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British Columbia Hydro and Power Authority

Application to Amend Net Metering Service under Rate Schedule 1289

Decision

June 23, 2020

Before:

D. A. Cote, Panel Chair
R. I. Mason, Commissioner
R. D. Revel, Commissioner

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COMMISSION ORDER G-168-20

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Executive Summary

Offered under British Columbia Hydro and Power Authority (BC Hydro) Rate Schedule (RS) 1289, the Net Metering Program is designed for any Residential Service and General Service customers who install a Generating Facility with a nameplate rating of up to 100 kilowatt (kW) to generate electricity to serve all or part of their electricity requirements on the customers' premises. When Net Metering customers generate more electricity than is needed, the surplus electricity is banked in the customers' Generation Account and then applied as a credit to offset electricity consumption later, when customers do not generate enough electricity to meet their needs. Once every 12 months on their Anniversary Date, customers with credits remaining receive a payment from BC Hydro for those remaining credits at the Energy Price, currently priced at 9.99 cents per kilowatt hour (kWh).¹

On April 29, 2019, BC Hydro filed an Application to Amend the Net Metering Program with the following proposed amendments:

- Update the Energy Price from 9.99 cents per kWh to an amount that would be updated every January 1 based on the daily average Mid-Columbia (Mid-C) prices for the previous calendar year, converted to Canadian dollars using the average annual exchange rate from the Bank of Canada for that year. The Mid-C price for 2018 is 3.99 cents per kWh;
- Maintain the current Energy Price of 9.99 cents per kWh until April 30, 2024 for all Net Metering customers with accepted applications as of April 20, 2018;
- For Generating Facilities with nameplate rating of greater than five kW, the Generating Facility's Annual Energy Output must not exceed 110 percent of the customer's Annual Load; and
- Make various minor amendments to improve the clarity, simplicity and safety of the Net Metering Program and to reflect existing program practices.²

BC Hydro's position is the amendments are necessary to maintain the original intent of the Net Metering Program as a load offset program, while supporting simplicity and safety as well as improving fairness between participating and non-participating customers.³

The British Columbia Utilities Commission (BCUC) established a written hearing process for the review of the Application, which included two rounds of information requests (IRs) to BC Hydro, submissions of intervenor evidence, IRs on intervenor evidence, BC Hydro rebuttal evidence, IRs on BC Hydro rebuttal evidence to BC Hydro, and written final and reply arguments. In addition, the BCUC received over 280 letters of comment.

Following a full review of the evidence, arguments, and letters of comments received the Panel makes the following determinations, among others:

1. The proposed amendment to the Energy Price from 9.99 cents per kWh to an amount that would be updated every January 1 based on the daily average Mid-C prices for the previous calendar year is

¹ Exhibit B-1, p. 2.

² Ibid., pp. 4 and 22.

³ Ibid., pp. 3-4.

approved. The amended Energy Price will apply to all customers effective the date of this Order, except for customers who are eligible for the Transition Energy Price. The Panel is of the view that the energy delivered from Net Metering customers should be compensated at a rate that matches the value of energy to BC Hydro and finds the Mid-C value proposed by BC Hydro best approximates this value.

2. All Net Metering customers accepted into the Net Metering Program as of April 28, 2019 shall be eligible to receive the Transitional Energy Price of 9.99 cents per kWh for any surplus energy payments made from April 29, 2019 until April 30, 2024. Weighing the importance of maintaining rate stability through some accommodation to existing customers against extending the cost shifting period to non-participants, the Panel considers a five-year Transitional Energy Price to be a reasonable accommodation and does not represent undue discrimination.
3. The proposal to limit the output of a Net Metering Generating Facility to not exceed 110 percent of the customer's annual load is rejected. BC Hydro is directed to remove the section of the proposed tariff which assesses the proposed Generating Facility based on Annual Load. In the Panel's view BC Hydro has not satisfactorily demonstrated that the Proposed Eligibility Restriction is required to mitigate significant or meaningful harm. The Panel is concerned that this provision in the absence of a more fulsome review and evaluation of the Net Metering Program may introduce harm of its own.
4. All Net Metering customers shall be assigned a March 1 default Anniversary Date with one opportunity to choose an alternative date thereafter. Having a March 1 Anniversary Date allows most Net Metering customers the best opportunity to offset their BC Hydro energy costs by applying Generation Account balances that have been built up over the previous spring, summer and early fall. Where this is not appropriate customers are free, on one occasion, to analyse their generating history and choose a date that better suits their needs.

1.0 Introduction

1.1 Background

In November 2002, the BC Government released the 2002 Energy Plan: Energy for our Future. It stated, in part, that British Columbia Hydro and Power Authority (BC Hydro), amongst others, would develop policies such as net metering to support a voluntary goal of acquiring 50 percent of new electricity supply from clean sources in British Columbia, over the next 10 years. By British Columbia Utilities Commission (BCUC) Letter L-37-03, dated July 22, 2003, the BCUC recommended the development and implementation of a net metering tariff and directed BC Hydro to prepare an application for a simple net metering tariff. Rate Schedule (RS) 1289 was established by Order G-26-04, dated March 9, 2004, for a Net Metering Program.

On April 20, 2018, BC Hydro filed an application to seek approval from the BCUC to amend RS 1289 so that RS 1289 was no longer available to customers proposing a Generating Facility with an estimated annual energy output that is greater than their estimated Annual Load (2018 Amendment Application). BC Hydro describes the 2018 Amendment Application as an interim step to address the issue of Oversized Generating Facilities while BC Hydro undertakes a broader review of the Net Metering Program and its requirements. BC Hydro also stated in its 2018 Amendment Application that it was targeting to complete a review of the Net Metering Program and file an application with the BCUC for approval of further amendments by the end of the 2018 calendar year. BC Hydro stated it would be considering other options to address the issue of Oversized Generating Facilities within its review and would include stakeholder consultation and expects this will help inform the future application to be filed with the BCUC.⁴ BC Hydro stated its future application may propose maintaining the amendments requested in the 2018 Amendment Application or may propose different amendments that reflect the outcome of the review.⁵

By Order G-100-18 dated June 1, 2018, the BCUC approved the 2018 Amendment Application on an interim basis and directed BC Hydro to file its Net Metering application by December 15, 2018. On October 10, 2018, BC Hydro filed an application requesting an extension to the filing date of its Net Metering application to no later than July 31, 2019. By Order G-3-19 dated January 7, 2019, the BCUC granted BC Hydro some relief and directed BC Hydro to file its Net Metering application by no later than April 30, 2019.

1.2 Application and Proposed Amendments Sought

On April 29, 2019, BC Hydro filed an Application to Amend Net Metering Service under RS 1289 (Application). In the Application, BC Hydro proposes to:

- Make permanent the amendments sought in the 2018 Amendment Application that were approved on an interim basis by Order G-100-18, with adjustments to provide additional flexibility to meet the current and future needs of Net Metering customers;
- Assign all Net Metering customers a default Anniversary Date of March 1 and to allow each customer to choose an alternative Anniversary Date once;

⁴ Exhibit B-1, Appendix C, p. 3.

⁵ Ibid., p. 1.

- Update the Energy Price from 9.99 cents per kilowatt hour (kWh) to an amount that reflects the price BC Hydro can sell the electricity for on the regional wholesale market;
- Make various minor amendments to improve the clarity, simplicity and safety of the Net Metering Program and to reflect existing program practices; and
- Maintain the current Energy Price of 9.99 cents per kWh for all Net Metering customers with accepted applications as of April 20, 2018, for a period of five years.⁶

1.2.1 The Net Metering Program

Offered under BC Hydro RS 1289, the Net Metering Program was designed for any Residential Service and General Service customer who installs a Generating Facility with a nameplate rating of up to 100 kilowatt (kW) to generate electricity to serve all or part of their electricity requirements on the customer's premises. When Net Metering customers generate more electricity than is needed, the surplus electricity (referred to as excess generation by the Panel in this Decision) is banked in the customer's Generation Account and then applied as a credit to offset electricity consumption later, when customers do not generate enough electricity to meet their needs. Once every 12 months on their Anniversary Date, customers with credits remaining receive a payment from BC Hydro for those remaining credits (referred to as annual net excess generation by the Panel in this Decision) at the Energy Price.

1.3 Legislative Framework

The Panel's review of the Application considers sections 59 to 61 of the *Utilities Commission Act* (UCA).

Section 59(1) of the UCA states:

59(1) A public utility must not make, demand or receive

(a) an unjust, unreasonable, unduly discriminatory or unduly preferential rate for a service provided by it in British Columbia, or

(b) a rate that otherwise contravenes this Act, the regulations, orders of the commission or any other law.

Section 60(1) of the UCA states:

60(1) In setting a rate under this Act

(a) the commission must consider all matters that it considers proper and relevant affecting the rate,

(c) if the public utility provides more than one class of service, the commission must

(i) segregate the various kinds of service into distinct classes of service,

(ii) in setting a rate to be charged for the particular service provided, consider each distinct class of service as a self contained unit, and

(iii) set a rate for each unit that it considers to be just and reasonable for that unit, without regard to the rates set for any other unit.

⁶ Exhibit B-1, p. 4.

In addition, the Panel also considers section 2 of the *Clean Energy Act* (CEA), which sets out BC’s energy objectives. One of BC’s energy objectives is “To use and foster the development in British Columbia of innovative technologies that support energy conservation and efficiency and the use of clean or renewable resources”.

1.4 Regulatory Process

The BCUC established a written hearing process for the review of the Application, which included two rounds of information requests (IRs) to BC Hydro, submission on further process, submission of intervener evidence, IRs on intervener evidence, BC Hydro rebuttal evidence and related IRs, and written final arguments.

There were 18 registered interveners and 14 interested parties in this proceeding. The registered interveners who filed Final Arguments are:

- BC Sustainable Energy Association (BCSEA)
- Silversmith Power and Light Corporation (Silversmith)
- City of Fort St. John (the City)
- BC Old Age Pensioners’ Organization, Active Support Against Poverty, Council of Senior Citizens’ Organizations of BC, Disability Alliance BC, Together Against Poverty Society and the Tenant Resource and Advisory Centre (BCOAPO)
- Commercial Energy Consumers Association of British Columbia (CEC)
- Net Metering Ratepayers Group (NMRG) and BC Community Solar Coalition (BCCSC) (jointly NMRG/BCCSC)⁷
- Randal Hadland (Hadland)
- Pentti Sjoman (Sjoman)

The BCUC also received over 280 letters of comment, a large portion of which contain identical content, submitted on a behalf of an entity by the name of “FormAssembly”.

2.0 Contextual Issues

Within this proceeding there were two issues which the Panel considers important and need to be addressed to provide context to this Application and the Panel’s determinations. These are:

1. The BCUC’s jurisdiction to amend a rate schedule; and
2. Issues related to the purpose and intent of the Net Metering Program.

Before addressing these, the Panel believes it would be helpful to first briefly outline some of the processes that are currently underway that have the potential to impact BC Hydro’s strategic direction and future requirements. Specifically, we refer to BC Hydro’s upcoming Integrated Resource Plan (IRP) and the completion

⁷ NMRG and BCCSC are separate interveners. These interveners jointly submitted a Final Argument. References to the Final Argument will be presented as NMRG/BCCSC.

of the BC Hydro Comprehensive Review which is expected to inform this IRP as well as other strategic and operational matters.

2.1 Current Context – BC Hydro

In reviewing this Application consideration must be given to the BC Hydro Comprehensive Review currently being undertaken and the IRP due to be undertaken in the near future that will impact BC Hydro's activities over the short to medium term. While neither of these are specific issues raised within these proceedings, the Panel believes it to be valuable to consider these as they provide useful context to this Application.

BC Hydro Comprehensive Review

To contain rate increases, control costs and position BC Hydro for future success the BC Government has undertaken a Two-Phased Comprehensive Review of BC Hydro. The First Phase of this review was completed in February 2019 and key outcomes included:

- A five-year rates forecast encompassing April 1, 2019 to March 31, 2024 reflecting cost and revenue strategies to keep rates affordable; and
- A regulatory framework that enhances the BCUC oversight of BC Hydro.⁸

Phase Two of the BC Government's Comprehensive Review of BC Hydro is expected to look at changing energy markets, new utility models, emerging technologies and strategies to deliver on CleanBC plan's longer-term electrification goals.⁹ BC Hydro states that through Phase Two of the Comprehensive Review, BC Hydro and the BC Government intend to explore the potential application of marginal cost pricing, including its potential application to the Net Metering Program. Specifically, Phase Two of the Comprehensive Review may consider whether customers in the Net Metering Program should be able to buy electricity at its marginal cost while paying a fixed system access charge and whether the marginal cost for buying and selling electricity should be more reflective of real-time price signals. BC Hydro states it will consider the outcomes of Phase Two of the Comprehensive Review in a future application.¹⁰

BC Hydro IRP

BC Hydro's IRP is the utility's 20-year plan to meet BC's future electricity needs through conservation, new supply and updates to our existing infrastructure. BC Hydro is expected to file the next IRP, which will be informed by the results of Phase Two of the Comprehensive Review, with the BCUC after February 28, 2021.¹¹ At that time BC Hydro intends to review its assumptions with regards to the growth and inclusion of Net Metering in resource planning in the 2021 IRP.¹²

⁸ BC Hydro Comprehensive Review Report, Phase 1, p. 1.

⁹ Ibid., p. 23.

¹⁰ Exhibit B-1, p. 51.

¹¹ UCA, s. 44.1(2.1).

¹² Exhibit B-3, BCUC IR 1.18.4.

2.2 The BCUC's Jurisdiction to Amend a Rate Schedule

BC Hydro states that RS 1289 represents the complete terms and conditions of the Net Metering Program and there is no additional contractual agreement with customers.¹³ BC Hydro elaborates on this stating that enrolment in the Net Metering Program does not entail any contractual agreement between BC Hydro and the customer that provides assurance on the cost recovery of capital investments by the customer or stability of the terms and conditions, including the Energy Price. However, rate stability is a rate design principle.¹⁴ BC Hydro submits that RS 1289 is a variable rate that the BCUC has the jurisdiction to amend and there is nothing in RS 1289 that references customer investments in Generating Facilities or guarantees customers a return on their investments.¹⁵

Position of Parties

A number of Net Metering customers contend they have entered into an agreement with BC Hydro which guarantees the terms of the Net Metering Program. For example, Zdenek Los states that "All the [Net Metering] participants signed an Interconnection Agreement (IA), which is an integral part of the [Net Metering] Program... The IA has all the key elements of a legal contract - from parties through consideration to legal purpose... This IA was and is an integral part of [Net Metering] Program. Do the proposed amendmen[t]s amount to a breach of contract?"¹⁶ Ian Tacy states "Altering rates lower breaches the inferred agreement".¹⁷ Christopher Dietzfelbinger states "BC Hydro is defaulting on contracts they signed and promises they made."¹⁸

Panel Determination

The Panel has considered BC Hydro's arguments and the Letters of Comment concerning the BCUC's jurisdiction over the Net Metering Program offered under RS 1289. The Panel is not persuaded that Net Metering customers have "contracts" with BC Hydro. Rather, in our view the terms are covered under the BC Hydro Electric Tariff under RS 1289 which is not a contract but a rate schedule under that tariff whose terms are subject to change. Accordingly, the BCUC has the jurisdiction to approve amendments to the Net Metering Program tariff under RS 1289.

2.3 Original Purpose and Intent of the Net Metering Program

An issue that has arisen within this proceeding concerns the original intent or purpose of the Net Metering Program. The matter has been raised by BC Hydro and its position has drawn significant commentary and argument from members of the intervener groups. Therefore, the Panel considers there to be some value in exploring the history of the Net Metering Program, its evolution and the implications.

The question raised is whether the Net Metering Program is best described as a load offsetting program as outlined by BC Hydro or whether, as asserted by the NMRG/BCCSC, it was introduced to the public as an energy buying or power acquisition program. BC Hydro has taken the position that the intent of the Program:

...is to allow individual customers to meet all or part of their electricity demand, that customer generation should be limited to its own use only, that customers should be compensated for the

¹³ Exhibit B-3, BCUC IR 1.2.2.

¹⁴ Exhibit B-3, BCUC IR 1.15.5.

¹⁵ BC Hydro Final Argument, pp. 27-28.

¹⁶ Exhibit D-9-1, p. 2

¹⁷ Exhibit E-102.

¹⁸ Exhibit E-185.

value BC Hydro receives from net excess generation and that while limited cost-shifting to non-participating customers is warranted, the Program should not incur any substantial cost on the utility.¹⁹

In opposition to this, the NMRG states that the Net Metering Program was introduced to the public to buy energy from its customers.²⁰ Both parties have presented evidence in support of their respective positions, which is summarized and discussed in some detail in what follows.

Within its Application, BC Hydro provides a historical review of the Net Metering Program. The highlights of this review follow along with other relevant facts and considerations.

As stated in Section 1.1, in November 2002, the BC Government released the 2002 Energy Plan which stated, in part, that BC Hydro, amongst others, would develop policies such as Net Metering, to support a voluntary goal of acquiring 50 percent of new electricity supply from clean sources in BC over the next ten years.²¹ In addition, the BCUC issued letter L-37-03 dated July 22, 2003, directing BC Hydro to prepare an application for a simple Net Metering tariff.

These two events were instrumental in establishing the Net Metering Program. At that time, the BCUC stated expectation was that the new tariff would not impose material costs on non-participating ratepayers. In addition, the BCUC stated that its support for the tariff would be conditional on the development and implementation costs not resulting in substantial costs being incurred by the utility or posing an inordinate barrier to ratepayers seeking to participate. The BCUC provided the following minimum parameters:

- It should be available to the residential and commercial customer classes;
- It should be applicable only to clean energy projects, as defined in the BC Government's Energy Policy;
- It should be applicable to generation of 50 kW or less;
- Interconnection must be safe, but the rules governing interconnection should not be extensive, nor burdensome in administrative process;
- BC Hydro should consult with other agencies and interest groups as appropriate; and
- Customer generation should be limited to own use only at the registered location of the net metering installation.

