

Net metering Rate application

MARCH 2023

 **BC Hydro**
Power smart

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1. Background

1.1 Overview of BC Hydro's net metering rate

BC Hydro launched the net metering rate, Rate Schedule 1289, in 2004. The net metering rate enables residential and general service customers to connect a renewable electricity generating unit of up to 100 kW of capacity to:

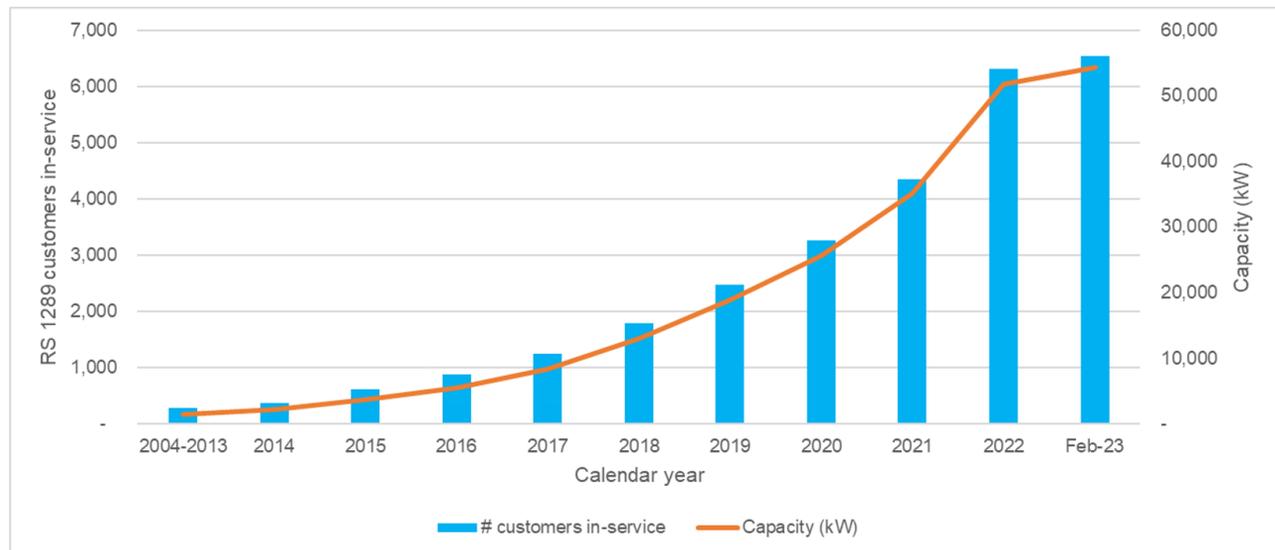
- Power their home or business;
- Save on their electricity bills by offsetting their electricity consumption; and,
- Rely on power supply from BC Hydro's grid, when needed.

Under the net metering rate, any electricity generated by the customer is first used to power their home or business. If a customer generates more electricity than they need at any given time, the excess generation is stored as generation credits on their account to be used to offset their future bills. Any unused generation credits are paid out to customers annually.

1.2 BC Hydro's net metering customers

The number of customers on the net metering rate has grown significantly over the past four years. Figure 1 below shows the growth of net metering customers since the launch of the rate in 2004. As of February 2023, BC Hydro has approximately 6,500 net metering customers, with generating units totalling approximately 55 MW of capacity. This is equivalent to powering approximately 40,000 electric vehicles using Level 1 charging.

Figure 1 Net metering program growth



Among all net metering rate customers:

- 93% are residential customers and 7% are commercial customers;
- 99% have installed solar generation. Other technologies include hydropower (mostly run of river without reservoir storage), wind power, combination of wind/solar, and biogas; and,
- Residential customers enrolled in the net metering rate consume about 40% more electricity than the residential average.

The table below shows the regional distribution of net metering rate customers:

Figure 2 Regional distribution of net metering customers

Region	RS 1289 customers	% of total RS 1289 customers	Capacity (kW)	% of total capacity (kW)
Vancouver island	3,065	47%	24,195	44%
Lower mainland	1,728	26%	14,644	27%
South interior	1,567	24%	14,030	26%
Northern B.C.	158	2%	1,552	3%
NIA areas	29	<1%	537	<1%
Total	6,547	100%	54,958	100%

1.3 2019 Net Metering Rate Application

BC Hydro last filed an application to amend the net metering rate on April 29, 2019.² In this application, BC Hydro proposed, and on June 23, 2020, by Order No. G-168-20, the Commission approved, among other things:

- Updating the price paid annually to customers with unused generation credits from 9.99 cents per kWh to an amount determined 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.³ Under this approach, the price paid for unused generation credits has been:

¢ per kWh	Paid out in calendar year
4.87	2020
2.85	2021
6.19	2022
10.60	2023

¹ Non-integrated areas are communities that are not connected to BC Hydro's integrated grid and instead receive electricity service from local generation sources.

