects, and
- (c) neither price was to “reflect a long-run value instead of a short-run value”?

8.2 Please comment on the proposition that what has changed since the issuance of the 2007 Energy Plan is the long-run value of new supply to BC Hydro (which has declined), and not the merits of the principle that the NM Energy Price should be generally consistent with the SOP price.

9.0 Topic: Energy Price
Reference: Application, Exhibit B-1, p.34

“RS 1289 does not impose any delivery obligations on customers in the Program. This means that customers in the Program are not obligated to send any energy to BC Hydro and consequently, BC Hydro is unable to consider generation from the Program as part of its supply side resources. This means 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.”

- 9.1 What are the delivery obligations under an SOP EPA?
- 9.2 Please confirm, or otherwise explain, that the contractually non-firm nature of annual NEG from Net Metering was understood when the 2007 Energy Plan said that the NM Energy Price should be generally consistent with the SOP price.
- 9.3 Please confirm, or otherwise explain, that for planning purposes BC Hydro uses concepts such as Effective Load Carrying Capacity to model the contribution of intermittent supply resources to the system.
- 9.4 Please confirm, or otherwise explain, that BC Hydro is able to model for planning purposes the non-firm energy component of EPAs.
- 9.5 Please confirm, or otherwise explain, that BC Hydro uses the concepts of persistence and measure life to model the contribution of DSM savings to the system even though in many cases DSM participants are not contractually obligated to maintain the DSM measure or the load avoided by the DSM measure.
- 9.6 Would BC Hydro agree that in general contractually non-firm resources are not excluded from consideration in the long-term planning process: rather, contractually non-firm resources may have different system benefits than contractually firm resources for planning purposes?
- 9.7 Would BC Hydro agree that the main reason that energy from the Net Metering program is not considered a supply resource for planning purposes is that the energy volume is so small at the present time?
- 9.8 Would BC Hydro agree that if the potential volume of energy from NM NEG was large enough to be material for planning purposes then NM

NEG could be analyzed as a supply resource for planning purposes using appropriate discounting for its contractually non-firm status?

9.9 What practical difference does it make to BC Hydro's position on the appropriate Energy Price (for annual NEG) whether the price reflects long-term value or short-term value? Isn't it BC Hydro's view that while it is in an energy surplus position the long-term value of new energy resources is the same as the short-term value?

9.9.1 If the Energy Price was based on the reference energy price for renewal of long-term EPAs, what would be the Energy Price?

9.9.2 Please confirm, or otherwise explain, that BC Hydro currently uses the regional wholesale energy market as the basis for determining the avoided cost of energy for the benefit/cost evaluation of DSM savings that have estimated persistence in the range of ten to twenty years.

10.0 Topic: Energy Price

Reference: Application, Exhibit B-1, section 4.2, p.35 [pdf p. 41]

"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."

While valuing energy received from the Program at the retail rate is not economic and does not reflect its actual value as a short-run resource, BC Hydro believes that this approach is necessary to support the intent of the Program and is consistent with BCUC's determination that limited cost-shifting is warranted to support the implementation of net metering, given the relatively small size of the Program at this time. However, 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." [underline added]

10.1 Would BC Hydro agree that the clause "energy received from the Program is valued at both the retail rate and the Energy Price" would be clearer if it said energy received from the NM program is implicitly valued at the retail rate except for annual net excess generation which is expressly valued at the Energy Price.

10.2 Would BC Hydro agree that the financial value (to BC Hydro) of Net Metering that does not produce NEG should not be a factor in determining the appropriate Energy Price in the current proceeding?

11.0 Topic: Energy Price

Reference: Application, Exhibit B-1, p.39; Figure 7 Historical Energy Price by Calendar Year Using BC Hydro's Proposed Approach (cents per kWh)

"BC Hydro proposes a simple approach where the Energy Price would be updated 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.” [p.39]

- 11.1 Please confirm, or otherwise explain, that BC Hydro proposes that in determining the Energy Price no adjustments would be made to the average market price to take into account, for example, line losses, wheeling fees, renewable energy credits, and high-load/low-load hours. If confirmed, please provide the rationale. If not confirmed, please explain the proposed adjustments.
- 11.2 Please provide a table showing the prices illustrated in Figure 7.