By Order G-26-04 dated March 10, 2004, the first Net Metering Program was established. The BCUC approved the nameplate capacity limit at 50 kW, an Energy Price of \$5.40 cents per kWh (based on the most recent comparable tender for green power) and a 12-month period between surplus payments. In doing so the BCUC stated:

- It believed the potential for cost-shifting would be limited due to the 50 kW limit and the low expected participation and it would be fair if Net Metering customers were compensated for "the value BC Hydro receives from net excess generation";

¹⁹ Exhibit B-1, p. 17.

²⁰ Exhibit C23-7, p. 5.

²¹ Exhibit B-1, p. 9.

- The 50 kW size is consistent with the intent of customers being allowed to “meet all or part of their electricity demand” and the size limitations are intended to reduce potential cost shifting to non-participants; and
- Limited cost shifting is warranted to support implementation of distributed renewable generation. BC Hydro was ordered to prepare an evaluation report a year later. As a result of the review a few amendments regarding site acceptance verification were approved in 2005.

In February 2007, the 2007 Energy Plan was released and stated that BC Hydro would be directed to establish a Standing Offer Program (SOP) to purchase electricity from small clean energy projects at a set price based on the prices paid in BC Hydro’s most recent energy call. Thereafter, the BCUC, by Order G-4-09 dated January 29, 2009, approved an increase in the Energy Price paid in the Net Metering Program to \$8.16 cents per kWh and a further increase to \$9.99 cents per kWh by Order G-57-12 dated May 14, 2012. These increases, in effect, aligned the price paid for annual surplus energy in the Net Metering Program to the price paid for energy under the SOP.

Appendix A of Order G-57-12 also directed BC Hydro to consider and consult on the nameplate capacity limits and provide an evaluation report on Net Metering. In its Reasons for Decision the Panel stated:

“the Net Metering program can be a significant contributor to the growth of distributed clean energy generation”, and that “in order to achieve this objective, barriers entering into the Net Metering program should be minimized to enable customers to take economically efficient steps to build generation capacity”.²² ...

Consequently, in Order G-57-12 the BCUC accepted BC Hydro’s proposed increase in the Energy Price and eligibility changes but rejected proposed changes that would have resulted in the potential exclusion of customers. In its Reasons for Decision attached to this Order, the Panel concluded that the proposed changes would result in a net increase in unnecessary barriers to ratepayers seeking to install small-scale clean distributed generation.²³

The evaluation report was submitted in early 2013. In 2014, BC Hydro applied to the BCUC to increase the generator size permissible for net metering to 100 kW.²⁴ The BCUC approved the increase in nameplate capacity to 100 kW by Order G-104-14 dated July 25, 2014, where it agreed with BC Hydro and interveners that “the increase in allowable capacity limit will reduce barriers to ratepayers seeking to install small-scale clean [distributed Generation Facilities] while not incurring any substantial cost on the utility”.²⁵

²² Order G-57-12, p. 5.

²³ Ibid., pp. 5 and 9.

²⁴ BC Hydro Application to Amend Rate Schedule 1289 for Net Metering Service, 2014, BC Hydro Final Argument, pp. 3-6.

²⁵ Order G-104-14, p. 13.

It is BC Hydro's position that the history of BCUC decisions shows that the BCUC has previously stated that the intent of the Net Metering Program is:

- To allow individual customers to meet all or part of their electricity demand; and in doing so
 - Customer generation should be limited to own use only;
 - Customers should be compensated for the value BC Hydro receives from net excess generation; and
 - Allow for limited cost-shifting to non-participating customers as being warranted, but any substantial cost on the utility should not be incurred.²⁶

BC Hydro states that one of its four objectives for the Net Metering Program is to: "Maintain the Program as a load offset program so that customers can generate their own electricity to reduce the supply from BC Hydro".²⁷ It elaborates on this further by stating: "BC Hydro believes that the purpose of the Program is to be a load offset program that provides customers with opportunities to offset their own load. It is not intended to allow customers to generate energy with the objective of selling that energy to BC Hydro, similar to an IPP."²⁸ BC Hydro explains that purposing the Net Metering Program to be a load offset program dates back to the inception of the Net Metering Program. It notes that in 2003 the BCUC, in its Reasons for Decision appended to Order G-26-04, evaluated the 50 kW capacity limit. At that time the BCUC commented that a 50 kW system is consistent with "the intent of net metering to allow individual customers to meet all or part of their electricity demand" before going on to say that the limits to size are there to reduce the amount of cost-shifting to non-participating customers. Further, in 2005, BC Hydro made the following statement in its evaluation report with regard to its evaluation of increased capacity limits: "In many instances the load will be much smaller than the generation which defies the Net Metering purpose of offsetting load."²⁹ When asked why it did not amend the language to align with the program objective until the 2018 Amendment Application, BC Hydro responded that Net Metering Program growth and the increased applications for oversized Generating Facilities prompted it to propose more specific provisions to enforce the Program intent.³⁰

In its Final Argument, BC Hydro summarizes its position. It maintains that the original intent of the Net Metering Program was to provide customers a way to offset their energy consumption. BC Hydro argues this has been clearly stated since the beginning of the Net Metering Program and supported by the BCUC within several of its past Decisions. It provides the following examples (some of which are covered above):

- In Tariff sheets effective March 10, 2004, a clause stated the Net Metering Program was available to customers: "... who install a Generating Facility to serve all or part of their electricity requirements...";
- The BCUC, in Letter L-37-03, directs BC Hydro to apply for a simple net metering tariff with the minimum parameter inclusive of the following: "[c]ustomer generation should be limited to own use only at the registered location of the net metering Installation";
- In Order G-26-04, the BCUC stated a 50 kW system size to be consistent with the intent of customers meeting all or part of their demand and limiting the size has been done to reduce the potential magnitude of cost shifting; and

²⁶ Exhibit B-1, pp. 16-17.

²⁷ Ibid., p. 3.

²⁸ Exhibit B-5, BCCSC IR 1.6.3.

²⁹ Exhibit B-7, BCUC IR 2.27.1

³⁰ Ibid., BCUC IR 2.27.2.

- In 2018, the BCUC approved amendments on an interim basis noting its concern that non-participating ratepayers may be subject to costs if the surplus energy payout continues to increase because of further approval of Oversized Generating Facilities.

BC Hydro also points out that prior to interim approval of the amendments Oversized Generating Facilities were accepted because RS 1289 provided no mechanism for BC Hydro to reject this type of application. Consequently, BC Hydro states that it filed the 2018 Amendment Application to request “more specific provisions to enforce the Program’s original intent” noting that there were increased applications for these larger facilities which were akin to an energy procurement program.³¹

Position of Interveners

NMRG/BCCSC

NMRG states unequivocally that BC Hydro introduced the Net Metering Program because it “wanted to buy energy from its customers.” Its evidence is that this program cannot be recast as a load offsetting program as load offsetting was not a driving consideration when customers considered entering the Net Metering Program. NMRG notes that the Energy Price has been raised twice over the course of the Net Metering Program and would not have been necessary if the intent had been load offsetting. This is because there would be no need for an energy price or raising it on two occasions and participants could have had their usage and their generation of energy offset with no need for an energy price. NMRG asserts that the Net Metering Program has expressly contemplated that customer generation would exceed usage and the Energy Price is required “to quantify payments due to customers for any excess.”³²

NMRG/BCCSC states that nothing in BC Hydro’s promotional material suggests the point of the program “was simply to have customers produce energy sufficient only to offset their own load”. They point to BC Hydro’s website where news releases, public statements and promotional materials have all created the same public perception that the Net Metering Program was about the concept of buying excess energy produced by BC Hydro customers.

More specifically, NMRG states that none of the BC Hydro promotional material “mentioned, alluded to or warned of any limitation requiring participating customers to produce only enough energy to offset their own load.” To support this position, NMRG provides examples of promotions BC Hydro has made and continues to make. It states that the following promotional material is currently on the BC Hydro website:³³

³¹ BC Hydro Final Argument, pp. 11-13.

³² Exhibit C23-7, p.5.

³³ Ibid.

Generation options for homes, businesses

Our net metering program is designed for those who generate electricity for their own use. *When you generate more than you need, you sell it to us.* When you don't generate enough to meet your needs, you buy it from us.

When you sell to us, you get a bill credit towards your future electricity use. If you still have an excess credit at your anniversary date of joining the program, *we'll pay you for the electricity at the rate of 9.99 cents per kilowatt hour (kWh). It's that simple.*⁶(emphasis added)

⁶ The promotion is currently on BC Hydro's website at https://www.bchydro.com/work-with-us/selling-clean-energy/net-metering.html?WT.mc_id=rd_netmetering#stories

Generate electricity, and sell some of it to BC Hydro



BC Hydro community rep Kathryn MacDonald drinks in the summer sun after writing about how owners of homes in B.C. equipped with solar panels can easily connect to the electrical grid and *sell excess power to BC Hydro.*⁷ (emphasis added)

Further to this, the NMRG/BCCSC reports that the BC Hydro website currently states:

“As a net metering customer with a smart meter, electricity can flow to or from your house, and the meter registers what's going on in both directions. When you generate more electricity than you use, you receive a credit to your account that is applied against your future electricity use. At your annual anniversary date, if you have an excess generation credit remaining on your account, we will pay you at a rate of 9.99 cents per kWh.”²³ (emphasis added)

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NMRG states that the concept is simple and can be stated as generating energy for your own use and selling amounts not needed to BC Hydro at \$9.99 per kWh. Further, there is no mention of limiting customers' generation to only offset their load. NMRG adds that BC Hydro created more incentive to participate in the program by raising the Energy Price twice, once in 2009 (from \$5.40 to \$8.16 per kWh) and once in 2012 (from \$8.16 to \$9.99 per kWh).³⁵

NMRG/BCCSC in its Final Argument adds that the record leaves no doubt that BC Hydro actively entices customers through its promotional efforts to join the Net Metering Program and believes this to be appropriate. However, they argue that having encouraged customers with representations that include the expected payback

³⁴ Exhibit C23-7, p. 15.

³⁵ Ibid., pp. 5-7.

period on investment and the apparent stability of the Energy Price, it is now grossly unfair to contradict those representations and customer expectations regarding them.³⁶

NMRG/BCCSC also states that BC Hydro, given its deep experience, understands that the economics of developing, constructing and operating a micro hydro project do not correlate to matching the size to a particular customer's own load. They argue that the underlying premise of the Net Metering Program is that there are times customers may produce more electricity than is required for their own use. With micro hydro which is "a steady resource" this will occur "much or most of the time".³⁷

BCOAPO

BCOAPO states that establishing the purpose of the Net Metering Program is "critical to any consideration of the amendments." It agrees that if the primary intent of Net Metering was to offset load there would be no need for BC Hydro to set an energy price to purchase excess generation. That said, BCOAPO points out that "net metering recognizes that even for customers that install generation with the intent of offsetting their own load circumstances may arise due to variations in weather throughout the year or changes in personal circumstances". In these cases, having the ability to carry excess generation over billing periods and to be paid for excess remaining at year-end is attractive to potential Net Metering customers.³⁸

BCOAPO's view after consideration of the history regarding BC Hydro's Net Metering Program tariff is that the purpose of the program is load offsetting rather than for energy purchasing. In reaching this conclusion it relies on the following observations:

- The BCUC's recommendation (in Letter L-37-03) to propose a rate for purchase of net excess generation was predicated on the view that with the expected low intake and the 50 kW capacity limit it was a fair and acceptable trade-off against potential cost shifting while encouraging Net Metering Program participation;
- BC Hydro proposed calculating an Energy Price based on avoided cost of green generation which the BCUC considered to be a fair and reasonable approach for the valuation of excess generation. BCOAPO points out that the fair rate was approved for valuing excess generation not for the purpose of supplying BC Hydro;
- The 2008 and 2011 rate applications were made to be generally consistent with the SOP price;
- In a subsequent Application, BC Hydro's proposal to increase the capacity limit to 100 kW was based on lessening of barriers to RS 1289 by improving the economics of customer proposed generation and benefits customers with larger premises. In making this subsequent Application, BC Hydro stated that it "continues to be of the view that the primary purpose of RS 1289 is to allow individual customers to meet all or part of their electricity demand in a simple and cost effective manner and not sell energy to BC Hydro";³⁹ and

³⁶ NMRG/BCCSC Final Argument, p. 6.

³⁷ Ibid., p. 11.

³⁸ BCOAPO Final Argument, pp. 3-4.

³⁹ Ibid., p. 5.

- Since its inception RS 1289 has included language that indicates the intent of the Net Metering Program is for customers to “generate electricity to serve all or part of their electricity requirements”.⁴⁰

BC Hydro Reply Argument

BC Hydro made no Reply Argument on this issue.

Panel Discussion

As outlined in Section 2.2, RS 1289 is a rate schedule, and as such is subject to change from time to time. Moreover, ratepayers who have chosen to enroll into the Net Metering Program have done so with no guarantee that the terms under which they entered the program would remain inviolate. In the view of the Panel the original intent of the Net Metering Program is not determinative and was not to be relied upon to justify any determinations that have been reached within this Decision.

NMRG/BCCSC has asserted that from the outset, the Net Metering Program and RS 1289 were established as a means for BC Hydro to buy energy from its customers. The Panel disagrees. While clearly the program is designed to allow for additional energy to be produced, the evidence does not support that this was done with the express purpose of facilitating purchasing the energy as a utility might do from a supplier.

BC Hydro has provided a detailed historical review of the Net Metering Program which covers the regulatory history of matters related to it and some insight into the government policy matters that drove the Net Metering Program to be established and its evolution over time. Much of this includes references to BCUC statements with regards to its concerns related to costs being borne by the utility and steps taken to reduce potential cost shifting to non-participants. This is not to say that the BCUC did not recognize there was potential for annual net excess generation. This was apparent in its Decision and Order G-26-04 where it stated that it believed that cost shifting due to the 50 kW limit and the low expectation of participation would be limited and “it would be fair if net metering customers were compensated for the value BC Hydro receives from net excess generation”.⁴¹

Further, there may have been times when the BCUC has considered the importance of the Net Metering Program from the perspective of energy acquisition. Order G-57-12, among other things considered the potential to increase capacity limits as a means of limiting barriers to Net Metering Program entry. It directed BC Hydro to consider and consult upon an increase to nameplate capacity units and provide an evaluation report. This evaluation report was filed and subsequent to this, an increase to 100 kW nameplate capacity was approved. The decision to allow this extra capacity was clearly made with the understanding that the Net Metering Program would reduce barriers of entry and lead to an expansion of the amount of energy that was being generated. Therefore, to describe the Net Metering Program as never having been concerned with energy acquisition would be equally untrue and refuted by the evidence.

The Panel notes that the Net Metering Program has continued to evolve over the last 17 years. As such, the Net Metering Program has, on occasion been viewed as an additional source of energy to help meet requirements.

⁴⁰ BCOAPO Final Argument, pp. 3-6.

⁴¹ Order G-26-04, Appendix A, p. 2.

In present circumstances this does not appear to be the case. In late 2019, the BC Government indefinitely suspended BC Hydro's SOP. On a Government sponsored website (govTogetherBC) it explains:

...BC Hydro has a surplus supply of electricity which is expected to continue into the 2030's. The surplus means there is no need for new electricity supplies for the foreseeable future. Suspending the SOP will reduce BC Hydro's energy costs and takes pressure off rates for all British Columbians.⁴²

This is a strong statement that for at least the next 10 years, there is little expectation of a need for additional new power supply within the Province.

In the view of the Panel this does not mean that there has been a withdrawal of support for the Net Metering Program. On the contrary, the recent CleanBC Plan, while acknowledging the current supply situation, addresses this directly:

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. We can meet this increased electricity use with existing and planned projects that harness BC's vast wealth of clean renewable power.⁴³

The evidence, as outlined above, supports BC Hydro's contention that the Net Metering Program was initiated as a load offsetting program and not intended by BC Hydro as a means of securing additional power supply. However, its evolution has been such that there have likely been times when it may have been viewed as a program which among other purposes could be used for power acquisition. In the view of the Panel the original intent of the Net Metering Program is not at issue in this proceeding. What is more important is viewing RS 1289 from the perspective of current circumstances. The Panel acknowledges that the Net Metering Program, while not likely to be viewed from an energy acquisition perspective over the next period of time, will continue to evolve and may well be viewed in this context beyond 2030.

3.0 Factors to Consider in Reviewing the Application

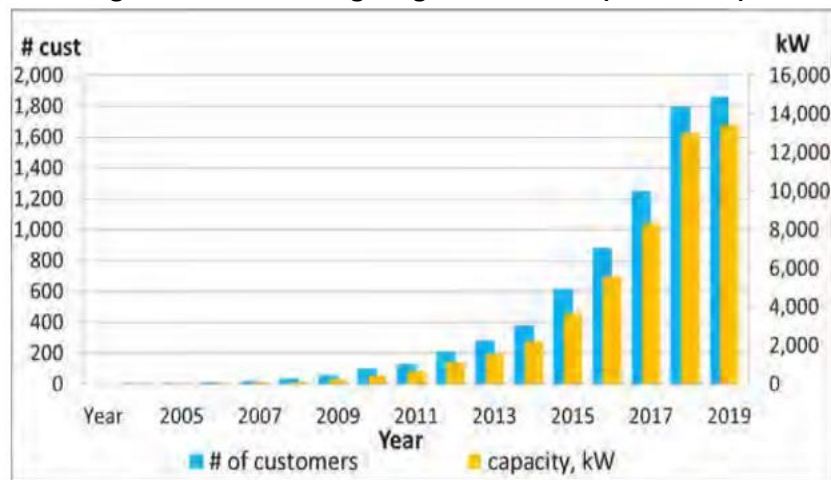
3.1 Historical Net Metering Program Growth

BC Hydro states that over the first 10 years of the Net Metering Program there have been only modest increases in participation. The number of customers in 2014 totalled only 400 and the installed capacity was approximately 2.5 MW. Since then there have been significant increases in participation and as of March 1, 2019 total participation had grown to 1850 customers with installed capacity of 13 MW.

⁴² <https://engage.gov.bc.ca/govtogetherbc/impact/standing-offer-program-results/>

⁴³ CleanBC Plan, p. 56.

