
From: BCUC <commission.secretary@bcuc.com>
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Subject: Letter of Comment
Attachments: BCUC letter.pdf

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Proceeding name: BC Hydro Amendment to Net Metering Service

Are you currently registered as an intervener or interested party: No

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Comment:

Please find attached a letter of comment regarding the recent BC Hydro application to amend the Net Metering Tariff.

Kris Boutilier

BC Utilities Commission
310 - 900 Howe Street
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Re: BC Hydro amendment to Net Metering Service dated 20 April, 2018

First, let me say that I recognize BC Hydro have an obligation to their shareholders to manage their affairs in whatever way yields best value and, subject to the oversight of the BC Utilities Commission, it is entirely reasonable for them to bring forward proposals to respond to observed circumstances not previously considered. Furthermore, I support their request to retro-date any resulting order to avoid a stampede of last-minute applicants under the existing flawed tariff.

In their cover letter BC Hydro state that there has been a surge in Residential Net Metering applications where potential generating capacity exceeds currently observed consumption. It seems an entirely logical that current market conditions have conspired to create ideal circumstances for a groundswell of new installations and that the capacity of those systems has similarly increased over time (low cost of borrowing; simplified technology and permit application process; steadily decreasing cost of new equipment and installation; increasing inventories of surplus equipment and panels from commercial system upgrades).

A surge in installations also seems generally desirable insofar as the optics of solar PV installations and renewable energy systems are excellent - installing a solar PV system is a tangible and well defined action an individual can take to personally respond to climate change, and as such the Province of BC has specifically called out solar as a targeted renewable technology in the BC Energy Plan 2007, the Province of BC Strategic Plan 2018/19, and elsewhere.

The cover letter alludes to installations with a gross surplus generating capacity being harmful, however the language and procedures defined in the existing tariff already seem to empower BC Hydro with an obligation and the necessary tools to engineer all Net Metering connections to ensure local grid balancing, stability, and reliability.

Put simply; the matter of excessive surplus electricity generation would seem to be a case of effectively Commercial Net Metering generators masquerading in Residential Net Metering Customers clothes. The difference in complexity between applying for a 99Kw system vs. a 100Kw system is substantial, and the profit to be gained from deploying one or more systems that flow 99Kw of surplus into the grid via the Simple Net Metering application process would be considerable.

However consider; a KWh of power offset or even injected to the grid by a net metering customer is in all likelihood a KWh-equivalent volume of water not released from a hydroelectric dam, or a KWh of electricity not imported from another grid. Changing environmental conditions suggest keeping water 'in the bank' is increasingly important, and having more and diverse 'green' source options to draw on always benefits power commodity traders, meaning it is likely in the best interests of BC Hydro to continue to increase the number of Net Metering Customers.

Finally; the revenue stream from surplus generation can be an important consideration in financing a PV installation for many small customers who are taking on debt to finance their installation. The existing tariff logically enables maximizing return on investment by maximizing the size of system installed at one time to leverage economy of scale during installation. However, by the same token, customers with unlimited financial means are going to invest in and host very large systems, thereby maximizing their revenue stream via surplus generation.

That said, I feel the proposed interim measure is overly simplistic and harmful to the public interest in several respects:

Limitation of total generating capacity

- A hard (and potentially very small) limit on permissible generating capacity at time of initial approval will materially impact future expansion for customers without vast means. Consider a customer who chooses to install solar now in anticipation of being able to afford an electric car later; what additional costs will be incurred to reapprove, re-permit, and then physically install the additional PV capacity to meet the consumption requirements of that electric car? Similarly, if the customer experiences a small but permanent increase in consumption going forward how can it be cost effective to offset by making a miniscule (say 300 watt) system expansion that bears all the same cost overheads as the original installation.
- Using sum of nameplate capacities as the measure of generating capacity effectively limits customers to selecting microinverter-based systems to ensure the system can be scaled in small enough increments to exactly match the determined permissible generating capacity, thereby collapsing much of the market for PV equipment salvage & reuse. E.g. high voltage PV string inverters are often sized in multiples of thousands of watts, rather than hundreds. If a proposed 2.8Kw string inverter were, say, 0.3Kw over the calculated permissible capacity that otherwise perfectly functional equipment would be rendered useless.
- Sizing based only on nameplate capacity does not speak to other practical possibilities for limiting generating capacity such as programmable system derating, limiting generating capacity through deliberate under-sizing of strings (in order to leverage equipment on hand), etc.

