

Summary Notes

Residential Rate Design Stakeholder Workshop

May 19, 2021

WebEx

Meeting Type	Residential Rate Design Workshop – Stakeholders
Agenda	<ol style="list-style-type: none"> 1. Opening Remarks 2. Background and Context 3. Jurisdiction Review 4. BC Hydro Residential Customers 5. Rate Design Concepts and Pricing 6. Next Steps and Closing Remarks
Abbreviations	BCUC British Columbia Utilities Commission RS Rate Schedule
Presentation	Link to Presentation
BC Hydro Presenters	Keith Anderson, Anthea Jubb, Shiau-Ching Chou, Rob Zeni, Chris Sandve
Attendees	See Appendix A
Presentation Summary	<p>AGENDA ITEM #1 – Opening Remarks</p> <p>Keith Anderson made a land acknowledgment, welcomed the group to the session, and presented the agenda before highlighting the session objectives.</p> <p>AGENDA ITEM #2 – Background and Context</p> <p>Anthea Jubb provided the regulatory context, residential rate design history, background about the Residential Inclining Block (RIB) Rate and its design along with its performance. Examples of customer and stakeholder feedback were provided along with highlights from the December 2020 customer survey.</p> <p>Rate design costs and economics were reviewed before points were conveyed to explain the impacts of fully allocated cost of service study and rate design. An overview of BC Hydro’s economic environment was provided to provide context to the current load resource compared to the energy load resource balance that has shifted since 2008 resulting in the marginal cost of energy to BC Hydro in 2020.</p> <p>AGENDA ITEM #3 - Jurisdiction Review</p> <p>Anthea Jubb presented five rate designs and the benefits of each before sharing comparable Canadian and US Pacific Northwest utility residential rate designs, including basic charge. Examples of US utility segmentation, rate options, plus end use and time varying rates were explained.</p> <p>AGENDA ITEM #4 – BC Hydro Residential Customers</p> <p>Shiau-Ching Chou started this section by explaining how a customer centric view was taken during the demographic analysis of customers within BC Hydro’s service territory that includes non-integrated areas. A summary of the number of customers</p>

	<p>and revenue for eight rate schedules was reviewed before participants learned about Residential Inclining Block rate customer characteristics and were provided insight that becomes apparent when households are segmented in the following ways:</p> <ul style="list-style-type: none"> • Electrically heated house/duplex • Apartments • Low income • High consuming • Electric vehicle households <p>AGENDA ITEM #5 – Rate Design Concepts and Pricing</p> <p>Rob Zeni outlined some of the considerations that need to be considered as he reviewed each of the default rate design concepts and voluntary rate design concepts along with associated illustrative pricing examples.</p> <p>AGENDA ITEM #6 – Next Steps and Closing Remarks</p> <p>Chris Sandve encouraged everyone to complete the online feedback form, join future engagement efforts, and contact Regulatory with any questions before thanking participants for attending the session. Presenters then stayed online and responded verbally to questions and comments within the chat that had not been addressed during the presentation.</p>
--	--

Questions and Answers:

1. Segmentation Insights

- **What is the breakdown in consumption between residential and commercial customers? What do commercial pay in those high demand times?**
 - Based on the fiscal 2020 data, Residential Rates class customers consume approximately 35% of the BC Hydro’s total domestic energy, while Commercial customers on General Service Rates consume approximately 37%.
 - The Small General Service rate includes a daily Basic Charge and an Energy Charge (per kWh). The Large and Medium General Service rates, in addition to the daily Basic Charge and the Energy Charge (per kWh), include a Demand Charge. The Demand Charge is based on the maximum kW registered during the billing period.
 - Details on BC Hydro’s current Residential and General Service Rates are available on our website at:
 - [Residential Rates](#)
 - [General Service Rates](#)
- **What portion of the electricity used in apartments that is paid by the renter (or strata in condos) and tenant (or unit owner in condo)?**
- **What portion of the low, medium, high consuming customers is paid by owners (or strata vs renters (or unit owner)?**
 - BC Hydro does not have all the necessary data fields on apartment customer accounts to perform the analysis requested.
- **What % of total residential energy is consumed by high consuming customers? Are those customers Grow-ops?**