Figure 1: Net Metering Program Growth⁴⁴ (2004-2019)



This growth is outlined in Figure 1 which shows that both capacity and customer numbers have increased sharply in the most recent time periods. Table 1 below summarizes by generation type the current number of customers for each. Clearly, the largest customer group by far is those employing solar photovoltaic with hydro a distant second.

Table 1: Net Metering Customers by Generation Type⁴⁵

Generation Type	Number of Customers	% of Customers
Solar photovoltaic	1,817	98.16
Hydro	16	0.86
Wind	9	0.49
Wind and photovoltaic	6	0.32
Hydro and photovoltaic	2	0.11
Biogas	1	0.05
Total	1,851	100

Table 2 (below) breaks down customers by Generating Facility size. This shows that most of the customers have facility sizes that are less than 50 kW and only 16 customers currently exceed this level.

Table 2: Net Metering Program Customers by Generating Facility Size⁴⁶

Nameplate Capacity	Number of Customers	% of Customers
≤ 5 kW	955	51.59
> 5 kW, ≤ 10 kW	657	35.49
> 10 kW, ≤ 25 kW	189	10.21
> 25 kW, ≤ 50 kW	34	1.84
> 50 kW	16	0.86
Total Participants	1,851	100
Total Capacity (MW)	13.39 MW	

⁴⁴ Exhibit B-1, p. 14.

⁴⁵ Ibid.

⁴⁶ Ibid., p. 15.

3.2 Public Engagement Process

To inform its Application, BC Hydro states that it engaged with customers and stakeholders through two webinars in March and April of 2019 and conducted an online survey (Engagement Survey). There were a total of 301 participants in the webinars and there were 706 online survey responses. In addition to these, BC Hydro states that its Application has been informed by the observations and conclusions in its 2017 Net Metering Evaluation Report, a jurisdictional review it conducted, and commentary the utility has received from customers and stakeholders in filing the 2018 Amendment Application.⁴⁷

The two webinars provided participants with a presentation initially covering the objectives of the Net Metering Program, its evolution, the speed of its growth and current participation and capacity. The presentation also provided participants with an outline of the Application scope and objectives of the proposed changes before concluding with a description and discussion of some of the Application proposals.⁴⁸

The Engagement Survey provided survey results for a number of questions related to the Application addressing issues such as oversized generation, options for terms and payment of excess energy credits, Energy Price and the potential for a transitional Energy Price or grandfathering program. In addition, customers and stakeholders were also provided an opportunity to provide additional comments and further written submissions. BC Hydro received comments from 352 participants and written submissions from the Canadian Solar Industries Association (CanSIA), Clean Energy BC and individual stakeholders.⁴⁹

The 2017 Net Metering Evaluation Report describes the developments in BC Hydro's Net Metering Program from April 1, 2013 to March 2016 identifying trends and considerations for the future of the program. More specifically, this report provided an evaluation of RS 1289 Customer and Costing Data as well as the current Energy Price methodology and current trends and benchmarking analysis.⁵⁰

The jurisdictional review provided a review of the net metering programs of eight North American electric utilities showing where similarities and differences exist.⁵¹

Positions of Interveners

Three of the interveners made submissions in Final Argument with respect to the adequacy of the public engagement process.

The CEC

The CEC submits that the public engagement process has been adequate.⁵²

⁴⁷ Exhibit B-1, pp. 1-2.

⁴⁸ Ibid., Appendix D.

⁴⁹ Ibid., Appendix E; Exhibit B-3, BCUC IR 1.22.1.

⁵⁰ Exhibit B-1, Appendix F.

⁵¹ Ibid., Appendix G.

⁵² CEC Final Argument, p. 17.

BCSEA

Confining its submissions to the Engagement Survey only, BCSEA submits that it should not be given weight by the BCUC. BCSEA states that the options in the Engagement Survey differed from proposal in the Application and thus, “the responses are difficult to interpret where none of the offered responses may have been the respondent’s preferred outcome”.⁵³

NMRG/BCCSC

NMRG/BCCSC describes the Engagement Process as incomplete and inadequate. They state that the “survey asked for multiple choice answers and written answers but did not give the respondent the choice to submit their responses because the navigation button named “next”, without any warning, functioned as an upload command - submitting the survey, without the authors awareness, permission, or approval.” Moreover, the design of the online survey did not allow respondents the ability to review responses they had made prior to their being submitted.⁵⁴

In NMRG/BCCSC’s view, BC Hydro’s engagement process failed to meet the definition of consultation as outlined in BC Hydro’s 2018 Net Metering Amendment Application. They point out that BCCSC’s evidence stated:

... consultation was a promise and condition... on which the Panel made its interim decision. Consultation is materially different from engagement process, which is basically merely a one-sided focus group exercise, a priori biased towards what a proponent wants to have on the table.⁵⁵

Further, with respect to BC Hydro’s extension request to file its Net Metering Service under RS 1289 Application dated October 10, 2018, NMRG/BCCSC notes that one of the issues BC Hydro believed needed to be discussed was “the need for a transparent review of the net metering program, with the opportunity for all stakeholders to participate.” NMRG/BCCSC points out that at no point were stakeholders brought together for dialogue which for consultation would be a minimum requirement.⁵⁶

NMRG/BCCSC also takes issue with BC Hydro producing stakeholder engagement tools that were misleading noting that it is inappropriate for BC Hydro to present information that has been amended without an express disclaimer.

Given these shortcomings NMRG/BCCSC states that BC Hydro’s evidence is unreliable and should be given little or no weight.⁵⁷

BC Hydro Reply Argument

BC Hydro made no reply to either NMRG/BCCSC’s or BCSEA’s Final Arguments.

⁵³ BCSEA Final Argument, p. 8.

⁵⁴ NMRG/BCCSC Final Argument, pp. 5-6.

⁵⁵ Ibid., p. 6.

⁵⁶ Ibid.

⁵⁷ NMRG/BCCSC Final Argument, p. 6.

Panel Determination

BCSEA states that the Engagement Survey should only be given limited weight pointing out that BC Hydro received feedback on a variety of options within the survey but there was no certainty that the responses reflected the customer's preferred option. The Panel agrees. It appears BC Hydro surveyed customers on a variety of potential changes but there was a lack of customer feedback on a package of specific program options. These could have been helpful in determining the reaction of various groups to potential package options and more clearly delineated a preferred option.

Perhaps more importantly, the Panel notes that the survey was responded to by divergent groups of customers which are represented within the rate schedule. BC Hydro grouped its customer base in a variety of ways; by their interest (a current customer, an installer, a potential customer or an applicant), by type (residential, commercial, etc.), by expected anticipated consumption and by generation technology used or planned to be installed. Given the diversity of the groups in RS 1289, it is reasonable to expect each to view the questions asked based on their group and that group's unique circumstances. As an example, a solar photovoltaic (PV) generator customer differs greatly from a hydroelectric generator customer in terms of the amount of energy generated. It is therefore reasonable that members of these two groups would have different points of view or interests in subjects like oversized generation or the Energy Price. However, the results presented by BC Hydro regarding the program changes are for all respondents as if they were a homogeneous group, which they are not. Moreover, because over 90 percent of those surveyed have installed or plan to install solar PV generators, it is reasonable to expect that this would heavily skew the results and other generation groups with a potentially different perspective would have little impact.⁵⁸ **The Panel therefore finds the Engagement Survey Results as presented, to be questionable and puts limited weight on them.**

NMRG/BCCSC argues there is a difference between engagement and consultation stating that the engagement process failed meet the definition of consultation which was a promise or condition on which the Panel relied upon in issuing Order G-100-18 dated June 1, 2018. The Panel agrees and notes that the expectation for consultation was raised by BC Hydro in its Application to Amend Net Metering Service under RS 1289 (in May of 2018)⁵⁹. The Panel accepts that BC Hydro has provided some evidence that there was effort to engage Net Metering customers through a survey and a webinar but there is no evidence that it tried to consult directly with affected customer groups to better understand their perspective. Further, in its Reply Argument, BC Hydro made no attempt to address the shortfalls identified in either BCSEA's or the NMRG/BCCSC's Final Arguments. The Panel is of the view that meeting with those groups to be most affected by the Application would have provided them with an opportunity to express their views prior to a filing a completed application with the BCUC and would potentially have led to some modification of the Application.

The lack of consultation and the flawed Engagement Survey are of concern to the Panel. Consequently, the Panel finds that it is appropriate to place only limited weight on BC Hydro's public engagement process results.

⁵⁸ Exhibit B-1, Appendix E, p. 5.

⁵⁹ Exhibit B-1, p. 9.

3.3 Cost Shifting Arising from the Net Metering Program

BC Hydro has stated that one of the objectives for the proposed amendments to RS 1289 is to allocate Net Metering Program costs and benefits fairly between participating and non-participating customers. BC Hydro has provided evidence that currently there is an imbalance with non-participating customers bearing costs that are created on behalf of participating customers. The NMRG/BCCSC disagree and has provided evidence to the contrary. The issue before the Panel is to determine the nature and the extent of cost shifting and if it is unduly discriminatory and unjust in accordance with section 59 of the UCA.

BC Hydro identifies three types of cost shifting that is occurring with the Net Metering Program and more specifically, states that cost-shifting arises from the Net Metering Program when:

- The Surplus Energy Payment is greater than the value BC Hydro receives from the excess generation;
- Net Metering customers bank Net Generation to offset future consumption and require energy on demand; or
- Program administration costs are recovered from all ratepayers.^{60, 61}

In general, cost shifting occurs when BC Hydro's cost of service is not fully recovered from customers in the Net Metering Program resulting in non-participating customers bearing unrecovered costs. BC Hydro explains that of the three types, only the cost shifting that occurs with regards to Surplus Energy Payments are addressed by the proposed amendments in the Application. BC Hydro is not proposing further amendments in the Application to address cost shifting that occurs in the other ways.⁶²

The three sources of cost shifting arising from the Net Metering Program are discussed further in the following subsections.

Surplus Energy Payment

Once every 12 months, if customers in the Net Metering Program have credits remaining at their Anniversary Date, they receive a Surplus Energy Payment from BC Hydro for those remaining credits at a specified Energy Price. If the Energy Price paid to the customer is greater than the value BC Hydro receives from excess generation, BC Hydro does not fully recover its costs and there is cost shifting to non-participating customers. BC Hydro has proposed shifting the Energy Price from the current 9.99 cents per kWh to one based on the Mid C Price. BC Hydro submits these proposed amendments to RS 1289 will mitigate the cost shifting associated with Surplus Energy Payments resulting in a more accurate reflection of the value of that energy to BC Hydro.⁶³

Net Metering Customers Bank Net Generation to Offset Future Consumption and Require Energy on Demand

BC Hydro states that most of BC Hydro's costs to serve its customers are recovered through volumetric energy charges whether or not they are in the Net Metering Program. This type of rate design causes cost shifting from participating customers to non-participating customers because participating customers still require energy

⁶⁰ Exhibit B-3, BCUC IR 1.5.1.

⁶¹ Exhibit B-7, BCUC IR 2.26.2.

⁶² Exhibit B-3, BCUC IR 1.5.1.

⁶³ Ibid.

from BC Hydro on demand but typically have lower load factors compared to non-participants.⁶⁴ Therefore, volumetric energy charges may not be adequate to recover demand-related costs for low load factor customers such as Net Metering Program participants.

Additionally, when customers in the Net Metering Program generate more electricity than they need, the surplus electricity is recorded in the Customer's Generation Account as a credit. The balance in the Generation Account is then applied as a credit to offset electricity consumption later when customers do not generate enough electricity to meet their needs and require electricity from BC Hydro. However, as BC Hydro explains, when the rate amount that would have been charged for the offset consumption exceeds the average Mid-Columbia (Mid-C) price, cost shifting will occur.⁶⁵ This means that when the value of the energy purchase for this offset consumption exceeds the value of the excess generation that produced the Generation Account Balance, cost shifting will occur.

Taken together this means that while both participating and non-participating customers depend on BC Hydro's ability to supply them with the electricity they require at any point in time, non-participating customers pay relatively more for this service, compared to Net Metering Program participants.⁶⁶

Program Administration Cost

Net Metering Program administration costs are recovered from all ratepayers.⁶⁷ As previously noted, most of BC Hydro's costs to serve customers in the Net Metering Program are recovered through volumetric energy charges resulting in cost shifting from participating customers to non-participating customers. Based on fiscal 2016 data as presented in the BC Hydro Net Metering Evaluation Report No. 4, the Net Metering Program administration costs are estimated to be \$112,000, which is around \$175 per Net Metering customer account per year.⁶⁸

3.3.1 BC Hydro's Cost Shifting Analysis

To support its position that changes to the Net Metering Program are necessary to mitigate the effects of cost shifting, BC Hydro compared its cost of service with revenue from Residential (RS 1101) customers in the Net Metering Program to the value of generation delivered to BC Hydro's system from those customers.⁶⁹ BC Hydro submits its analysis demonstrates that 68 percent of its cost of service was recovered, resulting in actual average cost shifting of \$456 per customer in Fiscal 2016. The stated revenues were based on actual billing data from 2016 and costs were based on BC Hydro's standard embedded cost methodology as described in BC Hydro's Fiscal 2016 Fully Allocated Cost of Service Study.⁷⁰

A summary of the data and analysis of cost shifting for this subset of customers is provided in response to BCUC IR 1.5.2, and is replicated in Table 3:⁷¹

Table 3: Actual Average Cost Shifting Per Residential (RS 1101) Net Metering Customer in Fiscal 2016

⁶⁴ Exhibit B-3, BCUC IR 1.5.1.

⁶⁵ Ibid.

⁶⁶ Ibid.

⁶⁷ Exhibit B-7, BCUC IR 2.26.2.

⁶⁸ Exhibit B-3, BCUC IR 1.5.2, Table 7.

⁶⁹ Exhibit B-3, BCUC IR 1.5.2.

⁷⁰ Ibid.

⁷¹ Ibid., Table 8.

BC Hydro Cost of Service			
A	Energy-related Costs	$0.031 (\$/\text{kWh}) * 6,041,355 \text{ kWh provided by BC Hydro}$	\$187,866
B	Demand-related Costs	$12.82 (\$/\text{kW/month}) * 36,366 \text{ kW / month provided by BC Hydro}$	\$466,212
C	Customer-related Costs	$140 (\$/\text{year/account}) * 409 \text{ accounts}$	\$57,230
D	Program Administration Costs	$175 (\$/\text{year / account}) * 409 \text{ accounts}$	\$71,575
E	Total Costs to Serve	$E = A + B + C + D$	<u>\$782,905</u>
BC Hydro Revenues and Avoided Costs			
F	BC Hydro Revenues Received	Electricity Bill Revenues less Surplus Energy Payments	\$474,342
G	Value to BC Hydro of Net Metering Generation Delivered	$0.031 (\$/\text{kWh}) * 1,612,480 \text{ kWh Delivered to BC Hydro}$	\$50,148
H	Total Revenues and Value Received	$H = F + G$	\$524,472
Cost Shifting			
I	Average Residential Net Metering Revenues to Cost Ratio	$I = H / E$	68%
J	Average Residential Non Net Metering Customer Revenue to Cost Ratio	Per BC Hydro's Fiscal 2016 Fully Allocated Cost of Service Study	91%
K	Actual Average Cost-shifting Per Account	$J = E * (J - I) / 409 \text{ accounts}$	\$456 / year

BC Hydro states approximately one third of the \$456 per year cost shifting was the result of Surplus Energy Payments paid to customers in the Net Metering Program at the then current Energy Price (9.99 cents per kWh). Approximately one third was from Net Metering Program customers reducing their electricity bills payable under RS 1101 by accumulating a Generation Account Balance under the terms of RS 1289, while still requiring BC Hydro's electrical service on demand. The remaining one third was the result of program administration costs being recovered from all ratepayers.⁷²

The cost shifting discussed above considers RS 1101 customers only which accounts for over 80 percent of Net Metering customers. BC Hydro states it is unable to provide analysis on cost shifting for customers served on other rate schedules as it would require at least six months of analytical effort by a cost of service specialist.⁷³

Table 4 shows the number of customers in the Net Metering Program, by Rate Schedule, as of June 1, 2019.

⁷² Exhibit B-7, BCUC IR 2.26.2.

⁷³ Ibid., BCUC IR 2.26.5.

Table 4: Number of Net Metering Program Customers by Rate Schedule

Rate Schedule	Number of Customers
1101	1647
1101A	12
1105	20
1107	4
1111	15
1121	2
1151	44
1234	7
1255	5
1300	159
1500	50
1511	1
1600	20
1601	2
1610	16
1611	9
1151/1105	1
Total	2014

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BC Hydro explains that the value customers in the Net Metering Program receive from BC Hydro for their net generation (outflow) is directly related to the magnitude of the volumetric component of the rate schedule under which each customer takes service. Shown below are current Fiscal 2019 volumetric charges (referred to below as Energy Charges) for the main rate schedules. Volumetric charges are highest under Residential Rate Schedule 1101 and Small General Service RS 13XX Rate Schedules.⁷⁵

- ▶ **Residential Rate Schedule 1101 Step 2 Energy Charge: 14.17 ¢/kWh, Step 1 Energy Charge: 9.45 ¢/kWh;**
- ▶ **Small General Service Rate Schedule 13XX Energy Charge: 12.53 ¢/kWh;**
- ▶ **Medium General Service Rate Schedule 15XX Energy Charge: 9.68 ¢/kWh; and**
- ▶ **Large General Service Rate Schedule 16XX: 6.06 ¢/kWh.**

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Thus, all else equal, this shows cost shifting will be lower for customers in the Net Metering Program that take service under Medium General Service (RS 15XX) and Large General Service (RS 16XX), which have demand charges, than for other rate schedules.⁷⁷

⁷⁴ Exhibit B-3, BCUC IR 1.3.6.

⁷⁵ Exhibit B-7, BCUC IR 2.26.4.

⁷⁶ Ibid.

⁷⁷ Ibid.