12.0 Topic: Alternatives to Revised Energy Price
Reference: Application, Exhibit B-1, section 4.4, p.36

BC Hydro states:

“As shown in [Figure 6](#) below, the Engagement Survey Results indicate that a slight majority (53 per cent) of participants support revising the Energy Price to reflect the price at which BC Hydro could sell the electricity on the regional wholesale market compared to an alternative of extending the period of time that customers are able to accumulate and apply their Generation Account Balance against their consumption to five years, after which any remaining Generation Account Balance would expire.” [p.36, pdf p.42, underline added]

- 12.1 Would BC Hydro agree that the Engagement Survey Results shown in Figure 6 indicate that the respondents were about equally divided in their stated preference for either one or the other of the only two options presented?
- 12.2 Please confirm, or otherwise explain, that the Engagement Survey required respondents to choose a response to each question before being able to move to the next question.
- 12.3 Please confirm, or otherwise explain, that the question for which results are provided in Figure 6 offered no ‘none of the above’ choice.

D. Transitional Provisions

13.0 Topic: Transition Provisions
Reference: Application, Exhibit B-1, s.6.3, Proposed Transitional Energy Price Mitigates Impact to Existing Customers

- 13.1 What factors did BC Hydro take into account in deciding that five years is an appropriate length for the transition period associated with the proposed change in the Energy Price?
- 13.2 In BC Hydro’s view, do the Bonbright principles apply to the proposal to revise the Energy Price for existing NM participants? If so, please provide a table evaluating the proposal according to each of the Bonbright principles. If not, why not?

- 13.3 More specifically, in BC Hydro's view, is it appropriate to consider the proposed revision to the Energy Price in terms of bill impacts? If so, please discuss how the proposed five-year deferral of the proposed revision to the Energy Charge mitigates bill shock. If not, why not?
- 13.4 BC Hydro recognizes that existing NM customers with annual net excess generation have incurred significant capital investments in their generation facilities [p.47]. Please provide any quantitative analysis BC Hydro has conducted or received regarding the capital investments in generation facilities by NM participants who would be affected by the proposed reduction in the Energy Price.
- 13.5 What is the average length of electricity purchase agreements under the SOP?
- 13.6 If the Commission approves a change in the Energy Price, would it be feasible to implement a transition provision in which the existing Energy Price (i.e., 9.99 cents/kWh) remains in effect for existing Net Metering customers (at the decision date) for a period of time equivalent to the average length of SOP EPAs?
- 13.7 If the Commission approves a change in the Energy Price, what are BC Hydro's views on whether the length of the transition period for the existing Energy Price for existing NM providers of annual NEG should be based on the length of a typical existing SOP EPA?

E. Non-Integrated Areas

14.0 Topic: Non-Integrated Areas

Reference: Application, Exhibit B-1, Appendix F, Net Metering Evaluation Report No.4, section 9.1.4, "Non-Integrated Areas"; BC Hydro F2020-F2021 Revenue Requirement Application (RRA), Exhibit B-5, BC Hydro Response to BCUC IR 1.185.1, pdf p.2062; F2020-F2021 RRA, Exhibit B-1, Appendix A, Schedule 4.0, Line 19, pdf p.1189

In BCUC IR 1.185.1 in the F2020-F2021 RRA proceeding, BC Hydro was asked to provide the LRMC (long-run marginal cost) used for the cost-effectiveness tests for Demand-Side Management in the Non-Integrated Areas. BC Hydro's response states:

"For the purposes of DSM program cost-effectiveness in the NIA, we used \$300/MWh (Fiscal 2015\$) as the avoided energy cost. This value represents a high-level proxy of the diesel generation fuel costs across the NIA.