Questions and Answers:
<ul style="list-style-type: none"> ○ Based on fiscal 2020 data for Zone I, high consuming customers (over 30,000kWh/year) represent 1.8% of the total residential customer base and consume approximately 10% of total residential energy.
<ul style="list-style-type: none"> ▪ What % of customers fall below the average monthly residential consumption? What % of total residential energy is consumed by the top 1%, 5% and 10% of customers? <ul style="list-style-type: none"> ○ The average monthly consumption of the Zone I residential customer class is 836 kWh and approximately 62% of residential customers use less than this amount per month. ○ The same dataset reveals that the top 1% of customers, by consumption, use 7.6% of total residential energy, the top 5% use 19.1%, and the top 10% use 29.7%.
2. Rate Design
Cost of service
<ul style="list-style-type: none"> ▪ I think that looking more closely at slide 55 and cost of service is worth further exploring, please. This probably reflects on "income" related aspects as well. ▪ Is a breakdown of Fixed, Variable and Demand related costs available for different housing and heating types? <ul style="list-style-type: none"> ○ BC Hydro's current cost of service study is based on the costs to serve each rate class (Residential, Small General Service, Medium General Service, Large General Service, Irrigation, BC Hydro owned Street Lighting, Customer Owned Street Lighting, Transmission). It is not broken down on a granular level based on dwelling or heating types.
<ul style="list-style-type: none"> ▪ Re 'cost basis is the foundation', earlier comment seemed to imply that the tiered rates that were presented were not cost neutral by rate level, but overall, for the residential class. So if it is possible in that case, why would it not be possible based on income? by 'tiered rate' I mean the segmentation by customer class <ul style="list-style-type: none"> ○ The current Residential Inclining Blockrate was designed to be revenue neutral to the rate in place prior to 2008. The higher Step 2 rate reflected BC Hydro's forecasted long run marginal energy cost at the time, therefore the rate had a cost of service justification.
<ul style="list-style-type: none"> ▪ Would the segments be revenue neutral? <ul style="list-style-type: none"> ○ Further work would be required to address this question.
Design
<ul style="list-style-type: none"> ▪ I prefer the idea of "Optimized" rates. BCH calculates what the least cost is for each customer, and could be based upon smart-meter feedback, and automated load management. <ul style="list-style-type: none"> ○ Thank you for your feedback.
<ul style="list-style-type: none"> ▪ If BC Hydro "optimized" our bills, we could collectively reduce use during high export prices, at peaks, and help domestic customer's costs be offset by increased export prices. Is this worth considering?

2. Rate Design
<ul style="list-style-type: none"> ○ Further work would be required to explore this concept.
<ul style="list-style-type: none"> ▪ Low Income: How about a "proportional", truly inclining rate structure, where very low users pay a very low rate, and very high users pay a very high rate on their very high use? Has BCH considered a truly inclining rate? <ul style="list-style-type: none"> ○ Further work would be required to explore this concept. As discussed during the presentation, currently approximately 90% of our cost recovery is through the energy charge, resulting in higher consuming customers paying a greater proportion of the costs of service for the overall residential customer class.
<ul style="list-style-type: none"> ▪ On what basis is the increased threshold suggested at 900 kWh per month? How does this line up with average monthly energy use for EV charging? <ul style="list-style-type: none"> ○ 900kWh was used as an illustrative example. However, as an example, if an EV requires 2,800 kWh per year for charging, this results in approximately 233 kWh per month for charging. If this amount is added to the current threshold (675 kWh per month), it is coincidentally very close to the 900kWh per month threshold used in the presentation.
Voluntary vs mandatory
<ul style="list-style-type: none"> ▪ Why is the TOU rate proposed as a voluntary rate, rather than as a default rate? ▪ Does BC Hydro feel constrained for policy reasons to offer these rate design changes on a voluntary basis, rather than on a mandatory basis? <ul style="list-style-type: none"> ○ Most North American utilities that have time varying rates have implemented them on a voluntary basis (opt-in or opt-out).
<ul style="list-style-type: none"> ▪ Wouldn't a voluntary rate approach create too much revenue uncertainty? <ul style="list-style-type: none"> ○ Revenue uncertainty is a normal part of BC Hydro's operations. Changes in weather is an example of a factor that introduces revenue uncertainty. We do not anticipate a voluntary rate would introduce an unmanageable level of revenue uncertainty.
<ul style="list-style-type: none"> ▪ Are mandatory, opt-in, and opt-out TOU rates still on the table or is there already a decision, direction, or sentiment that it should be opt-in? <ul style="list-style-type: none"> ○ BC Hydro is still analyzing how a time of use rate could best be implemented.
<ul style="list-style-type: none"> ▪ How does BC Hydro assess the risk of free ridership when a rate is offered on a voluntary basis, i.e. that the customers who use this rate will be those who gain the greatest advantage with the least change in their energy consumption, thereby increasing costs to other ratepayers? <ul style="list-style-type: none"> ○ Thank you for the question that highlights one of the many factors that would need to be considered if there is support for BC Hydro exploring the design of voluntary rates.
<ul style="list-style-type: none"> ▪ Given that historically BC Hydro rates have very seldom changed in structure, is it realistic to assume we will 'try' opt-in rates for a while and then eventually shift to opt-out or mandatory? Under what timelines do we assume the next revision of rate structure would happen?