Position Taken by NMRG/BCCSC on BC Hydro's Cost Shifting Analysis

NMRG/BCCSC argues that BC Hydro has not accounted for all aspects of the Net Metering cost shifting calculation and, based on its calculations, concludes that non-participating customers appear to be shifting costs to Net Metering customers. A summary of their calculations is provided in the table below:⁷⁸

Table 5: NMRG/BCCSC's Actual Average Cost Shifting Per Residential (RS 1101) Net Metering Customer in Fiscal 2016

BC Hydro Cost to Serve

A	Energy-related Costs	0.031 (\$/kWh) * 3,983,251 kWh provided by BC Hydro	\$123,481
B	Demand-related Costs	12.82 (\$/kW/month) * 23,694 kW / month provided by BC Hydro	\$303,763
C	Customer-related Costs	140 (\$/year/account) * 409 accounts	\$57,230
D	Program Administration Costs	175 (\$ / year / account) * 409 accounts	\$71,575
E	Total Costs to Serve	E = A + B + C + D	\$556,049

BC Hydro Revenues and Avoided Costs

F	BC Hydro Revenues Received	Electricity Bill Revenues less Surplus Energy Payments	\$474,342
G	Value to BC Hydro of Net Metering Generation Delivered	0.031 (\$/kWh) * 1,612,480 kWh Delivered to BC Hydro	\$50,148
H	Demand related Savings – NM Hydro offsetting solar requirements	12.82 (\$/kW/month) * 4,202kW month provided by NM Hydro-plants	\$53,876
I	Total Revenues and Value Received	I=F+G+H	\$578,366

Cost Shifting

J	Average Residential Net Metering Revenues to Cost Ratio	J=I/E	104%
K	Average Residential Non-Net Metering Customer Revenue to Cost Ratio	Per BC Hydro's Fiscal 2016 Fully Allocated Cost of Service Study	91%
L	Actual Average Cost-shifting Per Account	K = E * (K-J) / 409 accounts	\$-176.74
M	Annual cash payout remainder From BCH to NM per client	\$28,086 + \$53,876 = \$81,962 \$90,508 – \$81,962 = \$8,546 \$8,546 / 409 = \$20.89	\$20.89
N	Actual Cost Shifting per Client	L-M	\$-155.85

The key differences between the NMRG/BCCSC cost analysis and that of BC Hydro lies in their differing views of Energy related costs and demand related costs. Consequently, NMRG/BCCSC's estimated cost of service is substantially lower than that presented by BC Hydro. NMRG/BCCSC appears to have based its calculations primarily on the following arguments:

⁷⁸ NMRG/BCCSC Final Argument, Part 4, Section O, p. 22.

- Net Metering micro-hydro generation has large demand savings; and
- BC Hydro inflates Net Metering customers' average annual consumption.

In addition, NMRG/BCCSC submits that after Net Metering customers' own loads are fulfilled, the excess energy starts to fulfil the nearest customer's load.⁷⁹ Because surplus energy from Net Metering customers satisfies local loads this avoids or reduces distribution and transmission costs enabling BC Hydro to save its water reserves and reduce wear and tear on its equipment (turbines, transmission lines etc.).⁸⁰

With respect to demand savings, NMRG/BCCSC states that throughout the winter Net Metering customers show positive net generation once they have fulfilled their own needs. Moreover, they argue that the largest part of the net annual power supplied to BC Hydro is related to reliable power from micro hydro generation. This power is produced year-round, and the micro hydro outflow runs in both the winter and shoulder season and throughout the night. NMRG/BCCSC states that the figure below, which is compiled from data provided by BC Hydro, demonstrates that Net Metering-Hydro provides peak demand capacity reliably through the Net Metering Program.⁸¹

Figure 2: Hydroelectric Total Net Generation (outflow) for Each Day in 2018



NMRG/BCCSC further point out that BC Hydro downplays or misrepresents the role of micro hydro in its evidence and focuses primarily on solar PV while it ignores the generation type making up the great majority of net output.⁸²

Referring to BC Hydro's Figure (reproduced as Figure 3 below) showing the actual net generation outflow pattern of 409 RS 1101 customers (representing a cross section of all generation types), the NMRG/BCCSC points out that this represents outflow after inflow has been deducted and shows that the outflow is never less than negative. From this they conclude that "even throughout peak demand time in the evenings and in winter BC Hydro does not need to supply power to the Net Metering customers."⁸³

⁷⁹ NMRG/BCCSC Final Argument, Part 4, Section D, p. 13; Section E, pp. 13-14.

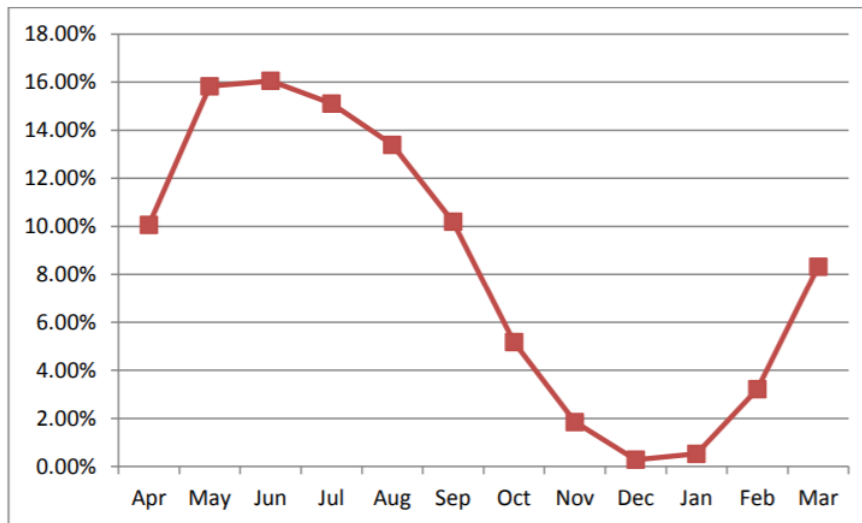
⁸⁰ Ibid., Part 4, Section F, p. 14.

⁸¹ Ibid., Part 4, Section I, p. 16.

⁸² Ibid., Part 4, Section I, p. 17.

⁸³ Ibid., Part 4, Section K, p. 18; Exhibit B-5, NMRG IR 1.5.2.

Figure 3: Residential (RS 1101) Net Generation Outflow Pattern



Source: BC Hydro Reply to BCUC IR 1.5.2 (Exhibit B-3).

NMRG/BCCSC also asserts that BC Hydro “inflates” the revenues and avoided costs in its analysis because the sales data relied upon is based on non-Net Metering customer average annual consumption. In its view, this creates the false impression that Net Metering customers have the same energy requirements as non-participating customers. The NMRG/BCCSC claims that consumption is higher among non-participants because Net Metering customers tend to be frugal with “super low usage”.⁸⁴

NMRG/BCCSC also questions the consumption data as presented by BC Hydro. Referring to the Table in BC Hydro’s response to the BCUC (depicted above as Table 3), they state that the consumption amounts attributed to Net Metering customers average out to 14,771 kWh per year with RS 1101 customers averaging 9,739 kWh. They point out that is 52 percent higher than that consumed by the average customer and conclude that the claimed consumption for the average Net Metering customer “is simply wrong – by a large margin.”⁸⁵ To correct this they have recalculated Energy Related Costs to equal that of an average customer and adjusted Demand-related costs downward.⁸⁶

BC Hydro Reply Argument

BC Hydro disagrees with the NMRG/BCCSC regarding the need to supply power to the Net Metering customers during peak demand periods. Figure 3 and the data presented in IR responses demonstrate that Net Metering customers delivered minimal electricity during system peak months (i.e., November through February) and therefore, did rely on electricity delivered by BC Hydro in these months.⁸⁷

BC Hydro also explains that Figure 3 above only shows generation outflow and not outflow after inflow has been deducted or after all 409 customer loads have been satisfied, as NMRG/BCCSC appears to be assuming.

⁸⁴ NMRG/BCCSC Final Argument, Part 4, Section L, pp. 18- 19.

⁸⁵ Ibid., Part 4, Section M, pp. 19-20.

⁸⁶ Ibid., Part 4, Section M, p. 20.

⁸⁷ BC Hydro Reply Argument, Part III. Para.17, p. 5; Exhibit B-3, BCUC IR 1.5.2, Figure 1.

BC Hydro also disagrees with the NMRG/BCCSC's consumption data, stating unequivocally that they are wrong. BC Hydro affirms that the data it has presented is not an expectation or claim but rather, is based on actual electricity sales data as recorded by Measurement Canada certified revenue meters.⁸⁸

BC Hydro submits that some of the NMRG/BCCSC arguments do not account for the stark differences that exist between the electricity service that BC Hydro provides, and the net excess generation provided by Net Metering customers. For one, Net Metering customers have no obligation to deliver energy to BC Hydro or other customers. This lack of any delivery or service obligations distinguishes Net Metering generation from BC Hydro's own generation and distinguishes the value of the energy they deliver from time to time from that of utilities that are obliged to deliver required energy. BC Hydro argues that this distinction invalidates the NMRG/BCCSC argument that surplus energy from Net Metering customers avoids BC Hydro distribution and transmission costs.⁸⁹

Panel Determination

The key issues that have been identified are whether the consumption data provided by BC Hydro can be relied upon and whether there are demand savings with respect to Net Metering facilities.

With respect to the consumption data, the Panel finds the data provided from BC Hydro can be relied upon.

BC Hydro has stated that the information has been tabulated from Measurement Canada certified revenue meters which are the standard for billing purposes. NMRG/BCCSC, on the other hand, have reasoned that consumption levels for Net Metering customers should be at or lower than those of non-participants. However, they have provided no evidence of this and have based their arguments on logic they have applied. The Panel notes the NMRG/BCCSC had the opportunity to raise this in the IR phase and doing so may have provided more detailed evidence with respect to consumption patterns thereby explaining the difference. They also had the opportunity to file evidence on behalf of alternative data. However, they did not do so. The fact that the NMRG/BCCSC did not raise this issue until Final Argument makes the matter even more difficult as neither BC Hydro nor the other participants have been afforded the opportunity to test this position. **Therefore, the Panel finds that little weight can be placed on the concerns raised by NMRG/BCCSC with regard to consumption data and Energy-related costs in BC Hydro's cost shifting calculation in Table 3.**

Concerning demand related costs, the Panel finds that the evidence does not support adjusting BC Hydro's cost shifting calculation downward as suggested by NMRG/BCCSC. BC Hydro has demonstrated that the arguments presented by NMRG/BCCSC were not supportable with evidence. NMRG/BCCSC have argued that even in peak demand time during winter evenings there is no need to provide power to Net Metering customers. In turn, BC Hydro has shown in Figure 3 that the amount of generation over the winter peak period is negligible when compared to other periods throughout the year. Moreover, NMRG/BCCSC in making its argument does so on the basis that Figure 3 was net outflow. BC Hydro has confirmed this is not the case as Figure 3 shows only generation outflow. **Given the relatively small outflow over the winter peak season the Panel places little weight on there being a need to adjust Demand-related costs downward in BC Hydro's cost shifting calculation in Table 3 above.**

The Panel acknowledges that Figure 2 provided by NMRG/BCCSC does indicate that net generation for micro-hydro customers occurs throughout the year. However, this figure ignores all other Net Metering Program

⁸⁸ BC Hydro Reply Argument, Part III. Para.17, p. 5

⁸⁹ Ibid., Part III. Para.18, p. 6.

participants and does not include the energy delivered to these customers by BC Hydro over the same time period. Consequently, this information cannot be relied upon to make conclusions on demand savings. Furthermore, as stated by BC Hydro, the proposed amendments in this Application are not aimed at mitigating any cost shifting that may occur due to Net Metering customers requiring energy on demand from BC Hydro.

BC Hydro has calculated the average level of cost shifting to be \$456 per year based on a sample of RS 1101 customers which was the most readily available information source. The Panel accepts this but understands that the amount of cost shifting would likely change somewhat if a more representative sample were used.

Other than the cost shifting associated with annual Surplus Energy Payments the Panel does not consider the extent of cost shifting to be a persuasive factor in its determinations on the requested changes. Further, the Panel acknowledges that the exact amount of cost shifting is difficult to determine but agrees with BC Hydro that the evidence supports there being a degree of cost shifting taking place as a result of the Net Metering Program. Accordingly, the Panel is satisfied that directionally, BC Hydro's cost shifting analysis is sufficient for the purposes of reviewing this Application.

4.0 Review of Proposed RS 1289 Amendments

4.1 Proposed Amendments

BC Hydro outlines its objectives for the Net Metering Program as follows:

1. Maintain the Program as a load offset program so that customers can generate their own electricity to reduce their supply from BC Hydro;
2. Allocate the benefits and costs of the Program fairly between participating and non-participating customers;
3. Offer an accessible, streamlined and transparent process for participation; and
4. Provide a safe process for program participants to connect to BC Hydro's system.

BC Hydro states that its proposed amendments to RS 1289 respond to results from a jurisdictional review, its Engagement Survey Results as well as an evaluation report and other feedback it has received since it filed its original 2018 Amendment Application. BC Hydro's proposed amendments do not seek to modify the structure of the Net Metering Program. Instead these amendments are designed to maintain the intent of the Net Metering Program while supporting safety and simplicity as well as improving fairness between participating and non-participating customers.

BC Hydro further states that its proposed amendments are intended to align with the Net Metering Program Objectives outlined above by:

- Providing the Utility with the discretion to deny applications for what it describes as Oversized Generating Facilities;
- Improving opportunities for customers to offset their load;
- Reducing cost-shifting related to surplus energy payments between participating and non-participating customers; and

- Mitigating impacts on existing customers by providing time for those customers to plan and adjust.⁹⁰

BC Hydro maintains that the amendments it has proposed reflect customer feedback while at the same time maintaining program intent, fairness, simplicity and safety. Specifically, BC Hydro claims that the amendments will fulfill the following:

1. Prevent Oversized Generating Facilities and Support Program Intent, Fairness and Flexibility

Oversized Generating Facilities are described by BC Hydro as Generating Facilities that have been sized to exceed a customer's estimated annual load. While there are existing Generating Facilities that fit this description, this amendment would apply only to future applicants to the Net Metering Program. Under this amendment customers would be allowed to size their generation to allow for an estimated annual energy output of 110 percent of annual load but also increase the size of their Generating Facility as their historical load data allows. In addition, it would allow customers who purchase new equipment such as an electric car to increase the size of the Generating Facility as approved by BC Hydro with no requirement to provide additional load data. Those Generating Facilities with a capacity size of less than 5 kW would be exempted from the 110 percent limit.⁹¹

2. Provide Customers with Increase Opportunities and Flexibility to Reduce their BC Hydro Supply

BC Hydro has proposed changing the handling of Anniversary Dates. Customers will be assigned a March 1 default Anniversary Date and thereafter, have one opportunity to reset this date to one of their choice. This would allow customers the flexibility to determine how to apply their Generation Account Balance and reduce BC Hydro supply.⁹²

3. Improve Fairness Between Participating and Non-Participating Customers

BC Hydro's proposal includes an adjustment in the Energy Price to customers for any Generation Account balances from the current 9.99 cents per kWh to a variable amount based on the Mid-C prices over the previous year. BC Hydro believes this would improve fairness because it would compensate Net Metering Program customers for annual surplus energy at a price that reflects the value of the energy to non-participating customers.⁹³

4. Support Clarity, Simplicity, and Safety and Reflect Existing Program Practices

Among the changes are minor amendments to RS 1289 to improve clarity simplicity and the safety of the Net Metering Program including (1) clarifications regarding generation connections, (2) requirements for smart meters, and (3) limitations in cases where there are system constraints as well as other miscellaneous tariff changes.⁹⁴

5. Mitigates Impact to Existing Customers

⁹⁰ Exhibit B-1, pp. 3-5; BC Hydro Final Argument, pp. 3-4.

⁹¹ Exhibit B-1, pp. 6 and 31.

⁹² Ibid., p. 6.

⁹³ Exhibit B-1, pp. 7 and 33.

⁹⁴ Exhibit B-1, pp. 7, and 42-44.

All customers with accepted applications as of April 2018 will be paid the existing Energy Price of 9.99 cents per kWh for any annual surplus they generate for a five-year period. BC Hydro believes this strikes a fair balance between existing customers and other ratepayers and recognizes the significant capital investments undertaken by some existing customers.⁹⁵

4.1.1 Proposed Update to the Energy Price

A key issue within this proceeding is BC Hydro's proposal to reduce the Energy Price paid to customers for electricity that exceeds a Net Metering customer's annual needs.

As outlined in Section 1.2.1 of this Decision, when customers generate more electricity than they need, that electricity is banked in the customer's Generation Account and applied as a credit to offset electricity consumption later. Once every 12 months, if customers have credits remaining at their Anniversary Date, they receive a payment from BC Hydro (Surplus Energy Payment) for those remaining credits at the Energy Price.⁹⁶ Those remaining credits are referred to as annual net excess generation by the Panel in this Decision.

Currently, the Energy Price is 9.99 cents per kWh, which is generally consistent with the price paid under BC Hydro's now-suspended SOP.⁹⁷ BC Hydro proposes to amend RS 1289 such that the Energy Price would be updated every January 1 based on the daily average Mid-C prices for the previous calendar year, converted to Canadian dollars using the average annual exchange rate from the Bank of Canada for that year.⁹⁸ To calculate the weighted average price, BC Hydro proposes to use the following formula:

$$\text{Energy Price} = \text{Average of } (((\text{daily on-peak price} * \# \text{ of on-peak hours per day}) + (\text{daily off-peak price} * \# \text{ of off-peak hours per day}))/24 \text{ hours per day})^{99}$$

BC Hydro provides the following reasons for amending the Energy Price to an amount that reflects the price BC Hydro can sell the electricity on the regional wholesale market:

- The current Energy Price of 9.99 cents per kWh is generally consistent with the price paid under BC Hydro's SOP. 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;¹⁰⁰
- The SOP has been indefinitely suspended and should no longer be used as a basis for the Energy Price;¹⁰¹
- BC Hydro has not determined the degree to which aggregate generation from customers in the Net Metering Program can be relied upon over the long-term and, to date, has not considered the potential

⁹⁵ Exhibit B-1, p. 47.

