



Fred James

Chief Regulatory Officer

Phone: 604-623-4046

Fax: 604-623-4407

bchydroregulatorygroup@bchydro.com

January 8, 2020

Mr. Patrick Wruck
Commission Secretary and Manager
Regulatory Support
British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC V6Z 2N3

Dear Mr. Wruck:

**RE: Project No. 1599004
British Columbia Utilities Commission (BCUC or Commission)
British Columbia Hydro and Power Authority (BC Hydro)
Application to Amend Net Metering Service under Rate Schedule (RS) 1289
Rebuttal Evidence**

BC Hydro writes in compliance with BCUC Order No. G-293-19 to provide its Rebuttal Evidence.

For further information, please contact Chris Sandve at 604-974-4641 or by email at bchydroregulatorygroup@bchydro.com.

Yours sincerely,

(for) Fred James
Chief Regulatory Officer

cs/ma

Enclosure (1)

**Application to Amend Net Metering Service under
Rate Schedule 1289**

**Rebuttal Evidence of
British Columbia Hydro and Power Authority**

January 8, 2020

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1 **BC Hydro Response to Intervener Evidence**

2 BC Hydro has prepared this Rebuttal Evidence to respond to aspects of the
3 evidence of:

- 4 • BC Community Solar Coalition (**BCCSC**);
- 5 • Net Metering Ratepayers Group (**NMRG**); and
- 6 • Riverside Energy Systems (**Riverside Energy**).

7 We have focussed on the aspects of their evidence that relate to the Application. We
8 have responded to the main points raised, rather than taking a line-by-line approach.
9 Accordingly, silence on a particular aspect of intervener evidence should not be
10 interpreted as agreement.

11 **Q1. NMRG states that “other customers that may be in the process of trying**
12 **to enter the Net Metering Program, or otherwise may in the future, will**
13 **be discouraged or prevented from joining the Program if BC Hydro’s**
14 **applied-for proposals are approved”.¹ BCCSC states that exponential**
15 **growth of the Program is “likely considering the interest our renewable**
16 **energy co-operate encounters everywhere we make presentations on**
17 **solar and other renewable energies...”² Riverside Energy states that**
18 **“our initiation of solar PV based net metering applications is on the rise,**
19 **and client requested system size (kW) is increasing”³ What is your**
20 **response to these statements?**

21 A1. The referenced statements indicate that there is conflicting evidence from
22 interveners with regards to the current growth of the Program and how that

¹ Exhibit C23-8, page 4.

² Exhibit C18-6, page 9.

³ Exhibit C13-2, page 1.

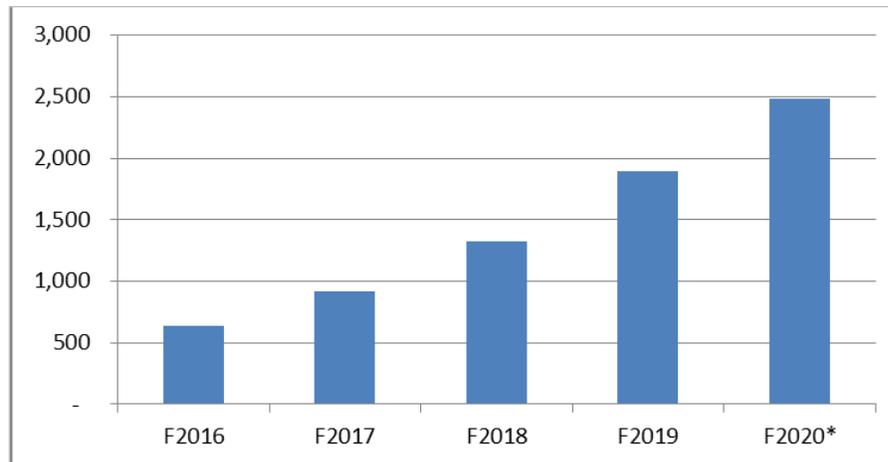
1 growth may be, or has been, impacted by the amendments proposed in the
2 Application.

3 To help resolve this apparent conflict in the evidence, BC Hydro provides the
4 following information with regards to actual Program growth:

- 5 • As of April 30, 2019 (the date the Application was filed with the BCUC),
6 the total number of participants in the Program was 1,951. As of
7 December 31, 2019, the total number of participants in the Program
8 was 2,480. In other words, the number of participants in the Program has
9 increased by 27 per cent over the approximately eight months since the
10 Application was filed.
- 11 • BC Hydro's fiscal year runs from April 1 to March 31. In fiscal 2018,
12 403 customers joined the Program. In fiscal 2019, 574 customers joined
13 the Program. To-date, in fiscal 2020 (i.e., April 1, 2019 to
14 December 31, 2019), 582 customers have joined the Program. In other
15 words, while there are still three months remaining in fiscal 2020, the
16 number of customers that have joined the Program in this fiscal year has
17 already exceeded the totals from each of the previous two fiscal years.