2. Rate Design
<ul style="list-style-type: none"> ○ Any changes to the current rates are subject to the timing association with the development and submission of an application to the BCUC followed by a regulatory proceeding. It is anticipated that the proceeding may take 8 – 12 months to conclude and historically rate changes have been evaluated for three to five years.
<ul style="list-style-type: none"> ▪ If TOU is opt-in, what is the 'logical' alternative rate? status quo with current RIB, a flat rate (if so, based on what assumptions)? is there a clear assumption as to what the alternative to TOU would be? <ul style="list-style-type: none"> ○ No assumptions are being made about TOU alternatives. BC Hydro is engaging Stakeholders for feedback about which rate designs to explore.
TOU – Encouraging load shifting
<ul style="list-style-type: none"> ▪ How have TOU rates worked for shifting loads from peak use? <ul style="list-style-type: none"> ○ BC Hydro has studied the impacts of time varying rates in limited pilots and found that participants were very responsive to price signals. In an evaluation of the default time of use rate implementation in Ontario, a 3% reduction summer peak demand was achieved for residential customers.
Special group rate
<ul style="list-style-type: none"> ▪ Can we have a non-profit housing sector rate? <ul style="list-style-type: none"> ○ BC Hydro is not aware of any precedent or basis for such a rate.
<ul style="list-style-type: none"> ▪ Can you comment on whether it would be difficult to base a rate class based on income - i.e. how hard would it be for BC Hydro to administer a low-income rate? What are the complexities there that we might not think about? <ul style="list-style-type: none"> ○ A low income rate was examined during BC Hydro's 2015 Rate Design Application, and more information is available at (bcuc.com, 2015 RDA)
<ul style="list-style-type: none"> ▪ CleanBC and other stakeholders are pushing vehicle and home heating electrification, the latter also in Indigenous communities, which in most cases increases energy burden/poverty. Would BC Hydro consider a rate subsidy for those who are decarbonizing/switching from gas to electricity? Esp. for low-income households? <ul style="list-style-type: none"> ○ Currently BC Hydro administers energy efficiency and fuel switching programs with support from the federal and provincial government
<ul style="list-style-type: none"> ▪ Is BC Hydro considering an electric heating rate class? This could encourage fuel switching or at least not penalize it. <ul style="list-style-type: none"> ○ BC Hydro is exploring end-use rates for electric vehicles and heat pumps while encouraging suggestions for other rate design concepts.
<ul style="list-style-type: none"> ▪ Is BCH considering the use of the embedded meter in charging stations for a potential end use rate for EV charging? A handful of utilities in the US have piloted sub-metering with embedded metrology for EV charging end-use rates.