⁹⁶ Ibid., p. 34.

⁹⁷ Ibid.

⁹⁸ Ibid., p. 39.

⁹⁹ Exhibit B-5, NMRG IR 1.2.5.

¹⁰⁰ Exhibit B-1, p. 34.

¹⁰¹ Exhibit B-3, BCUC IR 1.10.2.

energy contribution from customers in the Net Metering Program to be sufficiently large to include in long-term planning;¹⁰²

- BC Hydro is currently in an energy surplus period and does not project the need for new energy resources for many years;¹⁰³
- BC Hydro has recently adopted the market price as a conservative interim assumption for evaluating energy during surplus and deficit periods;¹⁰⁴ and
- As discussed in Section 3.3 of this Decision, Surplus Energy Payments result in cost-shifting from customers in the Net Metering Program to non-participants, which can be quantified by the difference between the total Surplus Energy Payments provided and the value of the excess generation received by BC Hydro for those payments.¹⁰⁵

Rationale for Using Mid-C as the Energy Price

BC Hydro explains that RS 1289 does not impose any delivery obligations on customers in the Net Metering Program. This means that customers are not obligated to send any energy to BC Hydro and consequently, BC Hydro is unable to consider generation from the Net Metering Program as part of its supply side resources. BC Hydro submits the energy does not have long term value because energy from the Net Metering Program cannot be used to displace or reduce BC Hydro's need to acquire new generation resources, and does not have long-term value.¹⁰⁶ Therefore, BC Hydro submits if energy from the Net Metering Program cannot be valued at a long-run price, then it must be valued at a short-run price that reflects its value at the point in time that it is received.¹⁰⁷

Generation from residential customers in the Net Metering Program is delivered to BC Hydro primarily in the daytime, during the summer and shoulder season. These times do not coincide with BC Hydro's peak demand period or the residential class non-coincident peak period. As a result, generation from residential customers in the Net Metering Program provides energy value only and does not result in any avoided demand-related costs.¹⁰⁸ In other words, BC Hydro does not consider generation from customers in the Net Metering Program, on an aggregate basis, provides capacity benefits. To provide capacity benefits, BC Hydro requires the resource to be reliably generating when needed which is typically during the system evening peak in the winter. Also, energy received from customers in the Net Metering Program in rural areas is not a viable solution for power quality issues because low voltage and problems related to unbalancing generally occur when there is a peak load.¹⁰⁹ However, BC Hydro notes some generation from Small General Service customers in the Net Metering Program is delivered in the winter and evenings which may result in some avoided demand-related costs.¹¹⁰

BC Hydro submits that the short-run value of energy received by BC Hydro is determined by the regional wholesale energy market as this is primarily where BC Hydro sells or acquires energy on a short-run basis.¹¹¹ The value of intermittent, non-firm energy to BC Hydro (e.g., excess generation from customers in the Net Metering

¹⁰² Exhibit B-3, BCUC IR 1.10.2.

¹⁰³ Ibid.

¹⁰⁴ Ibid.

¹⁰⁵ Exhibit B-5, BCCSC IR 1.4.4.

¹⁰⁶ Exhibit B-1, p. 35.

¹⁰⁷ Ibid.

¹⁰⁸ Exhibit B-3, BCUC IR 1.14.2.1.

¹⁰⁹ Exhibit B-5, NMRG IR 1.6.1.

¹¹⁰ Exhibit B-3, BCUC IR 1.14.2.1.

¹¹¹ Exhibit B-1, p. 35.

Program) is generally based on the Mid-C market price because it will generally result in incremental sales (exports) or decreased purchase (imports) activity with Powerex.¹¹² Further, BC Hydro states the Mid-C market is the most representative of the prices received on the regional wholesale energy market due to its depth and the availability of transmission access.¹¹³ BC Hydro elaborates further stating that Mid-C is a well established trading hub for energy in the Pacific Northwest and has been approved by the BCUC on numerous occasions as an appropriate proxy for market value, and is used in the BC Hydro Electric Tariff.¹¹⁴

Table 6 below shows the nominal Mid-C price in Canadian dollars in years 2009 to 2018. The average Mid-C price from year 2009 to 2018 is \$30.97 per MWh or 3.10 cents per kWh), and the Mid-C price for 2018 is \$39.86 per MWh or 3.99 cents per kWh. For reference, BC Hydro's total weighted cost of energy for fiscal 2020 is forecast to be \$35.2 per MWh (3.52 cents per kWh).¹¹⁵ BC Hydro notes that its total weighted cost of energy does not include operations and maintenance costs associated with its heritage assets. BC Hydro states it does not assign these costs when calculating its weighted cost of energy.¹¹⁶

Table 6: Mid-C Price from 2008 to 2019

Year	Mid-C Price (Nominal USD/MWh)	Exchange Rate ¹	Mid-C Price (Nominal CAD/MWh)
2009	\$32.60	1.142	\$37.23
2010	\$32.81	1.030	\$33.79
2011	\$23.82	0.989	\$23.56
2012	\$19.25	1.000	\$19.24
2013	\$32.55	1.030	\$33.52
2014	\$33.63	1.104	\$37.14
2015	\$23.50	1.279	\$30.05
2016	\$20.28	1.325	\$26.87
2017	\$21.89	1.299	\$28.43
2018	\$30.76	1.296	\$39.86
10 Year Average	\$27.11	1.15	\$30.97
Standard Deviation	\$5.85	0.14	\$6.56
Standard Deviation as a % of 10 Year Average	22%	12%	21%

1. Annual Average Exchange Rates from Bank of Canada website:

<https://www.bankofcanada.ca/rates/exchange/legacy-noon-and-closing-rates/>

<https://www.bankofcanada.ca/rates/exchange/annual-average-exchange-rates/> 117

¹¹² Exhibit B-3, BCUC IR 1.13.2.

¹¹³ Exhibit B-1, p. 39.

¹¹⁴ Exhibit B-5, NMRG IR 1.4.1.

¹¹⁵ Exhibit B-3, BCUC IR 1.9.2.

¹¹⁶ Ibid.

¹¹⁷ Exhibit B-3, BCUC IR 1.12.5.

Jurisdictional Review

BC Hydro performed a jurisdictional review of the net metering programs of the following eight utilities: EPCOR, FortisBC Inc. Hydro One, Hydro Quebec, Newfoundland Power, Nova Scotia Power, SaskPower, Xcel Energy. BC Hydro states its proposal is also consistent with the results of BC Hydro's Jurisdictional Review which indicates that most utilities surveyed that provide a surplus energy payment have an Energy Price that reflects its short-run value.¹¹⁸

BC Hydro conducted further research using publicly available information and identified additional jurisdictions and utilities in Canada and the United States that currently credit surplus energy from Net Metering customers at an avoided cost or market price, and provides its findings in the summary table below:

Table 7: Jurisdictions and Utilities in Canada and the United States that Currently Credit Surplus Energy from Net Metering Customers at an Avoided Cost or Market Price¹¹⁹

Utility	Payout Price for Excess Generation
FortisBC	Marginal price (for further information, please refer to BC Hydro's response to BCUC IR 1.13.2)
Newfoundland Power	Marginal price (based on price of crude oil and updated annually)
Xcel Energy (operates in Colorado, Michigan, Minnesota, New Mexico, North Dakota, South Dakota, Texas, and Wisconsin)	Price based on the average hourly incremental cost of electricity from the previous year
Idaho Falls Power	Fluctuating market rate
Louisiana	Avoided cost rate
Mississippi Power	Avoided cost rate (varies based on time of day and year)
Missouri	Avoided cost rate
Nebraska	Avoided cost rate (varies by type of generation as well as time of year)
San Diego	Market price (updated monthly)

Other Variations of Mid-C Price

BC Hydro calculates that if the monthly net generation (outflow) from customers in the Net Metering Program during Light Load Hours and Heavy Load Hours were valued at the average monthly Mid-C price in the Light Load Hours and Heavy Load Hours, respectively, the average value would be 4.7 cents per kWh for solar PV energy in 2018 and 4.2 cents per kWh for hydroelectric energy in 2018.¹²⁰ BC Hydro states this methodology for calculating the value of net generation (outflow) energy to BC Hydro or any other methodology that seeks to apply more granular accounting that takes into account the seasonal and daily patterns of the net generation (outflow), will likely result in a higher value for solar energy than a simple methodology that assumes the delivery of outflow energy is constant over the year.¹²¹

¹¹⁸ Exhibit B-1, p. 41; Appendix G.

¹¹⁹ Exhibit B-15, NMRG IR 3.29.6.

¹²⁰ Exhibit B-8, BCOAPO IR 2.22.2, 2.22.3.

¹²¹ Ibid., BCOAPO IR 2.22.2.

In general, energy from customers in the Net Metering Program with solar PV Generating Facilities is delivered primarily between May and August. If the monthly solar PV energy from Net Metering customers were valued at the average monthly Mid-C price in 2018, the average value for solar generation would be \$39.9 per MWh (3.99 cents per kWh), which is equal to annual average Mid-C price of \$39.9 per MWh (3.99 cents per kWh). If the monthly hydro generation were valued at the average monthly Mid-C price, the average value for hydro generation would be \$41.6 per MWh (4.16 cents per kWh), which is very close to the annual average Mid-C price of \$39.9 per MWh (3.99 cents per kWh).¹²²

BC Hydro states that delivering energy from BC at the Mid-C market hub has transmission costs associated with line losses and wheeling through the Bonneville Power Administration (BPA) system. The wheeling charges are fixed at USD \$5.16 per MWh while the line losses are calculated as 1.9 percent of the amount of energy transacted. Accordingly, the cost of line losses varies with the Mid-C price.¹²³ The table below shows the Energy Price with and without an adjustment for line losses and wheeling charges under a range of theoretical annual average Mid-C market prices, and assuming an exchange rate of 1.30 USD/CAD.¹²⁴

Table 8: Theoretical Annual Average Mid-C Price with Adjustments for Line Losses and Wheeling¹²⁵

Theoretical Annual Average Mid-C Price (USD/MWh)	Energy Price (Proposed Approach) (CAD/MWh)	Energy Price (With Adjustments for Line Losses and Wheeling) (CAD/MWh)	Difference (CAD/MWh, %)	
(A)	(B) = A x Exchange Rate	(C) = [A x (1-0.019) – 5.16] x Exchange Rate	(D) = C – B (CAD/MWh)	(E) = D/B (%)
10.00	13.00	6.05	(6.96)	-54
30.00	39.00	31.55	(7.45)	-19
50.00	65.00	57.06	(7.94)	-12
70.00	91.00	82.56	(8.44)	-9

Impact on Net Metering Customers

Table 9 below shows that the vast majority of customers in the Net Metering Program in fiscal 2018 (1,044 or 80 percent) received no Surplus Energy Payment and of the 256 customers who received a Surplus Energy Payment, 215 or 84 percent received a payment of less than \$500.

¹²² Exhibit B-3, BCUC IR 1.12.4.

¹²³ Exhibit B-5, CEC IR 1.15.3.

¹²⁴ Ibid., BCOAPO IR 1.8.2.

¹²⁵ Ibid.

Table 9: Surplus Energy Payment (Fiscal 2018)¹²⁶

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

BC Hydro states while BC Hydro does not have fiscal 2018 data for customers who entered the Net Metering Program in fiscal 2019, these customers are likely to have minimal Surplus Energy Payments going forward. This is because the amendments approved in the 2018 Amendment Application were designed 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. Overall, this means that the majority of customers are not materially impacted by an update to the Energy Price as they are likely to receive minimal Surplus Energy Payments or none at all.¹²⁷

Overall, BC Hydro does not anticipate that reducing the Energy Price would adversely impact the number of applications submitted to the Net Metering Program and participation has continued to grow since BCUC Order G-100-18 which allowed BC Hydro to defer the review of all Net Metering applications proposing a Generating Facility sized to generate an estimated annual output greater than estimated Annual Load.¹²⁸ As of April 30, 2019, the total number of participants in the Net Metering Program was 1,951. As of December 31, 2019, this number grew to 2,480, an increase of 27 percent over the approximately eight months since the Application was filed.¹²⁹

In BC Hydro's view, the market value is the appropriate value for excess generation from customers in the Program because:

1. BC Hydro is currently in an energy surplus situation;
2. Potential energy contribution from customers in the Net Metering Program has not been sufficiently large to include in BC Hydro's long-term planning;
3. BC Hydro adopted the market price as a conservative interim assumption for evaluating energy during surplus and deficit periods;
4. Excess generation from customers in the Net Metering Program does not have attributes that would warrant a premium value over the market price; and
5. The historical Energy Price values using BC Hydro's proposed approach are more closely aligned with BC Hydro's cost of energy.¹³⁰

¹²⁶ Exhibit B-1, p. 17.

¹²⁷ Exhibit B-1, p. 45.

¹²⁸ Exhibit B-5, BCSEA IR 1.3.1.

¹²⁹ Exhibit B-12, p. 2.

¹³⁰ BC Hydro Final Argument, p. 19-21.

However, BC Hydro submits that while its proposed Energy Price reflects the most fully considered and balanced proposal of all those before the BCUC, it is not exact enough to eliminate concerns about related cost-shifting.¹³¹

With regards to wheeling charges, BC Hydro states while it incurs costs to sell electricity into the Mid-C market, such as line losses and wheeling charges, it is not proposing to adjust the Energy Price to account for these costs. This approach recognizes the BCUC 's previous determinations that the Net Metering Program should be simple and that limited cost-shifting is warranted to support the implementation of net metering.¹³² However, if the BCUC was inclined to relax proposed restrictions related to Oversized Generating Facilities and still maintain an appropriately balanced approach, it would be necessary to account for losses and wheeling charges.

Position of Interveners

BCOAPO

BCOAPO supports BC Hydro's proposal to align the Energy Price with the value BC Hydro receives from excess generation.¹³³ However, BCOAPO submits that the Energy Price determination should also account for these "costs" as adjustments required to account for losses and wheeling cost which are relatively simple to make.

The CEC

The CEC submits that the Mid-C price proposed does not account for transmission losses or wheeling, which are significant. The CEC points out there may be additional costs for building out the network to accommodate net metering and if the intent is to avoid cross-subsidization, these factors should be accounted for in setting the appropriate Energy Price.¹³⁴

BCSEA

BCSEA considers BC Hydro's proposal to be reasonably accurate, simple, and easily understood.¹³⁵ Given that BC Hydro has surplus energy on a planning basis (approximately 4,000 GWh/y) that is sold in the electricity market, it believes market prices are the best objective measure of the financial value of annual surplus energy to BC Hydro under the Net Metering Program.¹³⁶ BCSEA acknowledges the method does not include adjustments for line losses and wheeling, but it does not include an adjustment for delivery at a load centre either.¹³⁷

NMRG/BCCSC

NMRG/BCCSC submit that valuing excess energy at the Mid-C price is not appropriate because it ignores the local subsidies and climate change attributes of energy traded in Mid-C, which includes carbon-intensive high-emitting energy generated from coal, gas and biomass.¹³⁸ To help prevent negative cost shifting from continuing

¹³¹ BC Hydro Reply Argument, p. 3.

¹³² BC Hydro Final Argument, p. 23.

¹³³ BCOAPO Final Argument, p. 14.

¹³⁴ CEC Final Argument, p. 7.

¹³⁵ BCSEA Final Argument, p. 6.

¹³⁶ Ibid., p. 6.

¹³⁷ Ibid., p. 5.

¹³⁸ NMRG/BCCSC Final Argument, p. 25.

and exacerbating in the future, NMRG/BCCSC submit that an inflation factor of one percent should be added to the Net Metering tariff to keep pace with existing SOP contracts.¹³⁹

Panel Determination

The Panel agrees with BC Hydro that if the Energy Price paid to the Net Metering customer is greater than the value BC Hydro receives from excess generation, it will not fully recover its costs resulting in cost shifting to non-participating customers.¹⁴⁰ The Panel believes that establishing the Energy Price at a price that reflects the value BC Hydro receives from annual net excess generation would largely mitigate cost-shifting and considers it reasonable for Net Metering Program customers to be compensated for the value BC Hydro receives from annual net excess generation.

In making its determination on the Energy Price the Panel has considered the following:

- RS 1289 does not impose any delivery obligations on customers in the Net Metering Program;
- Energy delivery from Net Metering customers to BC Hydro generally does not coincide with BC Hydro's peak demand period for the residential class non-coincident peak period and does not have attributes that would warrant a premium value over the market price;
- The value of intermittent, non-firm energy to BC Hydro; and
- BC Hydro's forecasted weighted cost of energy for 2020 is 3.52 cents per kWh.¹⁴¹

In the view of the Panel, the energy delivered to BC Hydro from Net Metering customers should be compensated at a rate that matches the value of energy to BC Hydro. Therefore, the Panel finds the Mid-C value proposed best approximates this value and is an appropriate proxy for the value of the energy delivered to BC Hydro from Net Metering customers.

The Panel acknowledges there is evidence to support both a higher and a lower Energy Price than BC Hydro's proposal. Both the CEC and BCOAPO recommend that the Energy Price account for wheeling charges and line losses, which would result in an Energy Price that is lower than BC Hydro's proposal. On the other hand, if the monthly net generation (outflow) from customers in the Net Metering Program during Light Load Hours and Heavy Load Hours were valued at the average monthly Mid-C price in the Light Load Hours and Heavy Load Hours, respectively, the average value would be 4.7 cents per kWh for solar PV energy and 4.2 cents per kWh for hydroelectric energy in 2018. This results in a higher value than the proposed simple methodology that assumes the delivery of outflow energy is constant over the year. In this instance the Panel is persuaded a simple approach to calculate Energy Price is warranted as it ensures the Net Metering Program is easily understood by participants and reduces program administrative cost to BC Hydro. **On balance, the Panel determines that setting the Energy Price to the daily average Mid-C prices for the previous calendar year, as proposed by BC Hydro, is not unjust, unreasonable, unduly discriminatory or unduly preferential.** The amended Energy Price will apply to all customers effective the date of this Order excepting customers eligible for the Transition Energy Price discussed in Section 4.1.3 of this Decision.

¹³⁹ NMRG/BCCSC Final Argument, p. 24.