² This was the sixth application to amend the net metering rate since the inception of the rate in 2004. Previous amendment applications were submitted in October 2008, September 2011, February 2014, June 2015, and April 2018.

³ For customers already on the net metering rate, BC Hydro proposed, and the Commission approved, a transition period where the price paid for unused generation credits would continue to be 9.99 ¢ per kWh until April 30, 2024.

- Assigning March 1st as the default anniversary date for unused generation credits to be paid out, and providing customers one opportunity to choose their own anniversary date⁴.

1.4 2020 Evaluation Report

In its decision on BC Hydro's April 29, 2019 application, the Commission directed BC Hydro to provide an evaluation report on the net metering rate, which BC Hydro submitted on October 30, 2020.⁵ Among other things and in response to the items identified by the Commission, the evaluation report indicated that:

- 57% of customers surveyed indicated that the net metering rate was meeting their needs.⁶ 41% expressed interest in virtual net metering,⁷ 24% expressed support for marginal cost pricing⁸ and 45% expressed support for different program terms and conditions depending on the type of generation (e.g. solar, hydropower).⁹ However, there was a low level of understanding of these issues and additional engagement and consultation will be necessary before customer and stakeholder viewpoints can be adequately represented.
- When considering both the value of using excess generation credits to offset future bills and the price paid for any unused generation credits, the average value of generation credits to net metering rate customers¹⁰ was 10.71 cents per kWh, which was higher than the market value of that energy. This difference is one of the reasons why the revenue collected from customers on the net metering rate is less than the cost to provide electricity service to those customers.¹¹ The difference between the average value of generation credits to net metering rate customers and the market value of that energy was higher for customers with hydropower generation than for customers with solar generation.

There are several reasons for this difference besides the price paid for any unused generation credits, which was addressed by Commission Order No. G-168-20. Most of the additional reasons are related to the design of the rate that net metering customers pay for the electricity service that they receive from BC Hydro. Specifically:

- The cost to BC Hydro to provide customers with electricity service can be categorized into customer-related costs (i.e. costs that are directly related to the number of customers served), demand-related costs (i.e. costs that vary with the kilowatt demand imposed by customers on the system) and energy-related costs (i.e. costs that vary with the amount of energy provided to customers).

4 March 1st is optimal given that most net metering customers have solar generation, which allows generation credits accumulated during the spring, summer, and early fall to offset their consumption over the winter months.

5 This was the fifth Net Metering evaluation report that BC Hydro has submitted to the Commission. Previous evaluation reports were submitted on June 2005, September 2011, April 2013 and April 2017.

6 To inform the evaluation report, BC Hydro conducted a survey of customers on the net metering rate and received 854 responses.

7 Virtual net metering refers to a system where an electric utility facilitates sharing of generation credits between different customers.

8 Marginal cost pricing refers to a concept where customers would be able to buy and sell energy at its marginal cost, while paying a fixed charge to cover the fixed costs associated with receiving their electricity service from BC Hydro.