Diesel generation is generally the marginal energy source for the NIA. For simplicity, we are assuming that any energy savings from DSM activities in the NIA would displace the need for incremental diesel generation.

The unit energy costs for the NIA in fiscal 2020 and fiscal 2021, as shown in Schedule 4.0 of Appendix A of the [F2020-F2021 Revenue

Requirement] Application, represent weighted-average values of the cost of IPP energy and BC Hydro's diesel fuel costs, to meet the NIA load."

- 14.1 Please confirm, or otherwise explain, that customers in Non-Integrated Areas are eligible to participate in the Net Metering Program if they meet the interconnection requirements.
- 14.2 Please confirm that BC Hydro used \$300/MWh (F2015\$) as the avoided energy cost in the cost-effectiveness tests for DSM in the Non-Integrated Areas in the F2020-F2022 DSM Plan.
 - 14.2.1 What is \$300/MWh (F2015\$) in F2020\$?
- 14.3 Please confirm that in the F2020-F2022 DSM Plan BC Hydro uses the wholesale market price of energy as the reference point for the avoided cost of energy in analyzing the benefit/cost of DSM for the Integrated System.
- 14.4 Please identify any conceptual or practical (e.g., adjustments) differences between the use of the wholesale market price of energy as the reference point for (a) benefit/cost analysis of DSM in the Integrated System and (b) the Energy Price for new intentional annual net excess generation under the NM Program.
- 14.5 Would BC Hydro agree that for Net Metering projects in Non-Integrated Areas the appropriate reference point for the Energy Price would be the avoided cost of energy used for DSM benefit/cost analysis in Non-Integrated Areas? If not, why? (For the response to this question, please assume that NM projects in NIAs meet the technical review referred to in section 9.1.4 of the Net Metering Evaluation Report No.4.)
- 14.6 Please provide a table showing the NIA unit cost of energy for F2017 to F2021 in \$/MWh, actual, forecast and plan (reference: F2020-F2021 RRA, Exhibit B-1, Appendix A, Schedule 4.0, Line 19, pdf p.1189).
- 14.7 Please confirm, or otherwise explain, that the unit cost of energy for Non-Integrated Areas for F2017 to F2021 is uniformly above 20 cents/kWh.
- 14.8 Please confirm, or otherwise explain, that the marginal supply resource in NIAs is generally diesel generation. Please confirm, or otherwise explain, that clean or renewable NM generation in NIAs would generally displace diesel generation and thereby reduce GHG emissions in the Province.
- 14.9 Does BC Hydro agree that the regional wholesale market is not an apt reference for the value to BC Hydro of annual net excess generation by Net Metering participants in Non-Integrated Areas? If not, why not?
- 14.10 In BC Hydro's view, what is the appropriate methodology for determining the Energy Price for net excess generation in Non-Integrated Areas?

- 14.11 Has BC Hydro examined what would be the Energy Prices for annual net excess generation in Non-Integrated Areas, based on a 'value to BC Hydro' approach? If so, please provide the results. If not, why not?
- 14.12 Does BC Hydro have any evidence to show that 9.99 cents/kWh for net excess annual generation in Non-Integrated Areas is a price that exceeds the value to BC Hydro? If so, please provide the evidence. If not, would it be reasonable to exclude Net Metering in Non-Integrated Areas from BC Hydro's proposed change to the Energy Price and proposed ban on new intentional net excess generation?
- 14.13 Is BC Hydro reluctant to have a different NM Energy Price for Non-Integrated Areas than for the Integrated System?
- 14.13.1 If so, is this because there are few if any NM participants in an NIA that have annual net excess generation?
- 14.14 Would BC Hydro agree that, going forward, new NM Generating Facilities with intentional NEG in NIAs that receive an Energy Price designed specifically for NIAs could be an attractive approach to displacing diesel generation and GHG emissions and to fostering community development and reconciliation with First Nations? (Please assume for this question that Generating Facilities would meet the Interconnection Requirements and maximum generator size limit.)