¹⁴⁰ Exhibit B-3, BCUC IR 1.5.1.

¹⁴¹ Ibid., BCUC IR 1.9.2.

The Panel notes that BC Hydro has stated that it would be necessary to account for losses and wheeling charges, at least, if the BCUC was inclined to relax the eligibility restrictions imposed in the interim approval, granted by Order G-100-18. The Panel disagrees. There is evidence supporting both a higher and a lower Energy Price than that proposed by BC Hydro, and in the Panel’s view, the proposed Energy Price sufficiently mitigates the cost shifting associated with Surplus Energy Payments without separately considering the wheeling and line loss charges.

4.1.2 Eligibility Based on Annual Load

BC Hydro seeks to make permanent the approval granted on an interim basis in Order G-100-18 to reject applications to the Net Metering Program where the size of the proposed Generating Facility is greater than the annual load of the Net Metering customer, subject to adjustments to provide additional flexibility (Proposed Eligibility Restriction), including raising the limit on the size of Generating Facilities from 100 percent of the customer’s annual load to 110 percent of their annual load (Proposed Annual Limit).¹⁴²

The recent growth in the number of customers enrolled in the Net Metering Program is outlined in Figure 4.

Figure 4: Number of Customers in the Program (Fiscal 2016 to Fiscal 2020 To-date)¹⁴³

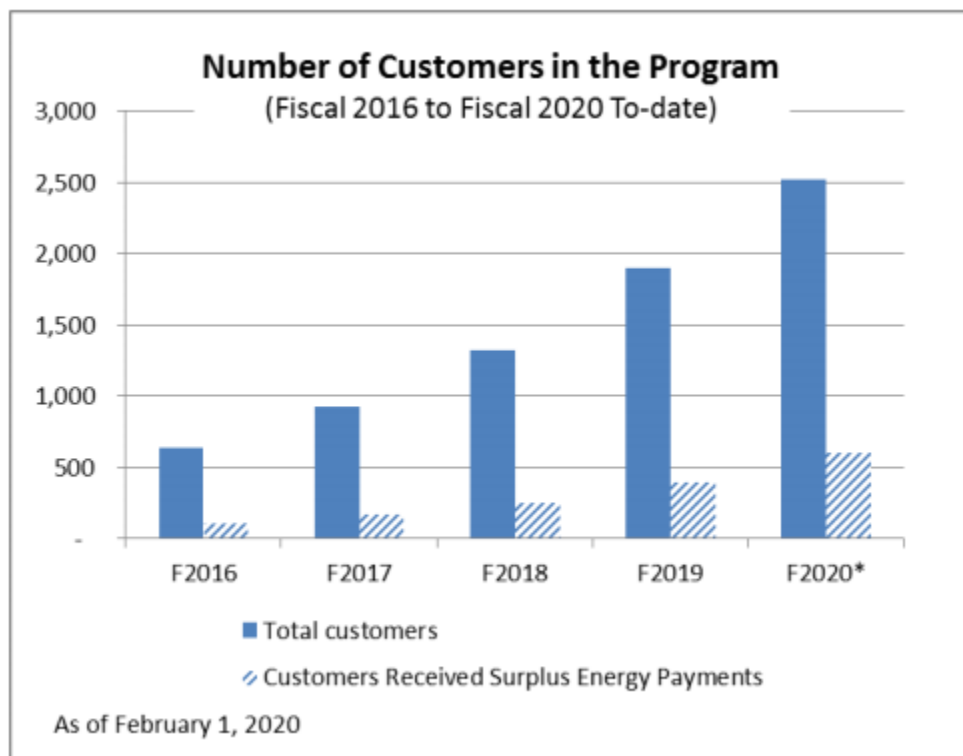


Figure 4 also shows the growth in the number of Net Metering customers who received Surplus Energy Payments

BC Hydro received 15 Net Metering Program applications where the size of the proposed Generation Facility was larger than the customer’s annual load between the time the 2018 Amendment Application was filed and April

¹⁴² Exhibit B-1, pp. 6 and 22.

¹⁴³ Exhibit B-15, BCSEA IR 3.27.1.

20, 2018. Of these, one customer re-sized its system, 10 customers demonstrated that their proposed Generation Facility was not in fact larger than their annual load, and four customers did not proceed through the review process. Between April 20, 2018 and June 1, 2018, BC Hydro received an additional 28 applications where the size of the proposed Generation Facility was larger than the customer's annual load. Of these, four customers re-sized their systems, 20 customers demonstrated that their proposed generation facility was not in fact larger than their annual load, and four customers did not proceed through the review process. In total, from a total of 43 applications, eight did not proceed through the review process, and five customers reduced the size of their proposed Generation Facilities.¹⁴⁴

As stated, BC Hydro seeks the discretion to deny applications to the Net Metering Program that propose a Generating Facility greater than the Proposed Annual Limit.¹⁴⁵ It argues that the Proposed Eligibility Restriction would allow it to avoid "systemic generation of surplus energy",¹⁴⁶ to "maintain the original intent of the Program as a load offset program".¹⁴⁷ Setting the Proposed Annual Limit to 110 percent of a customer's annual load instead of 100 percent is intended to allow for moderate load growth that may occur after the customer begins generating.¹⁴⁸

BC Hydro states that the proposed amendments are fair, balanced, and would "maintain the intent of the Program while supporting simplicity and safety as well as improving fairness between participating and non-participating customers."¹⁴⁹ BC Hydro argues that without the ability to limit applications to the Net Metering Program to a customer's annual load, the Net Metering Program becomes "more akin to an energy procurement program rather than a load offset program", and this results in more cost-shifting to non-participating customers.¹⁵⁰

BC Hydro takes the position that the proposed changes are "not expected to have a material impact on most existing or future Net Metering Program customers." Moreover, the Net Metering Program is growing and interim amendments do not appear to have discouraged customers from participating. BC Hydro argues the proposed changes with regards to size of a Generating Facility should be made now to avoid cost shifting with regards to surplus energy payments.¹⁵¹

BC Hydro adds that in a jurisdictional review, three of eight utilities surveyed require generation to match annual load, and three utilities allow annual generation to be up to either 110 percent or 120 percent of annual load.¹⁵²

BC Hydro also proposes exempting Generating Facilities with a capacity of 5 kW or less from the requirement to be limited to a customer's annual load. It argues that this exemption balances the desire for a simple process for a large number of potential customers with the desire to limit excess generation. However, BC Hydro states it would be amenable to increasing the threshold to 10 kW on the basis of average residential electricity

¹⁴⁴ Exhibit B-5, BCCSC IR 1.1.6.

¹⁴⁵ BC Hydro Final Argument, p. 2.

¹⁴⁶ Ibid.

¹⁴⁷ Ibid., p. 11.

¹⁴⁸ Ibid., p. 13.

¹⁴⁹ Exhibit B-1, p. 4.

¹⁵⁰ BC Hydro Final Argument, p. 13.

¹⁵¹ Ibid., pp. 8-10

¹⁵² Ibid., p.14.

consumption, as proposed by CanSIA and Riverside Energy, as long as the BCUC accepts BC Hydro's proposed Energy Price.¹⁵³

Position of Interveners

BCSEA

BCSEA "strongly supports continuation and expansion of BC Hydro's Net Metering Program", and argues there is a "small but growing number" of existing or would-be Net Metering customers who "are not motivated by profit but by a desire to create and use energy sustainably at a personal and local community level." BCSEA believes this is commendable and should not be unnecessarily thwarted.¹⁵⁴

BCSEA adds that Net Metering participants should be allowed to produce intentional surplus energy, and making the price paid for this energy reflective of the current financial value to all customers removes the associated cost-shifting.¹⁵⁵ It rejects BC Hydro's arguments that the limit on generation size is required because the updated Energy Price does not fully eliminate cost shifting to non-participants. BCSEA submits that "if the Energy Price is based on the current value of the energy to BC Hydro... then there is no Energy Price rationale for a ban on new intentional annual net surplus energy." Therefore, BCSEA argues that the updated Energy Price does eliminate related cost-shifting to non-participants and, if it did not, then the change to the Energy Price proposed by BC Hydro would not achieve its stated purpose. BCSEA adds that other putative sources of cost-shifting between participants and non-participants are not at issue in this proceeding and are not a rationale for limiting generation to annual load.¹⁵⁶

BCSEA also disagrees with BC Hydro's argument that the limit on excess generation is required to maintain the Net Metering Program as a load offset program. It further points out the Net Metering Program has included an Energy Price for surplus generation since its inception, and BCUC decisions expressly contemplate that "annual net surplus energy will occur from time to time even though Net Metering is described as a load offset program."¹⁵⁷

Silversmith

Silversmith argues that programs such as the Net Metering Program should be "expanded and streamlined, not devalued or dismantled." It adds that taking away the prospect of a Net Metering customer producing surplus energy is a big disincentive for "ordinary people to make substantial investments in their own local green climate change solutions."¹⁵⁸

The City

The City states that the rationale for the increase in the limit of net metering Generating Facilities from 50 kW to 100 kW was to allow the City's project to be included in the Net Metering Program, and the proposed limit on the size of Generating Facilities will impact the it's ability to generate energy at one facility to offset energy use

¹⁵³ BC Hydro Final Argument , pp. 14-15.

¹⁵⁴ BCSEA Final Argument, pp.3-4.

¹⁵⁵ Ibid., p. 4.

¹⁵⁶ Ibid., p. 4.

¹⁵⁷ BCSEA Final Argument, p. 5.

¹⁵⁸ Silversmith Final Argument, pp. 1-2.

at other facilities. It argues this would still be within the stated intent of the Net Metering Program, since all facilities are owned by the same customer, whose overall usage is significantly larger than its generation capacity. However, the challenge for the City is that, despite being one customer, it has many meters. The City supports a “virtual net metering” option, which would be consistent with the Net Metering Program’s objectives for customers to offset their supply from BC Hydro, and would eliminate all surplus payments from BC Hydro to the City.¹⁵⁹

BCOAPO

BCOAPO takes the position that “the purpose behind offering the Net Metering Program was load offsetting, and not a means of energy purchasing to meet BC Hydro’s load/resource balance.”¹⁶⁰ As a result, BCOAPO agrees with BC Hydro that the utility “needs to prevent oversizing of generation facilities.”¹⁶¹

BCOAPO observes that the amendments related to limiting generation size all serve to relax the requirements that were approved in Order G-100-18. BCOAPO cites BC Hydro’s application to limit the size of Generation Facilities to 110 percent of annual load rather than 100 percent, which it argues is in direct conflict with BC Hydro’s stated reason for proposing the Net Metering Program amendments.¹⁶²

BCOAPO agrees with BC Hydro that exempting customers with generation capacity of 5 kW or less is an appropriate balance between administrative efficiency and avoiding the generation of excess energy. However, an exemption limit of 10 kW would upset that balance as other interveners’ recommendations regarding a 10 kW exemption were specifically limited to photovoltaic solar installations. If the BCUC were to adopt a 10 kW exemption, BCOAPO’s position is this should be limited to photovoltaic solar installations and all other facilities should be exempted only up to 5 kW.¹⁶³

The CEC

The CEC supports BC Hydro’s application to limit the size of Generating Facilities to annual load but recommends an exemption of installations of up to 5 kW but not up to 10 kW as proposed by BC Hydro.¹⁶⁴ The CEC observes that a threshold of 10 kW would enable customers with Generating Facilities sized between 5 kW and 10 kW to increase their generating capacity. Since these are likely to be residential customers and not commercial customers, this could increase cross-subsidization between those two groups of customers.¹⁶⁵

NMRG/BCCSC

NMRG/BCCSC agrees with BCSEA’s position that annual net excess generation is in the public interest and is consistent with the BC’s Energy Objectives.¹⁶⁶ They argue that the proposed changes would create obstacles to

¹⁵⁹ CSFJ Final Argument, p. 2.

¹⁶⁰ BCOAPO Final Argument, p. 4.

¹⁶¹ Ibid., p. 17.

¹⁶² Ibid. p. 7.

¹⁶³ Ibid., pp. 9-10

¹⁶⁴ CEC Final Argument, p. 1.

¹⁶⁵ CEC Final Argument, p. 7.

¹⁶⁶ NMRG/BCCSC Final Argument, p. 11.

self-sufficient, environmentally sustainable, clean electricity generation that is the goal of the 2007 Energy Plan.¹⁶⁷

NMRG/BCCSC observes that the economics of developing, constructing and operating a micro-hydro generation project has little or no correlation to the size of a particular customer's annual load, and most facilities under normal operation will produce excess electricity much of the time. NMRG/BCCSC argues that capping the size of Generating Facilities based on a customer's annual load rather than at 100 kW squanders the potential of high-quality energy sources by failing to allow them to be developed sufficiently large to achieve economies of scale.¹⁶⁸

BC Hydro Reply Argument

BC Hydro argues that its proposed Energy Price is "defined with a view to ease of understanding and transparency as much as precision", and that it is not exact enough to eliminate concerns about cost-shifting.¹⁶⁹ Moreover, setting an Energy Price to the satisfaction of all stakeholders would prove difficult and controversial, and hence, BC Hydro proposes to restrict the size of Generating Facilities to match customers' annual load.

BC Hydro re-iterates its position that the limit to the size of Generation Facilities to annual load is appropriate because the Net Metering Program "was conceived of and implemented as a program to offset customer load, and not as a program to acquire energy for the purpose of meeting BC Hydro's load-serving obligations". In the absence of such a limit, the Net Metering Program would "amount to an inappropriate end-run around BC Hydro's procurement policies."¹⁷⁰

Panel Determination

The Panel rejects BC Hydro's Proposed Eligibility Restriction. BC Hydro has not satisfactorily demonstrated that the Proposed Eligibility Restriction is required to mitigate significant or meaningful harm, and the Panel is concerned that the Proposed Eligibility Restriction may, in the absence of a more fulsome review of the Net Metering Program, introduce harm of its own.

The UCA sets out that rates must not be unjust, unreasonable, unduly discriminatory or unduly preferential.¹⁷¹ This is the Panel's primary consideration. However, as BC Hydro notes, the requested changes are a matter of rate design, in which the BCUC may "employ a significant degree of discretion".¹⁷²

The Net Metering Program has been consistently encouraged as a matter of Government policy since at least 2002, including most recently in the 2018 CleanBC Plan. In addition, the BCUC in 2012 rejected a request from BC Hydro to restrict eligibility to the program on the basis that "barriers entering into the Net Metering program should be minimized to enable customers to take economically efficient steps to build generation capacity". The Panel considers the Net Metering Program to still be a beneficial source of clean, distributed generation, and the onus is on BC Hydro to justify introducing any barriers to economically efficient participation.

¹⁶⁷ NMRG/BCCSC Final Argument, p. 32.

¹⁶⁸ Ibid., p. 11.

¹⁶⁹ BC Hydro Reply Argument, p. 3.

¹⁷⁰ Ibid., p. 4.

¹⁷¹ UCA, s. 59(1) (a).

¹⁷² BC Hydro Reply Argument, p. 1.

The Panel acknowledges BC Hydro's evaluation that it presently has a surplus supply of electricity and this is expected to be the case until at least 2030.¹⁷³ However, the Net Metering Program already limits the size of Generating Facilities to a maximum nameplate capacity of 100 kW, and the total amount of net excess generation produced each year in the program remains small. There is no evidence that BC Hydro is unable to sell the total excess generation produced by the Net Metering Program on the Mid-C market at a reasonable price. Indeed, BC Hydro has argued that the Mid-C price is what it can sell the excess generation for on the wholesale market and uses this fact to explain why the Mid-C price is a fair value for annual surplus energy to BC Hydro.¹⁷⁴

BC Hydro argues that the new Energy Price is not exact enough to eliminate concerns about cost-shifting, and to set one that was exact would be difficult and controversial. However, the Panel disagrees, and finds as set out in Section 4.1.1, that the new Energy Price sufficiently mitigates the cost-shifting associated with Surplus Energy Payments. The Panel does not agree that the modifications made to the Energy Price, Surplus Energy Payments cause undue cost-shifting. Therefore, the Panel finds there is no justification to limit the size of participants' generating capacity to avoid surplus energy generation.

BC Hydro's view appears to be that its intent for the Net Metering Program to be a load-offsetting program is sufficient reason to attempt to avoid annual net excess generation. The Panel disagrees. As explained in Section 2.3 above, BC Hydro's intent for the program is not a factor in the Panel's decision-making. Further, we see no inherent conflict in a program which is intended to offset load and which also produces annual net excess generation. The program can do both, and indeed always has. Therefore, the Panel finds there is no evidence of significant harm to be addressed by limiting the amount of annual net excess generation of current or proposed net metering installations within the current 100kW nameplate generation capacity limit.

The Panel is, however, concerned that the Proposed Eligibility Restriction may cause harm.

BC Hydro argues that the Proposed Eligibility Restriction, which has been implemented on an interim basis since April 20, 2018, has not discouraged customers from participating in the Net Metering Program, and cites the growing number of total Net Metering customers. The Panel acknowledges that customers proposing Generating Facilities smaller than the Proposed Generation Limit are unlikely to be concerned about the Proposed Eligibility Restriction, and that since over 80 percent of customers generated no annual net excess generation in fiscal 2018, these customers make up the majority of participants.

However, the Panel notes the Proposed Eligibility Restriction is, by definition, aimed at the small minority of participants who in the future may propose Generating Facilities larger than the Proposed Generation Limit. If the Proposed Eligibility Restriction were approved, customers who would prefer to install generators that are less than 100 kW in size but greater than their annual load may either decline to participate in the program or instead choose to install a smaller generator. In either case, the Proposed Eligibility Restriction imposes a barrier to their participation at a level which may be the most economically efficient for them.

The evidence suggests this barrier is already having an effect on participation. From the time the 2018 Amendment Application was filed (April 20, 2018) to June 1, 2018, BC Hydro considered 43 applications to the

¹⁷³ <https://engage.gov.bc.ca/govtogetherbc/impact/standing-offer-program-results/>

¹⁷⁴ BC Hydro Final Argument, p. 19.