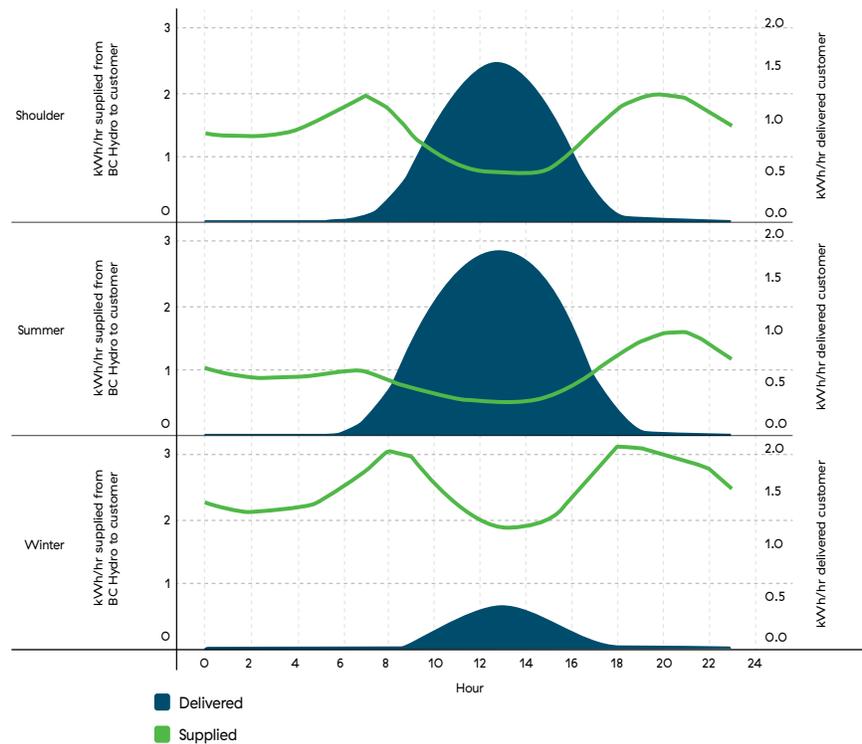
9 This question was asked in response to the Commission's decision on BC Hydro's April 29, 2019 application which stated "The Panel encourages BC Hydro to consider whether net metered hydroelectric plants should be treated differently from other types of net metered installations, such as photovoltaic solar." For further discussion, refer to page 43 of the Reasons for Decision to Order No. G-168-20.

10 Specifically, the net metering rate customers considered by the evaluation report (i.e., 1,488 total customers, representing 79% of all net metering rate customers as of March 31, 2019.)

11 For example, the October 30, 2020 evaluation report estimated the revenue to cost ratio for the evaluated group of residential customers on the net metering rate to be approximately 65% which is less than the average revenue to cost ratio for the residential class overall at approximately 95% in fiscal 2019. The 65% estimate assumes that the cost of the administering the net metering rate are allocated 100% to customers on the net metering rate.

- When customers on the net metering rate generate electricity that powers their home or business, they reduce energy-related costs and may reduce some demand-related costs (if the customers' generation reduces the amount of demand they impose on the BC Hydro system when its capacity is constrained).
- However, when customers provide excess generation to BC Hydro, this primarily reduces energy-related costs, rather than the cost of having the customer (customer-related costs) or being available to serve the customer (demand-related costs). The cost of being available to serve the customer is generally not reduced because customers on the net metering rate have the

Figure 3 Average Seasonal 24-Hour Load Profile of Electricity Supplied by BC Hydro and Delivered from Residential RS 1289 Solar Customers



greatest demand for electricity service from BC Hydro in winter mornings and evenings, which is the peak demand period; however, electricity from customers on the net metering rate is primarily delivered in the summer and shoulder seasons, during mid-day. This is shown in Figure 3 below.

- This can create a challenge depending on the design of the rate that customers pay BC Hydro for electricity service. For example, under the default residential rate (the Residential Inclining Block rate), which most net metering customers take service under, there is a basic charge (which recovers some customer-related costs) and tiered energy charges (which recover the remaining customer-related costs as well as all demand-related costs and all energy-related costs). When customers use excess generation to offset future bills, they reduce their tiered energy charges, creating a mismatch since the generation primarily represents reduced energy-related costs but the avoided energy charges also include demand-related costs and some customer-related costs.

- The same challenge exists with general service rates. Small general service rates do not have a demand charge while the demand charge for medium general service and large general service only recovers 27% and 59% of demand-related costs, respectively. This means that some demand-related costs are recovered through the energy charge and creates a similar mismatch between reduced energy-related costs and avoided energy charges.

1.5 2021 Integrated Resource Plan

BC Hydro filed its 2021 Integrated Resource Plan on December 21, 2020. An integrated resource plan is our guidebook for what, when, and how to meet customers' evolving electricity needs.

Net metering is an important consideration when considering customers' electricity needs over the longer term. In the 2021 Integrated Resource Plan, the net metering rate is included as an existing and committed resource. This means that the forecast electricity generation from customers on the net metering rate is used to offset their own electricity needs, reducing the amount of planned resources that must be considered. In the 2021 Integrated Resource Plan, the total forecast electricity generation from net metering customers is estimated to be approximately 200 GWh in fiscal 2030 and approximately 900 GWh in fiscal 2040.

In addition, the 2021 Integrated Resource Plan considered the net metering rate as a potential planned resource to meet future electricity needs. Specifically, BC Hydro considered the following options:

- **Customer solar:** Capital incentives to support customer adoption of small solar rooftop systems; and
- **Customer batteries supported by solar:** Capital incentives for both solar and batteries on single-detached homes, with utility management of batteries to help meet system capacity.