F. Tariff Pages

15.0 Topic: Proposed revisions to tariff pages Reference: Application, Exhibit B-1, Appendix B, Rate Schedule 1289 – Revision 2

It is difficult to identify the proposed revisions to RS 1289 because the Black-lined version shows existing text that has been moved as having been deleted in the old location and added in the new location.

- 15.1 Please provide a table describing proposed tariff changes as discussed in the body of the Application, and a description of the corresponding changes in the tariff pages. Include a change from "interim" to "permanent."
- 15.2 Please explain the Net Metering Site Acceptance Verification Fee. Is it a new fee, or a new name for an existing fee? What is the rationale for the fee? What is the basis for the size of the fee?
- 15.3 Please confirm that the capacity factors for calculating Annual Energy Output are moved but not changed.
- 15.3.1 When were the capacity factors introduced? What was their original purpose? Has that purpose changed with the 2018 interim approval of the ban on new intentional annual NEG?

15.3.2 How accurate are the capacity factors in the Tariff? Please confirm, or otherwise explain, that if the capacity factor overestimates the actual performance of the Generating Facility then the approved maximum size of a Generation Facility would be below the size that would meet the interim (and proposed permanent) intention to bar new intentional annual NEG (subject to the proposed 110% allowance for Generation Facilities greater than 5 kW).

15.3.3 Is an applicant allowed to provide evidence that their particular Generating Facility will have an actual capacity factor below the deemed capacity factors in the Tariff?

15.4 Regarding the definition of Annual Load, is the addition of paragraph (c) regarding purchase of new equipment such as an electric vehicle the only proposed change?

15.4.1 Please confirm, or otherwise explain, that the effect of paragraph (c) of the definition of Annual Load is that after a NM participant purchases an electric vehicle their Annual Load could be increased prospectively (without waiting for 12 months of incremental load due to the EV) and the participant could increase the size of their Generating Facility at that time, but that the only proposed accommodation in terms of the maximum size of the Generating Facility for an NM participant or applicant who intends to purchase an EV in the future is the proposed 110% factor in proposed section 3(b) for BC Hydro's assessment of a NM application where the Generating Facility has a nameplate capacity of greater than 5 kW.

15.5 Please providing a table explaining both the *status quo* and the proposed tariff provisions regarding review and acceptance of an application for participation in the Net Metering Program [pdf p.67 and p.81].

15.5.1 Are the requirements in this section of the tariff applicable after BC Hydro has accepted an application and the Generating Facility has been installed? What happens if a NM customer's load declines substantially after their Generating Facility has been accepted and installed?

16.0 Topic: Interconnection agreement requirement
Reference: Application, Exhibit B-1, s.5.1, "5.1 Clarification Would Help Prevent Unsafe Connections"; Appendix F, Net Metering Evaluation Report No.4, s.9.1.6, "Unauthorized Generator Connections"; Appendix B, Revised Tariff Pages Clean and Black-Lined

BC Hydro states on pages 41-42 of the Application:

"As explained in section 9.1.6 of the Evaluation Report, some BC Hydro customers have installed generation at their residences or businesses without BC Hydro's knowledge or approval. This unauthorized generation

may pose a safety hazard to BC Hydro employees and other customers, and can negatively impact power quality and reliability.”

BC Hydro is proposing an amendment to clarify that generation connections are not permitted except through an interconnection agreement or through the Net Metering Program.

- 16.1 Please identify the amendment in the Tariff Pages that clarifies that generation connections are not permitted except through an interconnection agreement or through the Net Metering Program.
- 16.2 For clarity, please confirm, or otherwise explain, that unauthorized connection of generation is a topic that extends beyond the Net Metering Program as such. (E.g., a customer making an unauthorized connection of generation may have no intention of participating in the NM Program.)
- 16.3 Please briefly describe the circumstances in which a customer requires authorization from BC Hydro to install their own generation behind their meter with no intention to provide power to the BC Hydro system.