2. Rate Design
<ul style="list-style-type: none"> ○ BC Hydro is conducting a small-scale pilot to determine if a third-party device is suitable for end use billing.
<ul style="list-style-type: none"> ▪ What about the reality that many rural and semi-rural do not have access to natural gas. What about bringing back a rural rate? And you said BC Hydro is in surplus, but you didn't mention when that will change. <ul style="list-style-type: none"> ○ Thank you for the suggestion to consider a rural rate; slide 24 forecasts an energy surplus until approximately 2030.
Bill impact
<ul style="list-style-type: none"> ▪ What percentage of RIB customers would have a higher bill under a flat rate design than under the RIB rate, assuming no change in consumption pattern and assuming the same revenue received by BCH? <ul style="list-style-type: none"> ○ This could be determined with a financial analysis when we have narrowed down which rate design concepts to examine more closely.
Process
<ul style="list-style-type: none"> ▪ When may this come into effect? <ul style="list-style-type: none"> ○ Any changes to the current rates are subject to the timing association with the development and submission of an application from BC Hydro to the BCUC followed by a regulatory proceeding. It is anticipated that the proceeding may take 8 – 12 months to conclude.
Real-time pricing
<ul style="list-style-type: none"> ▪ Do you have any further comments about real-time pricing and rates please? <ul style="list-style-type: none"> ○ BC Hydro did not include real time pricing as one of the concepts to be explored for residential customers at this time.
Residential Inclining Block rate (RIB)
<ul style="list-style-type: none"> ▪ Did it (the RIB rate) achieve energy savings, or fuel-switching? (e.g. people adding a gas fireplace, which is less efficient and more carbon intensive?) <ul style="list-style-type: none"> ○ Our analysis shows that the RIB achieved its energy conservation objectives. Residential end-use surveys have indicated that there has been some growth in the use of other fuel sources for primary or secondary home heating during the study period.
<ul style="list-style-type: none"> ▪ Does the RIB step 1/2 threshold include MURBs? Or just single-family homes? ▪ Is the RIB step 1/2 threshold based on all houses, or electrically heated space and water houses? <ul style="list-style-type: none"> ○ The Step 1 to Step 2 threshold is based on approximately 90% of the median consumption of all BC Hydro residential customers, including multi-unit residential buildings (MURBs) and single-family homes, and is applicable to all dwelling types regardless of space / water heating source.
<ul style="list-style-type: none"> ▪ What is the likelihood of getting rid of the step charge?

2. Rate Design

- The likelihood of moving forward with a particular rate design depends on how it performs against the rate design objectives (see slide 26) and in consideration of feedback received during customer / stakeholder engagement sessions.

Other

- **Could BC Hydro provide "comfort" and "convenience" instead of just electricity, allowing BCH to finance reinsulating instead of new capital projects?**
 - BC Hydro offers several programs and incentives with support from the federal and provincial governments to help customers improve the energy efficiency of their homes and receive incentives to assist with energy efficient upgrades.
- **Electrically Heated SFD: If electrically heated homes have double the cost, then having heat pumps would reduce the cost by 2/3, and they would end up being equal. Thus, this would obviate a rate effect change. Why change rates when technology could be a better solution?**
 - Rates are applied to all customers whereas technology is optional and may not be installed or used.

3. Electrification

- **Can rate design (in general) take into account other non-rate barriers to electrification such as connection fees (i.e. shifting costs to rates)? This is less applicable to residential but is an issue with commercial and multi-residential projects.**
- **Concerning service connection time and costs, certain residential building categories face significantly more costs and delays in order to electrify. Will BC Hydro be looking at ways to address these barriers for different types of residential buildings, and if so, where does that fit into the process?**
- **Electrification for climate barriers may include electrical service expansion costs as well, is that part of the residential rate design efforts?**
 - Service connection charges are standard charges that are included in the Electric Tariff and any proposed changes would require an application to the BCUC.
 - BC Hydro is considering ways to address the challenges of retrofitting older services to accommodate new loads such as EV charging while also determining any improvements to accommodate electrical loads not originally envisioned during service installation.
 - Depending on the number of chargers and technology being proposed in a MURB, EV charging loads can be significant and may have an impact to BC Hydro's distribution system. The costs to add to or increase the capacity of the BC Hydro system as a result of new customer loads are allocated less any contributions from BC Hydro in accordance with the system extension provisions of the Electric Tariff.
 - The consideration of electrical service expansion costs is part of provincial EV rebate program managed by BC Hydro that helps offset the cost of planning and installing the necessary electrical infrastructure to support your current or future EV charging needs.