BC Hydro did not choose these resource options to meet future customer needs in the 2021 Integrated Resource Plan because there are more cost-effective options available at this time.

1.6 Purpose of this information booklet

This information booklet is intended to:

- Provide information about BC Hydro's net metering stakeholder engagement plan;
- Summarize net metering programs in North American jurisdictions; and
- Inform customers and stakeholders about BC Hydro's areas of focus for net metering in the near term.

This net metering workshop is designed so that BC Hydro can listen to and collect feedback to better understand the interests of stakeholders. Feedback gathered from this workshop will inform our net metering rate design application, which is planned to be filed with the BCUC in late 2023.

The remainder of this information booklet is structured as follows:

- **Section 2** provides a summary of a recent jurisdictional review
- **Section 3** summarizes the areas of focus for the new net metering rate
- **Section 4** provides a summary of the engagement plan that will inform our rate design proposal
- **Section 5** outlines the ways you can provide feedback

2. Summary of jurisdictional review findings

In late 2022, BC Hydro engaged The Brattle Group to conduct a jurisdictional review of net metering rates and programs across North America. Key themes from the review are outlined below.

2.1 Several Canadian provinces and US states are replacing net metering with new iterations

Most jurisdictions have implemented or proposed one of three common compensation mechanisms for net metering customers.

Compensation mechanism	Description
Traditional net metering (Current BC Hydro approach)	<ul style="list-style-type: none">○ Customer generation offsets consumption; excess generation is credited to account at the retail electricity rate.○ A key consideration is generation credit retention and compensation. Excess credits are typically carried over for some prescribed period (e.g. one year) before being forfeited or cashed out at a pre-determined rate.
Net billing	<ul style="list-style-type: none">○ This approach can address some of the mismatch challenges described in section 1.4 that can occur depending on the rate that customers pay BC Hydro for electricity service.○ This is because, under net billing, excess generation is compensated at a different rate than the retail rate.○ Some jurisdictions also impose “non-bypassable” charges (components of the retail rate that cannot be avoided).○ In addition to the compensation for excess generation, a key consideration is the “netting interval” – the period of time over which generation and load are aggregated and offset against each other.
Buy all – sell all	<ul style="list-style-type: none">○ This approach can also address some of the mismatch challenges described in section 1.4 that can occur depending on the rate that customers pay BC Hydro for electricity service.○ This is because, under buy all – sell all, customers pay for their gross consumption (i.e. their load before netting out any generation even if it is used to serve their own needs) at the retail rate.○ Customers are then compensated for all generation at a pre-determined rate. Generation compensation is a key consideration and this approach requires the customer’s generation to be separately metered.

2.2 Many jurisdictions are making rate design modifications in parallel with changes to net metering

Examples of such modifications include:

- Offering time-of-use rates;
- Increasing fixed charges; and/or
- Introducing demand charges.

For example, some jurisdictions assess a fee for net metering customers to access the grid to reflect the costs of the transmission and distribution system. This may be a fixed monthly fee or a per-kW of installed generation fee.

2.3 Eligibility criteria varies by jurisdiction

Eligibility criteria	Notes
Eligible technologies	<ul style="list-style-type: none"> ○ Eligible technologies vary by jurisdiction. ○ Some limit qualifying technology to renewables while others allow all customer-owned generators.
Applicable customer classes	<ul style="list-style-type: none"> ○ Most jurisdictions allow both residential and commercial customer classes to be eligible.
Individual customer capacity limit	<ul style="list-style-type: none"> ○ Some jurisdictions set system capacity limits to regulate the size of individual installations. ○ Capacity limits can be defined either in terms of load or as a percentage of annual demand.
Program size cap	<ul style="list-style-type: none"> ○ Some jurisdictions have aggregate net metering caps limiting the total amount of installed net metered generating capacity. ○ Caps are typically defined as a percent of the jurisdiction's load/peak demand in a reference year.
Virtual net metering	<ul style="list-style-type: none"> ○ Some jurisdictions allow subscribers across more than one meter to receive net metering credits according to their share of the generation.
Third party ownership	<ul style="list-style-type: none"> ○ Some jurisdictions are taking steps to enable/allow third party ownership of generation to reduce upfront costs so that more customers can afford to participate (e.g. by renting or leasing their generating equipment).

2.4 Some jurisdictions are taking steps to recognize the value of net metering as a planning resource that can reduce system costs

Some jurisdictions provide a grid services payment as additional compensation to reflect grid services net metering customers provide or to reflect avoided transmission and distribution costs. This payment is typically per kW of installed generation.