G. Other topics

17.0 **Topic: Customer communication and education** **Reference: Application, Exhibit B-1, Appendix F, Net Metering Evaluation Report No. 4, pdf p.183**

“While we continue our efforts to highlight and promote the Net Metering program, we understand there is still more that could be done. Based on feedback from our survey, BC Hydro is considering three further actions:

- Host or participate in more workshops, webinars, and community events;
- Periodically include advertisement of the Net Metering program on BC Hydro bill for all eligible customers; and
- Continue to work with municipalities and local governments to provide support and education on the benefits of net metering.

- 17.1 What is the current status of BC Hydro’s implementation of further efforts to highlight and promote the Net Metering program?

18.0 **Topic: Jurisdictional review** **Reference: Application, Exhibit B-1, Jurisdictional Review, Appendix G, Table G-1 Jurisdictional Review Findings**

- 18.1 Regarding Epcor, please clarify:

18.1.1 Does the description mean that Annual Energy Output must not exceed Annual Load?

18.1.2 Does Epcor have monthly billing?

- 18.1.3 On a given bill, does Epcor show a charge for current period gross energy (if any) to the customer and a payment (to the NM customer) for net surplus (if any) to the utility in the preceding period?
- 18.1.4 How does Epcor implement the principle that “Annual Energy Output must match (or not exceed) Annual Load”, (a) at the new application for NM participation stage, and (b) where an existing NM customer produces net annual surplus (for whatever reason)?
- 18.2 Regarding Hydro One, please clarify:
- 18.2.1 Does the existence of a Generation Account Balance mean that Hydro One provides a credit in kWh for net excess supply to the utility in the preceding month (or a billing period)?
- 18.2.2 Was does it mean that the Anniversary Date is “Based on the month that the Generation Account Balance accumulates”? Is this a rolling concept? Does “No Surplus Energy Payment” mean that kWh credits in the Generation Account ‘disappear’?

19.0 Topic: Aggregation
Reference: Application, Exhibit B-1

- 19.1 Please explain how the Net Metering Program currently handles situations in which a customer has multiple meters on the same account, or multiple accounts.
- 19.1.1 Can a NM participant’s Energy Credit can be applied only to the customer’s invoice for consumption at the same meter behind which the customer’s generation is located?
- 19.1.2 Can a NM participant’s Energy Credit can be applied to consumption on a different meter but only where the meter is part of the same account?
- 19.1.3 Please confirm, or otherwise explain, that a NM customer cannot have an Energy Credit (in kWh) from one account applied to a different account held by the same customer.
- 19.2 Please confirm that BC Hydro has received suggestions that the Net Metering Program should allow a participant to aggregate more than one account held by the same customer so that the customer’s NM energy credits can be applied to more load and thereby enable the customer to benefit from a larger generation facility (up to the 100 kW maximum) without creating intentional annual net excess generation.
- 19.3 Does BC Hydro agree that if aggregation was allowed in the NM Program then customers with multiple accounts could consider larger NM generation facilities without involving intentional annual net excess generation?
- 19.4 What is BC Hydro’s position regarding aggregation in the NM Program?

- 19.5 Please briefly explain the difference between aggregation in Net Metering and virtual net metering.

20.0 Topic: Virtual Net Metering

Reference: Application, Exhibit B-1, s.9.1.5, Virtual Net Metering, [pdf p. 201]

“While we have received several requests to support this type of program [Virtual Net Metering], we have responded to these requests by suggesting that one customer “own” the net metering installation and perform the administrative task of sharing any energy offsets between the participating customers.”

- 20.1 Is it BC Hydro’s view that the response it has given to several requests for Virtual Net Metering is a viable approach for consideration going forward? If so:

20.1.1 Please explain the concept in more detail.

20.1.2 Does “energy offsets” refer to energy credits applied to the account of the NM installation owner from one billing period to the next?

20.1.3 Does “the administrative task of sharing any energy offsets between the participating customers” mean that the NM installation owner would calculate the financial value of the energy credits (based on the customer’s retail rate), divide this amount according to the participants’ shares, and then make a dollar payment to each participant? Or does it mean that the NM installation owner would notify BC Hydro of the portion of the owner’s energy credit (in kWh) that should be applied (in kWh) to the invoices of the respective participants?