Program where the proposed Generating Facility was larger than the customer's annual load. Of these, five reduced the size of their facility and eight did not proceed with their applications.

The situation faced by the City illustrates another concern with the Proposed Eligibility Restriction. BC Hydro allows customers to participate in the Net Metering Program only on a per-meter basis. A customer with multiple BC Hydro meters may only net their self-generation against the load connected to the same meter as the Generating Facility. If, as in the case of the City, the customer has total load which exceeds the size of the Generating Facility but which is distributed across multiple BC Hydro meters, their total load is not taken into account, only the load connected to the single meter to which the Generating Facility is connected.

As the City has stated, BC Hydro does not have a "virtual net metering" program whereby the load connected to multiple meters may be consolidated for the purposes of the Net Metering Program. Prior to the interim approval granted by Order G-100-18, this was not an issue because customers in this situation could be approved for any Generating Facility up to 100 kW, regardless of the size of their annual load or the specific meter to which their load was connected. If the Proposed Eligibility Restriction were to be approved, customers in this situation would not be able to install Generating Facilities sized up to their current annual load, and customers might even have their Generating Facilities compared to an annual load of zero.

Two future events are likely to have a significant bearing on the Net Metering Program. As outlined in Section 2.1, BC Hydro is expected to file an IRP after February 28, 2021, in which it will present its medium-term view of electricity generation in its service area. Having an updated IRP will allow the BCUC to better understand future energy requirements. Additionally, the BC Government is conducting Phase Two of its Comprehensive Review of BC Hydro's operations which will inform the IRP.

BC Hydro submits that an evaluation of net metered energy as a generation resource is appropriately considered in the IRP and not in this proceeding. The Panel agrees and considers it premature to approve the Proposed Eligibility Restriction prior to considering net metered energy as a generation resource.

BC Hydro has also stated that the Comprehensive Review is "likely to include topics that are relevant to the Program."¹⁷⁵ Specifically, BC Hydro describes an alternative Net Metering Program design, marginal cost pricing, which it expects will be considered in the Review. Under a marginal cost pricing scheme, customers would be able to buy and sell energy at its marginal cost, while paying a fixed system access charge to cover the fixed costs associated with their receiving electricity service from BC Hydro.¹⁷⁶

The additional barrier that the Proposed Eligibility Restriction would impose might well deter some participants from applying and might cause others to apply for an economically less efficient size of generator than they otherwise would. Since the nature of the Net Metering Program may change significantly, and its importance to BC Hydro as a generation resource is not yet evaluated, the Panel considers it appropriate to wait before considering approval of the Proposed Eligibility Restriction.

In its upcoming reviews, the Panel encourages BC Hydro to review and consider two additional options related to the Net Metering Program.

¹⁷⁵ Exhibit B-1, p. 48.

¹⁷⁶ Ibid., p. 51.

The Panel encourages BC Hydro to consider whether net metered hydroelectric plants should be treated differently from other types of net metered installations, such as photovoltaic solar. Net metered hydroelectric plants appear to be the largest generators of annual net excess generation in the current Net Metering Program, and there is some evidence that they may have some capacity value to BC Hydro as a source of generation. In addition, they require a much higher capital investment than other more common net metering generators. These differences may justify handling net metered hydroelectric plants in a different manner.

The Panel also encourages BC Hydro to consider how virtual net metering might be achieved. Even though customers in a situation similar to the City remain entitled to install Net Metering Generating Facilities of up to 100 kW, the reduction in the Energy Price approved in this Decision increases their payback period. BC Hydro has indicated it will consider potential additional measures to support virtual net metering in a future application.¹⁷⁷ The Panel requests BC Hydro to consider the merits of allowing such customers to offset all their load across multiple meters against total amounts self generated.

In summary, the Panel is persuaded that cost-shifting associated with Surplus Energy Payments is satisfactorily addressed through the change to the Energy Price. Further, in our view there is no compelling reason to erect a barrier to participation in the Net Metering Program in advance of the IRP and the completion of the Comprehensive Review. Therefore, the Panel is not persuaded the Proposed Eligibility Restriction is required.

In addition to the Proposed Eligibility Restriction, BC Hydro also proposes two additional modifications to the tariff. The first of these involves calculating the annual energy output for a Generation Facility using pre-determined capacity factors for a number of Generation Facility types. Additionally, it proposes to exempt Generating Facilities with a capacity size of 5 kW or less from the requirement to have an estimated annual energy output no greater than the Proposed Generation Limit. Having rejected the Proposed Eligibility Restriction, the Panel considers both requests are no longer relevant and makes no determination on these proposals.

BC Hydro is directed to amend the RS 1289 tariff to remove item 3 from the “Net Metering Application and Interconnection Approval” section of the proposed tariff, which currently states:

3. BC Hydro will assess the proposed Generating Facility described in the Net Metering Application. Specifically:
 - (a) for Generating Facilities with a nameplate rating of less than or equal to five kilowatts, BC Hydro will not assess the Customer's Annual Load or require a Customer to submit load data or load estimates in their Net Metering Application, and
 - (b) for Generating Facilities with nameplate rating of greater than five kilowatts, the Generating Facility's Annual Energy Output must not exceed 110 per cent of the Annual Load.

4.1.3 Transitional Energy Price for Existing Customers

In Section 4.1.1 the Panel approved BC Hydro's proposal to reduce the Energy Price per kWh participants are paid for annual surplus energy to a value based on the daily average Mid-C prices for the previous calendar year

¹⁷⁷ Exhibit B-1, p. 49.

(3.99 cents per kWh in calendar 2018). To help current participants adjust to this change, BC Hydro proposes to maintain their current Energy Price of 9.99 cents per kWh (Transitional Energy Price) until April 30, 2024¹⁷⁸ (Transition Period) (Transition Proposal).

The Panel must decide whether BC Hydro's Transition Proposal is just, reasonable, and not unduly discriminatory or unduly preferential according to section 59 to 61 of the UCA.

BC Hydro explains that it "did not rely on metrics" when determining the five-year length of the Transition Period, but rather, was attempting to balance the two conflicting Bonbright criteria of fair apportionment of costs and rate stability.¹⁷⁹ It states that its Transitional Energy Price is aligned with Bonbright's principle regarding rate stability because the impact of the change to existing customers is mitigated.¹⁸⁰

BC Hydro is "unaware of any particular rate design applications where it has used customers' past capital investment decisions as a justification for a transition period."¹⁸¹ According to BC Hydro, the estimated typical life of Generating Facilities used by Net Metering participants is 25 years for small-scale solar photovoltaic, 30 years for micro-hydro, and 20 years for small wind. The actual lifespan of equipment depends on factors such as equipment quality, installation practices, equipment service conditions, and maintenance practices.¹⁸²

BC Hydro estimates the average contract term of an Electricity Purchase Agreement under the SOP is 30 years.¹⁸³ However, BC Hydro does not consider this period to be appropriate for the Transitional Energy Price for various reasons, including that it would perpetuate the cost shifting between participants and non-participating customers.¹⁸⁴

BC Hydro states that "existing customers in the Program with Oversized Generating Facilities may remain in the Program in accordance with the Program terms".¹⁸⁵ BC Hydro states that its proposed changes to RS 1289 do not allow it "to take action if an existing customer's energy consumption decreases to consistently result in Surplus Energy".¹⁸⁶ It adds that "[i]f the Generating Facility previously authorized to connect does not change, BC Hydro will not re-assess the customer's Annual Load."¹⁸⁷ BC Hydro also states that "Customers with an original application, accepted as of April 20, 2018, who subsequently apply to expand their existing Generating Facilities, during the transitional Energy Price period, would be eligible for the Transitional Energy Price, provided the expansion(s) meets the eligibility requirements of the Program, including the requirement that the estimated Annual Energy Output not exceed the estimated Annual Load."¹⁸⁸

In BC Hydro's view it is unnecessary to provide the Transitional Energy Price to customers accepted after April 20, 2018, because the Net Metering Program was amended on that date to reduce the likelihood of participants generating excess energy on an annual basis.¹⁸⁹ Specifically, BC Hydro explains that Order G-100-18 allows it to

¹⁷⁸ Exhibit B-3, BCOAPO IR 1.3.2, attachment 1 p. 2.

¹⁷⁹ Exhibit B-7, BCUC IR 2.32.2.

¹⁸⁰ Exhibit B-3, BCUC IR 1.9.1.

¹⁸¹ Exhibit B-8, BCOAPO IR 2.31.2.

¹⁸² Exhibit B-3, BCUC IR 1.10.3.

¹⁸³ Exhibit B-5, BCSEA IR 1.13.5.

¹⁸⁴ *Ibid.*, BCSEA IR 1.13.6.

¹⁸⁵ Exhibit B-3, BCUC IR 1.4.1.

¹⁸⁶ *Ibid.*, BCUC IR 1.7.4.

¹⁸⁷ Exhibit B-8, BCOAPO IR 2.14.1.

¹⁸⁸ *Ibid.*, BCOAPO IR 2.33.2.

¹⁸⁹ Exhibit B-1, pp. 46-47.

defer the review of all Net Metering Program applications proposing Generating Facilities sized to generate more energy than the customer's estimated annual load.¹⁹⁰

In conjunction with the Engagement Survey, BC Hydro received written submissions on the subject of transition. CanSIA was in favour of a 5-year Transition Period.¹⁹¹ Clean Energy BC was in favour of indefinite retention of the current Energy Price for existing customers stating that participants met the terms of the program, and their applications were approved by BC Hydro.¹⁹² BCCSC believes it would be unusual for a Net Metering customer to request a Transitional Period limited to five years given the long payback period of net metering projects.¹⁹³

BC Hydro considered alternatives to the applied-for Transition Proposal (Option 1). Option 2 would be to maintain a Transitional Energy Price for 10 years rather than five; option 3 would be to provide no Transitional Energy Price but instead make a one-time payment to customers whose capital investment would not be recovered; and option 4 would be to have no Transitional Energy Price or payment at all. These alternatives were not presented to customers during the public engagement process. BC Hydro has proposed Option 1 explaining that the other options are less favourable:

- Option 2 continues the current arrangement which BC Hydro considers is unfavourable to non-participating customers;
- Option 3 would be difficult to administer, and it would be hard to calculate accurately how much capital would not be recovered as a result of the changes to the Net Metering Program because the future Energy Price (based on the Mid-C price for the previous year) cannot be known in advance; and
- Option 4 "is less favourable to Option 1 because it skews that balance [between transitioning to an Energy Price that more fairly allocates the benefits and costs of the Program between participating and non-participating customers, and mitigating the impact of the change to existing customers in the Program by providing notice to those customers] by providing no transitional period to existing customers in the Program."¹⁹⁴

BC Hydro acknowledges that generating excess energy is "technically not contrary to Rate Schedule 1289", although this was "clearly at odds with the original intent of the Program to provide an opportunity for customers to offset all or a portion of their load." BC Hydro adds that RS 1289 has, since the inception of the program, included language that stated the intent of the program was to "generate electricity to serve all or part of their electricity requirements".¹⁹⁵

NMRG provides the dates on which BC Hydro pre-approved five hydroelectric plants to participate in the Net Metering Program, which NMRG understands provide annual surplus energy:

¹⁹⁰ Exhibit B-3, BCUC IR 1.1.1.

¹⁹¹ Exhibit B-3, BCUC IR 1.22.2, attachment 1, p. 7.

¹⁹² Ibid., attachment 1, pp. 9-10.

¹⁹³ Exhibit C18-9, NMRG IR 3.4.

¹⁹⁴ Exhibit B-3, BCUC IR 1.15.1.

¹⁹⁵ Exhibit B-7, BCUC IR 2.27.2.

1. 50 kW pre-approved May 10, 2010;
2. 12kW plant pre-approved December 12, 2011 and pre-approved to be upgraded to 100kW on February 4, 2017;
3. 50kW plant pre-approved to be built 2011 and approved for interconnection (i.e. start generation) December 13, 2013;
4. Following talks, incentives and promotions from BC Hydro to increase to a 100kW plant, addition of a second 50 kW turbine pre-approved 2014 and approval to commence parallel operation of second generator approved March 29 2017; and
5. 50kW plant pre-approved May 9, 2017.

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According to NMRG there are approximately 250 other net metering projects approved by BC Hydro which are annual net suppliers of electricity and its members have made or intend to make large investments, in some cases in the range of \$800,000 to \$900,000, to build net metered Generation Facilities.¹⁹⁷ A 100 kW micro-hydro project would cost between \$500,000 to \$900,000,¹⁹⁸ and a typical solar installation would cost \$17,000.¹⁹⁹

The City has a total demand greater than the output of its micro-hydro project but BC Hydro does not allow customers to aggregate multiple accounts under the Net Metering Program.²⁰⁰ As stated, implementing virtual net metering which might allow bill crediting across multiple customers for a shared net metering project is not being considered.²⁰¹

In addition to the evidence provided earlier, BC Hydro makes the following points:

- A transition period longer than five-years or maintaining the current Energy Price for existing customers on a permanent basis would create an undue burden for non-participating customers and is not necessary.²⁰²
- Phasing-in the difference would result in a more immediate impact to existing customers in the Net Metering Program and would be more complicated to administer.²⁰³

Position of Parties

BCSEA

BCSEA considers five years to be the minimum acceptable Transition Period, and would support a longer period, adding that participants incurred “significant costs in establishing their generation facilities in light of the size of the Energy Price at the time.” BCSEA also prefers the proposed Transition Period over a phased-out period because the latter would have immediate negative impact on impacted participants and would be complicated for customers to understand and for BC Hydro to administer.²⁰⁴

¹⁹⁶ Exhibit C23-7, p. 8.

¹⁹⁷ Ibid., p. 21.

¹⁹⁸ Exhibit C23-11, p.4.

¹⁹⁹ Exhibit C23-8, p. 5.

²⁰⁰ Exhibit B-5, CFSJ IR 1.3.2.

²⁰¹ Ibid., CEC IR 1.22.1.

²⁰² BC Hydro Final Argument, p. 24.

²⁰³ Ibid., p. 25.

²⁰⁴ BCSEA Final Argument, p. 7.

The City

When viewed as one customer, the City's energy use is significantly larger than the production at its micro-hydro generating station. The City argues that the proposed changes will impact its ability to generate energy at one facility and offset energy use at other facilities within the City.²⁰⁵

With respect to the Transitional Energy Price the City states that it is unknown "how a five-year grandfathering period will allow for customers to better accept the proposed energy price." The City states that BC Hydro identified the five years as a period after which the Energy Price would be assessed, and that five-year period is unlikely to result in a return on investment for any customers faced with a significant Energy Price reduction.²⁰⁶

²⁰⁷

BCOAPO

BCOAPO argues that a transition strategy that reduces the current Energy Price from 9.99 cents per kWh to a market-based rate phased in over four years would be preferable. This approach would avoid BCOAPO's concern that in April 2024 BC Hydro will again be faced with arguments that the one-time reduction from 9.99 cents per kWh to the market-based price is too much for customers to manage, and requests would be made to extend the Transition Period. BCOAPO disagrees with BC Hydro that a phased approach would be difficult to administer, as in its view BC Hydro would only need to make one change to the Energy Price each year for all the applicable customers.²⁰⁸

The CEC

The CEC agrees with BC Hydro that a Transitional Energy Price is reasonable to avoid causing significant disturbance to existing customers, and a five-year Transition Period is appropriate.²⁰⁹

BC Hydro Reply Argument

BC Hydro made no reply argument on this issue.

Panel Determination

The Panel determines that all Net Metering customers accepted into the Net Metering Program as of April 28, 2019 shall receive the Transitional Energy Price of 9.99 cents per kWh for all Surplus Energy Payments made from April 29, 2019 until April 30, 2024. The Panel agrees with BC Hydro that the Transition Proposal should balance the competing pressures to reduce cost-shifting to non-participants and to maintain the stability of the RS 1289 rate with regards to the payments for annual net excess generation.

²⁰⁵ CFSJ Final Argument, p. 2.

²⁰⁶ Exhibit B-5, CFSJ IR 1.2.1.

²⁰⁷ CFSJ Final Argument, p. 3.

²⁰⁸ BCOAPO Final Argument, pp. 15-16.

²⁰⁹ CEC Final Argument, p. 17.

The Panel has established that the Energy Price of 9.99 cents per kWh for annual net excess generation by Net Metering customers amounts to undue cost-shifting to non-participants, and, as a consequence, approves BC Hydro's request to reduce it. The Panel understands that continuing to pay an Energy Price in excess of the value to BC Hydro for excess generation by current participants during the Transition Period also amounts to cost-shifting to non-participants and can be described as discriminatory. However, the test set out in the UCA for a valid rate is whether there is undue discrimination, and given the circumstances outlined below, the Panel does not consider the transitional treatment until April 30, 2024 as outlined in the Transition Proposal to be undue discrimination.

One of the Bonbright criteria for good rate design is that rates should remain stable over time, with "a minimum of unexpected changes seriously adverse to existing customers."²¹⁰ The Panel considers this to be a valid consideration in evaluating the Transition Proposal. A key benefit of rate stability is that it gives customers confidence to take a longer-term view of their use of utility services and thus the ability to make better economic decisions. Failure to accommodate today's participants would send the signal that future participants might face equally adverse consequences of their own, thus potentially reducing future participation in the Net Metering Program.