Determination of generating capacity limit

- The proposed model fails to consider the additional impediments to generation of nameplate capacity due to non-optimal panel siting and limits on optimal orientation (eg. flush mount on existing roof vs. a two-axis solar tracker), shading at the site due to terrain, as well as varying average weather conditions throughout the diverse climactic zones where BC Hydro customers are located (eg. Westbank vs. Tofino vs. Atlin).
In many rural customer installations generation will significantly underperform in winter due to shading by terrain and thus need to be offset by 'excessive' generation in summer, to achieve the maximum permitted generation implied by a 'nameplate' calculation. A quick exploration with the well-respected PVWatts system sizing tool shows a capacity reduction of some 16% from nameplate, based simply on the orientation of my roof, before considering the roof is also completely shaded by terrain for almost three months of the year.

Proposed consumption modelling strategy

- A simple total of prior year actual consumption is subject to significant undocumented influences. Consider the impact of an unexpectedly cold winter weather on energy consumed by a customer with electric space heating immediately before modelling consumption occurs vs. the winter after. Similarly a change in household makeup can have a substantial impact on observable consumption - a cursory analysis of my own consumption history shows a 43% reduction in energy consumption year-over-year since the sudden, untimely death of my wife. It follows that BC Hydro is proposing to curtail my future generating capacity based on my widowhood, and I should come back and reapply to expand my system when I'm in a new relationship?
- In situations where there is no historical consumption data, theoretical comparables may be contrary to actual consumption once the customer goes online. Consider a new mobile home; a small, relatively low value property - which suggests correspondingly low consumption, but typically has poor insulation and exclusively resistive electric heating. A large architected executive home on the other hand with much glass; a vast, sprawling, high value property - suggests high consumption, but is likely to be built with excellent insulation and a complex electric ground-source heat pump system with high COP.

Opportunity for abuse of model

- The proposal contains a perverse incentive. Consider; if the permissible generating capacity is established as a function of recently documented consumption then it incentivises customers with means to waste energy to create increased overall consumption, and then to simply capitalize the costs of that wasted energy as a component of their project startup. In the long term that one time expenditure will likely be more than offset by the artificially increased maximum permitted generating capacity, thwarting the stated objective of the proposed amendments to eliminate designed surpluses.

Instead of the current proposed amendments which, while theoretically only temporary pending a full tariff review, will have concrete and forward reaching impacts on any new Net Metering customers in the interim, I would like to see BC Hydro take steps to directly disincentivize grossly oversized systems. Options might include;

- The Residential ePlus tariff, which was a mechanism that was established to provide a mutually beneficial arrangement between BC Hydro and certain opt-in customers, contained a 'circuit breaker' clause; a unilateral right to shed those customer loads in event of a regional electrical capacity shortfall - that precedent could be used to empower BC Hydro with a unilateral right to suspend accumulation of surpluses during clearly defined 'harmful' circumstances, such as excess overall generation such that their power commodity trading team might be forced into paying to offload excess power to other grids.
Such a clause might consider candidates for suspension in descending order of documented system overcapacity.
- Responding directly to the complaint of multiple meters on a premises for the purpose of exploiting the structure of the tariff; require customers to first offset net surplus generation occurring on one account with consumption occurring on other accounts owned by that same customer, either at same building (ie. single premises with a second meter dedicated to Net Metering), within a geographic location (eg. two dwellings on the same legal parcel, or serviced by same branch of primary line voltage circuit), or perhaps entirely without a locational restriction. Furthermore; it might be to the benefit of the program overall to consider a mechanism by which one customer could elect to 'assign' their surplus generation to another customer on an enduring basis, such that customers could 'contribute' green electricity directly to worthy causes (parents/children, charities, etc.)
- Perhaps most simply; implement a basic sliding scale or diminishing band calculation for surplus generation payouts, such that grossly oversizing a system ceases to yield any financial benefit but without enforcing a hard limit on generating capacity.
This approach would seem to be the most straightforward to quickly implement and most effective against gross oversizing, without imposing real, concrete limitations on installed systems only to perhaps have those limitations reversed when the comprehensive tariff review is completed.
Eg. if a customer wishes to 'build now to benefit later' such as with sizing a system in anticipation of future purchase of an electric car they are not then incentivized by the tariff to skip the car and take a fat annual cash payout from BC Hydro instead.

Yours,

Kris Boutilier