18 The figure below shows the number of customers in the Program, by fiscal
19 year, from fiscal 2016 to fiscal 2020 to-date.

1 **Figure 1** **Number of Customers in the Program**
2 **(Fiscal 2016 to Fiscal 2020 To-date)**



3 * As of December 31, 2019.

4 As shown by the information provided above, the amendments proposed in
5 the Application do not appear to have discouraged customers from
6 participating in the Program.⁴ Rather, as suggested by BCCSC and Riverside
7 Energy, interest and participation in the Program continues to increase.

8 **Q2. BCCSC states that “Net Metering generators have the ability to**
9 **incorporate clean emergency back-up power when the grid fails”⁵ and**
10 **that “the Panel must consider the ability for projects within Net Metering**
11 **RS1289 to supply secure emergency power”.⁶ What is your response?**

12 **A2.** For the following three reasons, BC Hydro does not believe that RS 1289
13 should consider the supply of emergency power either within a customer’s
14 site or to other customers on the BC Hydro distribution feeder.

- 15 • First, customers can connect back-up generation with clean energy
16 sources via a transfer switch or by using an inverter with a stand-alone

⁴ BC Hydro’s net metering web site includes updates with regards to the proposed amendments to RS 1289. For further information, please refer to: www.bchydro.com/netmetering.

⁵ Exhibit C18-6, page 10.

⁶ Exhibit C18-6, page 12.

1 output that is not interconnected with the BC Hydro system.⁷ However,
2 in these cases, the back-up generation is for the sole use of the
3 customer and does not provide any benefits to other ratepayers.

- 4 • Second, while RS 1289 limits the nameplate rating of a customer's
5 Generating Facility, it does not limit the total amount of generation that
6 can be installed at a customer's site. This means that a customer can
7 install a Generating Facility with separate inverters for the utility
8 connection and for the load requiring a back-up supply. In this scenario,
9 only the utility inverter size would be subject to the requirements of
10 RS 1289 and the back-up supply inverter could be sized to meet the
11 back-up power needs required by the customer.
- 12 • Third, BC Hydro has used distributed generators to improve reliability on
13 a distribution feeder section, where traditional wires based solutions are
14 not economical. These systems are referred to as "intentional islands" or
15 "microgrids".

16 These systems are complex, require detailed engineering studies and
17 design and are used in relatively few cases due to their high cost.
18 Specifically, BC Hydro designs intentional islands according to the *IEEE*
19 *Guide for Design, Operation, and Integration of Distributed Resource*
20 *Island Systems with Electric Power Systems*, IEEE 1547.4. The
21 generating facilities used are specifically designed for islanded operation
22 and have appropriate control and protection equipment to ensure safety
23 and power quality. Additional automated control and protection
24 equipment is also installed on the BC Hydro system.

25 Net Metering Generating Facilities that use induction generators or
26 inverters certified to CSA C22.2 No. 107.1 are not designed to operate in

⁷ Refer to BC Hydro's response to CEC IR 2.30.1.

1 an intentional island on their own. For safety reasons, they must cease
2 injecting power when there is a utility outage.

3 Further information on using generation not designed for islanded
4 operation can be found in Section C.2 of the *IEEE Standard for*
5 *Interconnection and Interoperability of Distributed Energy Resources*
6 *with Associated Electric Power Systems Interfaces* IEEE
7 Std. 1547-2018.

8 **Q3. NMRG states that “[e]nergy from Net Metering excess production will be**
9 **consumed by customers who are closest in physical proximity to them**
10 **on BC Hydro’s system. In general, that means that neighbours of Net**
11 **Metering customers are the most likely consumers of any excess**
12 **generation” .⁸**

13 A3. Excess energy from a customer in the Program can be delivered to the
14 neighbouring customer, to other customers on a distribution feeder or to the
15 substation or transmission system, depending on the amount and location of
16 load and generation on the feeder.⁹

17 RS 1289 is a postage stamp rate which means that costs and benefits are
18 equally allocated to all customers of the rate class. Based on the postage
19 stamp rate principle, any benefits that may occur from having excess
20 generation in close proximity to load (i.e., a neighbouring customer) would be
21 measured or calculated on a system wide basis and allocated equally across
22 the rate class.

23 There are three potential system benefits associated with having generation
24 near load: a reduction in distribution and transmission losses, capacity
25 benefits (i.e., reduced capital requirements for transmission and distribution

⁸ Exhibit C23-8, page 23.

⁹ Refer to BC Hydro’s response to NMRG IR 2.22.2.

1 infrastructure), and reliability benefits. However, at this time, BC Hydro does
2 not realize these benefits because the installed capacity and volume of
3 energy generated by customer Generating Facilities in the Program is too
4 small to result in any appreciable avoided cost benefits to BC Hydro.¹⁰

¹⁰ Refer to BC Hydro's response to BCUC IR 1.11.2.