Some jurisdictions provide a suite of programs to enable customers to provide grid services. These programs are similar to demand response programs and reward dispatchability, peak reduction, and the addition of storage (e.g. batteries).

3. Areas of focus

Considering the background and jurisdictional review information set out above, BC Hydro has identified the following potential areas of focus for upcoming engagement. We're interested in your feedback on your level of interest and preferences in these areas as well as whether there are any other areas that we have missed.

- **Compensation mechanism:** Specifically, whether BC Hydro should consider alternative approaches to net metering such as net billing or buy all – sell all.
- **Rate design modifications:** Specifically, how time-of-use rates could be incorporated into net metering in light of BC Hydro's recent application for an optional residential time-of-use rate and whether BC Hydro should consider other rate design modifications such as increasing fixed charges or introducing demand charges.
- **Eligibility criteria:** Specifically, whether BC Hydro should consider changes to the eligibility criteria to enable virtual net metering, facilitate more renting/leasing arrangements or to increase the generation capacity limit from its current level of 100 kW or define the generation capacity limit in terms of load or as a percentage of annual demand.
- **Planning resource:** Specifically, whether BC Hydro should consider options to recognize and enhance the value of net metering as a planning resource. These could include providing compensation for grid services or avoided transmission and distribution system costs and offering programs to reward the addition of battery storage solutions in combination with net metering generation so that customer generation profiles can better match system needs.
- **Moving away from “one size fits all”:** BC Hydro recognizes that some of the options discussed above may work better for certain groups of customers than others. We're interested in your feedback on whether certain options should be explored for certain customers. For example, whether there should be a different approach for customers with solar generation compared to customers with hydropower generation.

4. Engagement plan summary

4.1 Engagement objectives

The Commission's decision on BC Hydro's April 29, 2020 application identified three areas of concern which BC Hydro intends to address through this engagement process.

- First, the Commission emphasized the importance of engaging with affected customer groups to better understand their perspective.
- Second, the Commission emphasized the importance of presenting engagement results in a way that identifies the different points of view or interests between different groups of customers.
- Third, the Commission emphasized the importance of obtaining customer feedback on a package of options, in addition to obtaining feedback on various discrete options.

To address these areas, BC Hydro will conduct thorough and meaningful engagement, including:

- Engaging and consulting with affected groups to listen to and understand their preferences and perspectives;
- Gathering quantitative and qualitative customer feedback to capture insights and their preferred option when choice is provided;
- Presenting results by distinct segments to better identify different points of view or interests (as opposed to an aggregate homogenous group); and
- Seeking feedback on a proposed package of options before proceeding to an application to attempt to more clearly identify a preferred overall approach.

4.2 Proposed engagement plan

BC Hydro plans to engage with residential customers, general service customers and installers and contractors in both the integrated area as well as the non-integrated areas. BC Hydro also plans to engage with Indigenous Nations and municipalities as well as other intervenors and interested parties.

BC Hydro plans to complete engagement activities in three phases in 2023.

4.2.1 Phase 1: Informing and understanding

Phase 1 of the engagement plan is set to take place in the spring of 2023. Phase 1 will focus on informing the audience about the upcoming application and asking questions to better understand various interests using the channels outlined in the table below.

	Channel of engagement
Residential customers	<ul style="list-style-type: none">○ Interviews○ Surveys○ Open houses
General service customers	<ul style="list-style-type: none">○ Workshops○ Interviews
Non-integrated areas	<ul style="list-style-type: none">○ First Nations Energy and Mining Council○ Clean Energy Working Group○ All Island Protocol Table○ Survey
Installers and contractors	<ul style="list-style-type: none">○ Workshops
Intervenors and interested parties	<ul style="list-style-type: none">○ Workshops

4.2.2 Phase 2: Present options for feedback

Phase 2 will re-engage the various groups using similar channels identified in Phase 1. Based on the interests identified in Phase 1 as well as our own analysis and research, BC Hydro will develop options for feedback.

4.2.3 Phase 3: Present proposal for feedback

Based on the feedback received in Phase 2, Phase 3 will propose a package of options for feedback. BC Hydro will consider feedback received on this proposal and then advance an application to the Commission.

5. Ways to Provide Feedback

BC Hydro is hosting a workshop on March 29, 2023 to provide information and obtain your feedback about the future of net metering at BC Hydro. You can also contact us at bchydroregulatorygroup@bchydro.com with any additional comments or questions. For information about BC Hydro's net metering rate design, please visit www.bchydro.com/netmetering.