4. BC Hydro Programs
<ul style="list-style-type: none"> ▪ What opportunities will there be for residential owners to put electricity back into the grid similar to Arizona? <ul style="list-style-type: none"> ○ BC Hydro's Net Metering program allows customers to send electricity back to the grid to receive credits on future bills.
<ul style="list-style-type: none"> ▪ We presently have an energy surplus and will until 2030 and yet BC Hydro is taking away the E-Plus program (the program was originally pitched as utilizing energy surplus - which we still have). Why is the E-Plus program being terminated? <ul style="list-style-type: none"> ○ The BCUC concluded during the 2015 Rate Design Application that the residential E-Plus rate could no longer be justified and ordered BC Hydro to phase out the rate. ○ For additional information please refer to our E-Plus rate updates page.
<ul style="list-style-type: none"> ▪ I am interested in seeing the results of the space and water heating load management trials BC Hydro has run in the past few years. <ul style="list-style-type: none"> ○ Results are expected to become available as ongoing trials and evaluation develop
<ul style="list-style-type: none"> ▪ Load management can dramatically shift the demand loads and costs. Retrofits can dramatically reduce the energy load and costs, but we need vastly increased funding for this. How can we accomplish this? <ul style="list-style-type: none"> ○ BC Hydro currently offers three programs to assist customers with reducing energy loads including the Home Renovation Rebate Program, the Low-Income Program, and the Non-Integrated Areas Program.
<ul style="list-style-type: none"> ▪ I think an integrated approach is needed: BC Hydro helps finance retrofits, heat pumps and then uses rate design, once we have reduced heating demand, then the HP technology, then lastly use rates - is this a preferable approach? ▪ What if BC Hydro financed re-insulation and upgrades to windows, to reduce costs, instead of changing the rates? ▪ Regarding programs for homeowners to retrofit their homes to be able to create electricity and lower their annual electricity costs. Is BC Hydro considering this? <ul style="list-style-type: none"> ○ BC Hydro financing offers in the past resulted in low participation levels and instead now focuses on offering programs and incentives with support from the federal and provincial governments to help customers improve the energy efficiency of their homes and include incentives to assist with energy efficient upgrades. ○ A rate design that is cost reflective and encourages the efficient use of electricity can help keep costs low for all customers.

Appendix A

List of Attendees – Residential Rates Design Workshop - May 19, 2021

Last name	First name	Organization
Andrews	Bill	
Barisky	Tina	City of Vancouver
Baynham	Maggie	City of Burnaby
Beamish	Bill	Town of Gibsons
Behal	Gaurav	
Behra	Leya	City of New Westminster
Blanchett	Tyler	BCNPHA
Bouvet-Boisclair	Gabriel	
Bryenton	Roger	
Buchanan	Jack	Technical Advisory Committee (IRP)
Caraher	Pat	
Chan	Vickie	BC Hydro
Craig	Margaret	City of Nelson
Craig	Shannon	
Cumming	Victor	City of Vernon
Cutler	Scott	BC Government
Demare	Sal	
Dennis	Greg	EGBC
Domingo	Yolanda	
Fisher	Jeffrey	
Foster	Gary	
Frappé-Sénéclauze	Tom-Pierre	
Gasser	Lina	Village of Hazelton
Goldberg	Suzanne	
Good	Matt	Midgard Consulting
Greeno	Matt	City of Vancouver
Hackney	Tom	Technical Advisory Committee (IRP)
Helland	Peter	
Hereema	Dylan	Eco Trust
Ho	John	Township of Langley
Hopkins	Mike	Technical Advisory Committee (IRP)
Jones	Avery	BCUC
Jung	Brian	BCNPHA
Kailley	Sonu	Metro Vancouver
Khawaja	Nasra	BC Hydro
Leflufy	Greg	City of Kamloops
Lensink	Larisa	City of Maple Ridge
Mackinnon	Bill	BC Housing
McCuaig	Amanda	
Mclaren	Andrew	Intergroup
Moore	Kathleen	City of Rossland
Nelson-Smith	Heather	Municipality of Port Hardy

Last name	First name	Organization
Oszust	Ron	Town in Golden
Polderman	Jan	Village of Lytton
Quail	Jim	Technical Advisory Committee (IRP)
Radhakrishnan	Harshan	BSSB
Ramlu	Kevin	ZEBx
Richards	Sean	BCUC
Ross	Laurel	
Rowan	Ann	
Rupp	Pauline	
Sailland	Daniel	Town of Qualicum Beach
Sampliner	Laura	City of Vernon
Sheergar	Rizwin	BC Hydro
Sinclair	Corey	
Sopinka	Amy	Government of BC
Spencer	Scott	City of Nelson
Stamer	Ward	Municipality of Barriere
Surendran	Ajeen	
Upadhyay	Rohit	City of Victoria
Vaughan	Nicola	
Verhulst	Glenys	
Walsh	Sarah	Fortis BC
Weimer	Jim	
Whittal	Martine	BC Government
Wieringa	Paul	Technical Advisory Committee (IRP)
Wong	Hugo	City of Vancouver
Young	Brandon	BC Hydro