20.1.4 Would BC Hydro agree that this approach would be more of an investment mechanism a customer could use to finance their own NM generation facility than a “virtual net metering” concept in which participants can obtain an energy credit in kWh on their own electricity bill?

- 20.2 What are BC Hydro’s next steps in considering “potential additional measures to support virtual net metering for a future application” [p.49]? How soon can an application for approval of virtual net metering be expected?

21.0 Topic: Past practice

Reference: Exhibit E-2, Letter of Comment

- 21.1 In the past, did BC Hydro sign agreements with net metering customers to pay 9.99 cents/kWh (or any other price) for annual net excess generation? What is BC Hydro’s current practice in this regard?

- 21.2 In the past, did BC Hydro give new entrants to the net metering program reason to expect that the price for annual net excess generation would

not diminish in the future? What is BC Hydro's current practice in this regard? Please provide copies of any information materials addressing this point that BC Hydro provides to prospective or existing NM participants.

- 21.3 What is BC Hydro's response to the suggestion that power it receives from a net metering customer is provided to other BC Hydro customers, for example on the NM customer's feeder line, and is not exported by BC Hydro?
- 21.4 What is BC Hydro's response to the suggestion that the price it pays for annual NEG from a net metering customer should be equivalent to the retail price paid by customers on the same feeder line as the net metering customer?
- 21.5 What is BC Hydro's response to the suggestion that BC Hydro's payment of 9.99 cents/kWh for annual NEG from net meter customer adds clean power to the system for zero cost to BC Hydro ratepayers?

22.0 Topic: Constrained areas

Reference: Application, Exhibit B-1, section 5.3, "Proposed Amendments Allowing Termination and Rejection of Certain Applications Would Provide Clarity and Support Safety and Simplicity"; Appendix F, Net Metering Evaluation Report No.4

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."

BC Hydro states on page 27 of the NM Evaluation Report No.4 (pdf p.200):

"Certain areas of the BC Hydro electrical grid are becoming constrained due to the number and size of generators that are injecting energy back into our grid. BC Hydro has had to signal to Independent Power Producers (**IPPs**) and potential Net Metering customers that we need to carefully manage the number and size of the generation being installed in some areas on our grid. At this time, the majority of these constraints are caused by larger IPPs that inject power into the distribution grid and are not the result of a high penetration of Net Metering customers.

If more generation is added at these locations, even small Net Metering projects could require the replacement of substation transformers. BC Hydro is currently reviewing individual Net Metering applications on a case by case basis at certain substations and is contemplating either rejecting applications, or in some cases, limiting project sizes to reduce power injection into the grid to avoid overloading equipment. This review involves undertaking a thorough technical assessment of all generation applications, including Net Metering applications received for projects

located in a constrained area and determining an available generation capacity for the area. While all Net Metering project applications require acceptance from BC Hydro to proceed, BC Hydro may decide to amend the language in RS 1289 to more clearly state that BC Hydro has the ability to reject a project application of any size or complexity if it triggers substantial costs not recoverable by RS 1289 or creates safety and/or risk to BC Hydro's system."

- 22.1 Please describe the areas that are considered constrained in relation to new NM participation. What proportion of BC Hydro's substations is involved? Are the constrained areas mostly remote, or are urban locations also affected?
- 22.2 Is the problem specific to constraints due to the number and size of generators that are injecting energy back into the grid, as distinct from constraints due to local load potentially exceeding substation capacity?
- 22.3 Does BC Hydro see the situation of areas constrained due to the injection of energy into the grid being one that will continue to grow? Has the situation become, or will it likely become, a significant obstacle to new participation in the Net Metering Program?
- 22.4 Where areas of the grid are constrained due to the injection of energy locally, what steps does BC Hydro take in addition to reviewing proposed new NM projects? Is preventing new NM projects likely to be a solution?