That said, the Panel recognizes that the amount of accommodation for current participating customers of annual surplus energy is a matter of judgement. Supporters of the Net Metering Program, such as BCSEA, argue for a Transition Period of at least five years, whereas BCOAPO argues for an approach which would provide less than the full Transitional Energy Price for the five years. The Panel notes that the annual surplus energy payments under the Net Metering Program in the 2018 fiscal year were \$324,358 which is not significant when compared to BC Hydro's fiscal 2018 total cost of energy of \$2.137 billion and therefore, will have limited material impact on non-participating customers' rates.²¹¹

BC Hydro's proposal of five years' Transition Period with no phase-in has the merit of simplicity, but as BCOAPO argues, in five years participants will again face a dramatic reduction in the Energy Price and BC Hydro may face pressure to prolong the Transition Period. However, a phase-in period starting immediately reduces the overall value of the Transition Price for current participants, as BCSEA observes, and the proposed Transition Period is already considerably shorter than the likely payback period for some customers' investments. **Therefore, the Panel considers that five full years of the Transitional Energy Price is a reasonable accommodation to make for current customers and rejects the suggestion the value of the Transitional Energy Price should be reduced during the Transition Period.**

Intervenors who are Net Metering customers made limited comments specific to the Transitional Energy Price or the five-year accommodation period. NMRG/BCCSC raised significant concern with respect to the Proposed Energy Price but made no submissions with regards to the impact of having a Transition Period. The City has noted that extending the current Energy Price for five years is unlikely to result in a return on investment for these customers when this period ends. The Panel acknowledges that at the end of the Transition Period customers will likely be faced with a significant reduction in the Transitional Energy Price to the then-prevailing Energy Price. As noted by BC Hydro it "... will monitor the impact of the proposed changes..." and "...there may be other changes with regards to distributed energy resources, as a result of BC Hydro's next Integrated

²¹⁰ Principles of Public Utility Rates by James C. Bonbright, 1961, p. 291.

²¹¹ BC Hydro Annual Service Plan 2018/19, p. 25.

Resource Plan”.²¹² By the end of the Transition Period BC Hydro will have had sufficient time to review changes to the Net Metering Program, including virtual net metering and marginal cost pricing, which may provide a different form of accommodation for some existing customers affected by the reduction in the Energy Price. The Panel considers it reasonable that BC Hydro re-evaluate the Transition Proposal at the end of the Transition Period in light of the circumstances prevailing at that time.

No interveners challenged BC Hydro’s proposal to exclude customers accepted in the Net Metering Program after April 20, 2018 from the Transitional Energy Price. The Panel acknowledges that participants who signed up after April 20, 2018 were only accepted into the Net Metering Program by BC Hydro if their generator size was less than their estimated annual load. However, estimates may turn out to be wrong, and it is possible that these participants may still have an annual surplus if their actual load is greater than their estimated load. The Panel considers that a more appropriate cut-off date for eligibility to receive the Transitional Energy Price is April 28, 2019, when BC Hydro submitted this Application, as participants who were enrolled after this date had sufficient notification that BC Hydro was proposing to reduce the Energy Price.

4.1.4 Assignment of a Default Anniversary Date

BC Hydro is proposing to assign all customers a March 1 default Anniversary Date and then provide customers one opportunity to choose their own Anniversary Date thereafter. As BC Hydro has stated, one of the benefits of the proposed amendments is they will provide customers with increased opportunities and flexibility to reduce the supply that they take from BC Hydro.

As outlined in Section 4.1.1, when customers create more energy than their immediate requirements the excess energy is banked in the customer’s Generation Account. Once a year, on their Anniversary Date, customers receive a surplus energy payment if they have credits remaining as of that date. Currently, a customer’s Anniversary Date is the end of the sixth or 12th billing period following the date where a customer commences service under RS 1289. Thus, a customer’s Anniversary Date is at a set point following commencement rather than one which is chosen to best suit the customer’s needs.²¹³

BC Hydro explains that there are cases where a customer has an Anniversary Date in late summer or early fall months and is eligible to receive a surplus energy payment following the period where they have high generation but relatively low consumption. This would mean that such customers would clear any balances in their Generation Account and receive a surplus energy payment prior to the winter months when their consumption is much higher and their generation much lower. Conversely, those with Anniversary Dates in the spring months would receive any surplus energy payments following a time when consumption is high. This would allow them the opportunity to apply any accumulated Generation Account balances that were built up over the summer of the previous year to their winter supply billings from BC Hydro.

Currently, surplus energy payments are made once every 12 months. BC Hydro points out that if the period between energy payments was extended to say 24 months, customers would have increased opportunities and flexibility to apply General Account balances toward the energy purchased. However, in doing so customers would have less frequent surplus energy payments. BC Hydro reports that this was one of the options it considered among those designed to increase the opportunity and flexibility to offset BC Hydro supply.

²¹² Exhibit B-1, p. 44; Exhibit B-5, CFSJ IR 1.2.1.

²¹³ Exhibit B-1, pp. 24-25.

Additionally, it considered setting a common Anniversary Date of March 1 for all customers, allowing customers to choose their own date or maintaining the existing 12 month true-up period.

These options were then tested as part of the Engagement Survey which it conducted. The results showed that 60 percent of customers were in support of allowing customers to choose their Anniversary Date with 40 percent supporting setting a common Anniversary Date for all customers. In response to the alternative proposal, 46 percent supported no change versus 54 percent who supported an extended true-up period to 24 months or longer.²¹⁴

BC Hydro also conducted a review of eight other jurisdictions. Their findings show that four of the utilities allow customers to select their Anniversary Dates “or have Anniversary Dates that are optimized for customers in the Program”. Three of these allow customers to select dates while one sets the Anniversary Date at March 31 to optimize it for the majority of customers. Of the remaining four utilities, one sets the Anniversary Date based on the month the generation balance accumulates (there is one year to use the credits or they expire), another makes surplus energy payments monthly while two have the same approach as that of BC Hydro. In addition, BC Hydro found that three of the utilities surveyed allow customers a longer period to carry their generation balances as a means of reducing the net energy purchased.²¹⁵

BC Hydro states that in addition, the Evaluation Report conducted in 2017 indicates support for an optimal and flexible Anniversary date. Customers value having the ability to use their account balances to reduce energy supply and BC Hydro reports that it has received suggestions to either set an optimal Anniversary Date or allow customer to choose.

Based on the Evaluation Report, the Engagement Survey and the Jurisdictional Review, BC Hydro has requested the initial Anniversary Date assignment of March 1 to all customers with an opportunity for one change to be made at the discretion of the customer. BC Hydro points out that March 1 is the optimum date for photovoltaic Generating Facilities which make up 98 percent of current customers. Thus, the proposed amendments allow customers to set a default date that is best for them while also setting an optimum date for most Net Metering Program customers. This provides flexibility while setting a default date that will work for most customers who may be unaware of the options or are not confident in making an informed choice.²¹⁶

Positions of Interveners

The CEC, BCOAPO and BCSEA were the only interveners who specifically commented on BC Hydro’s proposed changes to the Anniversary Date. All of these were in support of the proposed changes.

Panel Determination

The Panel approves the BC Hydro proposal to assign all customers a March 1 default Anniversary Date and then provide customers one opportunity to choose their own Anniversary Date thereafter. The choice of March 1 as the default Anniversary Date is optimal for most customers given that most have photovoltaic Generating Facilities which means the bulk of their generation is in the late spring and summer months. Having a March 1 date allows them the best opportunity to offset their BC Hydro energy costs through Generation Account balances that have been built up over the previous spring, summer and early fall. For those customers

²¹⁴ Exhibit B-1, pp. 25-29.

²¹⁵ Ibid., pp. 29-31.

²¹⁶ Ibid., pp. 31-32.

for whom March 1 is not optimal, they are free to analyse their generating history and request a one time change that best suits their needs. This will likely result in limited changes to the March 1 Anniversary Date being required and will therefore minimize administrative costs.

4.1.5 Minor Amendments to RS 1289

BC Hydro has proposed a number of minor amendments to RS 1289 to improve the clarity, simplicity and safety of the Net Metering Program and to reflect existing program practices. These include the following:

- Generation connections are not permitted except through an interconnection agreement or through the Net Metering Program;
- The Net Metering Program is only available to customers with a smart meter;
- BC Hydro has the ability to reject applications if the applicant is within a service area with existing or expected system constraints;
- Applications expire 18 months after BC Hydro's acceptance, if the customer has not received BC Hydro approval to connect its Generating Facility to BC Hydro's system; and
- Other minor updates to the language and organization of RS 1289 to reflect current practice and to improve its clarity and readability.

A review of these amendments follows.

BC Hydro proposes an amendment to clarify that generation connections are not permitted except through an interconnection agreement or through the Net Metering Program.²¹⁷ BC Hydro explains that 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.²¹⁸ BC Hydro states this amendment responds to the Net Metering Evaluation Report No. 4 dated April 26, 2017 (Evaluation Report) and would support the objectives by preventing unsafe generation connections.²¹⁹

BC Hydro also proposes to update the metering provision of RS 1289 to clarify that the Net Metering Program is only available to customers with a smart meter (including a radio off smart meter). BC Hydro states that currently, RS 1289 requires that customers in the Net Metering Program have a meter able to measure bi-directional flows of electricity. However, some customers have been unsure about the types of meters that are consistent with this requirement. BC Hydro submits this amendment responds to the Evaluation Report and reflects existing program practices.²²⁰

BC Hydro proposes to amend the tariff to clarify that BC Hydro has the ability to reject applications if the applicant is within a service area with existing or expected system constraints. BC Hydro explains that this amendment responds to the Evaluation Report and would prevent connections that cannot be accommodated

²¹⁷ Exhibit B-1, p. 42.

²¹⁸ Ibid., pp. 41-42.

²¹⁹ Ibid., p. 42.

²²⁰ Ibid., p. 42.

by BC Hydro's system, that would trigger substantial costs not recoverable under RS 1289, or that may create safety or other risks.²²¹

BC Hydro also proposes an amendment so that applications expire 18 months after BC Hydro's acceptance, if the customer has not received BC Hydro approval to connect its Generating Facility to BC Hydro's system. Customers with expired applications would be able to re-apply to the Net Metering Program. This amendment would ensure that BC Hydro has current information on a customer's estimated Annual Load, proposed Generating Facility and system requirements.

Lastly, BC Hydro proposes other minor updates to the language and organization of RS 1289 to reflect current practice and to improve its clarity and readability. Examples of these proposed amendments include the addition of a definition section, clarifying the Program application process and re-organizing some paragraphs. The proposed amendments to RS 1289 are shown in detail in Appendix B of the Application.²²²

Position of Parties

BCSEA, BCOAPO and the CEC raised no issues with these proposed amendments.

Panel Determination

None of the interveners took issue with the proposals. **The Panel has reviewed the minor amendments proposed by BC Hydro, and finds them to be reasonable and therefore approves them.** The Panel concurs with BC Hydro that these minor amendments improves the clarity, simplicity and safety of the Net Metering Program.

5.0 Additional Considerations

5.1 Reporting Requirements

BC Hydro has not produced an updated Net Metering Evaluation Report since Report No. 4 that was filed with the BCUC on April 26, 2017.²²³ BC Hydro explains that historically, BC Hydro has produced a Net Metering Evaluation Report in response to directives from the BCUC in its Decisions on applications by BC Hydro to amend RS 1289.²²⁴

BC Hydro intends to review its assumptions with regards to Net Metering in its next IRP.²²⁵ Any future applications by BC Hydro with regards to RS 1289 would be informed by, and consistent with, BC Hydro's approved IRP.²²⁶

BC Hydro proposes that a Net Metering Evaluation Report be filed by the end of October 2020 to help inform the 2021 IRP and any potential future amendments to RS 1289.²²⁷ BC Hydro proposes that, in addition to the topics covered in previous Net Metering Evaluation Reports, this report include an analysis of cost shifting to non-participants resulting from the program. BC Hydro will also engage with customers in the Net Metering

²²¹ Exhibit B-1, p. 43.

²²² Ibid., p. 44.

²²³ Exhibit B-3, BCUC IR 1.20.2.

²²⁴ Exhibit B-7, BCUC IR 2.26.5.

²²⁵ Exhibit B-3, BCUC IR 1.18.6.

²²⁶ Exhibit B-5, CFSJ IR 1.2.1.

²²⁷ Exhibit B-7, BCUC IR 2.25.1.

Program and other stakeholders to identify possible solutions to any remaining cost-shifting.²²⁸ BC Hydro states this work may inform future applications to the BCUC.²²⁹

Panel Determination

The Panel directs BC Hydro to submit an evaluation report on the Net Metering Program by no later than October 31, 2020. The evaluation report should include the following content:

- *Consultation:*
 - Consult with effected parties and actively solicit and record feedback regarding marginal cost pricing and virtual net metering; and
 - Report on any customer feedback, comments, and complaints regarding the Net Metering Program in general and identify areas for further amendments to the Net Metering Program (if any).
- *RS 1289 Customer Data* (this should include the following):
 - Summary of all inquiries into Net Metering;
 - Number of applications filed;
 - Number of executed agreements, by rate class;
 - Net Metering facility (type, generator rating and location);
 - Details of all Applications rejected, including reasons for the rejection; and
 - Statistics to be broken down by new and modified facilities where applicable.
- *RS 1289 Costing Data:*
 - Administrative, marketing, billing/meter reading costs, engineering costs;
 - Connection – additional connection costs for non-standard new connections (customer at primary voltage level or with synchronous generators); and
 - Estimated average price paid for energy generated by RS 1289 customers, by customer class (weighted average cents per kWh Energy Credit and Energy Price, with other assumptions clearly stated).
- *Energy Price:* a review of the calculation of the Energy Price.
- *Cost and benefit of the program:*
 - Cost shifting between participants and non-participants; and
 - Options to address cost shifting.
- *Safety/reliability:* power quality and reliability of supply and how they affect other customers.
- *Benchmarking:* other utility experiences and technological advances in distributed generation. Where possible, this analysis should include the size of the Net Metering Energy Credit for residential and commercial customers in cents per kWh. In addition, it should also contain a description of the most successful programs in North America and a comparison of the terms and conditions of RS 1289 to the

²²⁸ Exhibit B-7, BCUC IR 2.26.2.

²²⁹ Ibid.

terms and conditions of those programs. It should also contain a description of any incentive programs offered in those jurisdictions and marketing efforts undertaken by utilities.

- *Regulation*: Changes in regulatory and code requirements in BC.
- *Policy consideration*: Changes in the regulatory environment, including updates from Phase Two of the Comprehensive Review.
- *Portfolio Planning*: Impact of Net Metering on energy portfolio planning.
- *Capacity Limit*: the issues associated with changes in capacity limits or limit based on voltage in order to mitigate market barriers to small scale clean distributed generation while limiting any negative cost impacts on non-participants.
- *Connection policy*: consideration of any other potential future changes to mitigate economic and other barriers to connection of small-scale clean DG (provided safety not compromised etc.).
- *Emerging issues and opportunities*: leasing solar equipment, virtual net metering, and any other emerging issues and opportunities.
- *Other*: other issues as identified elsewhere in this Decision.

The Panel directs BC Hydro to consult with stakeholders in the preparation of the report regarding marginal cost pricing and virtual net metering and include the results of that consultation in the report. Stakeholders to be consulted should include, but not be limited to, the Interveners registered in this proceeding.

DATED at the City of Vancouver, in the Province of British Columbia, this 23rd day of June 2020.

Original signed by:

D. A. Cote
Panel Chair / Commissioner

Original signed by:

R. I. Mason
Commissioner

Original signed by:

R. D. Revel
Commissioner



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ORDER NUMBER
G-168-20

IN THE MATTER OF
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

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

BEFORE:

D. A. Cote, Panel Chair
R. I. Mason, Commissioner
R. D. Revel, Commissioner

on June 23, 2020

ORDER

WHEREAS:

- A. On April 29, 2019, pursuant to section 59 to 61 of the *Utilities Commission Act* (UCA), British Columbia Hydro and Power Authority (BC Hydro) filed an application to seek approval from the British Columbia Utilities Commission (BCUC) to, among other things, amend the availability, billing and rate provisions in Rate Schedule (RS) 1289 (Application);
- B. In the Application, BC Hydro proposes to:
- Make permanent the amendments sought in the 2018 BC Hydro Application to Amend Net Metering Service under RS 1289 (2018 Amendment Application), that were approved on an interim basis by Order G-100-18, dated June 1, 2018, with adjustments to provide additional flexibility to meet the current and future needs of customers;
 - Assign all customers a default Anniversary Date of March 1 and to allow customers to choose their own Anniversary Date once;
 - Update the Energy Price from 9.99 cents per kilowatt hour (kWh) to an amount that reflects the price BC Hydro can sell the electricity for on the regional wholesale market;
 - Make various minor amendments to improve the clarity, simplicity and safety of the Net Metering Program and to reflect existing program practices; and
 - Maintain the current Energy Price of 9.99 cents per kWh for all customers with accepted applications as of April 20, 2018, for a period of five years;
- C. By Orders G-103-19A G-144-19, G-185-19, G-217-19A, G-276-19, G-281-19, and G-293-19, the BCUC established a written hearing process and regulatory timetable to review the Application, which included two rounds of information requests (IR) to BC Hydro, submission on further process, submission of

intervener evidence, IRs on intervener evidence, BC Hydro rebuttal evidence, IRs on BC Hydro rebuttal evidence to BC Hydro, and written final arguments;

- D. BC Hydro filed its Final Argument on February 27, 2020. By March 13, 2020, interveners filed their Final Arguments. BC Hydro filed its Reply Argument on March 26, 2020; and
- E. The Panel has reviewed the Application, evidence and arguments and considers the following determinations are warranted.

NOW THEREFORE, pursuant to section 59 to 61 of the UCA, the BCUC orders as follows:

1. The proposed amendment to the Energy Price from 9.99 cents per kilowatt hour to an amount that would be updated every January 1 based on the daily average Mid-Columbia prices for the previous calendar year is approved.
2. All Net Metering customers accepted into the Net Metering Program as of April 28, 2019 shall be eligible to receive the Transitional Energy Price of 9.99 cents per kilowatt-hour for any surplus energy payments made from April 29, 2019 until April 30, 2024.
3. The proposal to limit the output of a Net Metering Generating Facility to not exceed 110 percent of the customer's annual load is rejected.
4. The proposal to assign all Net Metering customers a March 1 default Anniversary Date with one opportunity to choose an alternative date thereafter is approved.
5. BC Hydro is directed to file an evaluation report by October 31, 2020. The evaluation report shall include the content as specified under Section 5.0 of this Decision.
6. BC Hydro is directed to file revised tariff pages that reflects the directives contained in this order for endorsement within 30 days from the date of this order for approval by this Panel.
7. BC Hydro shall comply with all other directives included in the Decision.

DATED at the City of Vancouver, in the Province of British Columbia, this 23rd day of June, 2020.

BY ORDER

Original signed by:

D. A. Cote
Commissioner