

Meeting	Technical Advisory Committee – Meeting #3b Capacity Focused Rate and Demand Side Management Options
Date	June 24, 2020 – 1:30 p.m. to 3:30 p.m.
Location	Webex Virtual Meeting
Committee attendees (participants and alternates)	BC Hydro – Committee Chair & Presenter – Kathy Lee BC Hydro – Committee Moderator & Presenter – Basil Stumborg BC First Nations Energy & Mining Council – Cam Osler BC Utilities Commission – Nicola Simon BC Utilities Commission – Kristine Bienert BC Utilities Commission – Yolanda Domingo Canadian Association of Petroleum Producers (CAPP) – Geoff Morrison City of Vancouver – Matt Horne Clean Energy Association of BC – Nuno Louzeiro FortisBC (Electric) – Ken Ross Pembina Institute – Tom Pierre Frappé-Sénéclauze Pembina Institute – Hoda Talebian University of Victoria – Andrew Rowe
BC Hydro attendees	Anthea Jubb – Presenter Paulus Mau – Presenter Eddie Young – Presenter Kristin Hanlon – Presentation support Tony Chu – Presentation support Kala O’Riordain – Presentation support Arsia Assadipour Bill Clendinning Dale Flood Chris Sandve Amanda Ward Anne Wilson
Meeting materials	Presentation slides

Welcome & Introduction

Presented by Basil Stumborg (Slides 1-15)

Summary of Comments

The session began with Technical Advisory Group (TAC) participants summarizing their interests in this session after pre-reading the slides. TAC participants wanted more specifics about demand-side management (DSM) and capacity rate design in an energy surplus environment, and how those initiatives align with separate streams of low carbon electrification programs. Specifically, how DSM is used as a resource option when trying to attract load through electrification.

There was also discussion about the technical aspects of some of the rate design proposals, what would or potentially could be modelled for the next IRP, versus what would be more in scope to be considered as part of BC Hydro's future rate design applications.

Capacity Focused Rate Design Options

Presented by Anthea Jubb / Paulus Mau (Slides 16-24)

Summary of Comments

TAC participants had multiple questions about time-of-use rates and how those are being modelled in the IRP. TAC participants cautioned BC Hydro about ensuring any time-of-use rate design needed to incorporate customer opt-out provisions, and there were further questions about the conceptual nuances on how a time-of-use rate would be design and applied.

Load shifting as a capacity benefit of time-of-use rates also attracted a lot of discussion, including questions about load shifting volumes and its applicability to new loads brought on by electrification initiatives (EVs).

Q&A Notes

Q: Would customers who opt out of a time-of use rate then receive a flat rate design? Would the demand charge apply for the customer if they opt out?

A: In our modelling, BC Hydro is assuming that any customers that opt-out of a time-of-use rate will maintain their existing demand at a flat rate charge. We are not proposing or modelling any changes to customer demand charges.

Q: What are the nuances of a mandatory time-of-use rate?

A: BC Hydro is not considering, nor is it modelling, a mandatory time-of-use rate. The rate design being modelled is a default time-of-use rate with a fully available customer opt-out.

Q: Does the modelling of these capacity focused rates assume a flat rate as the default? Is there an interaction between a tiered rate and these capacity focused rates?

A: Confirmed, they do assume a flat rate as a starting default. The interaction between tiered rates and capacity focused rates has not been modeled nor considered for the IRP.

Q: A key resource options input into the IRP is MWs (energy) reduced by a time-of use rate design. What are BC Hydro's assumptions about the timing of this demand, where does it go?

A: Most evidence is there is peak shifting rather than load reduction, which is the basis of the IRP model. We are going to be conducting more research to consider any evidence of demand reduction versus demand shifting.

Q: How is decarbonization (or fuel switching away from oil and gas) being considered in rate design options?

A: BC Hydro does not directly take into account the benefits of decarbonization into our IRP modelling. However, time-of use pricing is the most conducive to EV loads, as it has a high degree of suitability to the type of load that can be shifted to off-peak (e.g. overnight charging).

Q: Have you researched peak shaving vs peak shifting impacts for medium and heavy duty electric vehicles on a time-of-use rate?

A: We have not done this research for medium and heavy-duty vehicles. However, light duty vehicle owners that use time varying rates in other jurisdictions have shifted 75%-95% of their vehicle charging to super off peak.

Demand Side Management Options Presented by Eddie Young / Kristin Hanlon (Slides 25-45)

Summary of Comments

BC Hydro presented the slides on DSM options. TAC participants had several detailed questions about how BC Hydro is modelling and administering DSM programs. Topics of interest included how BC Hydro captures savings from DSM, modelling DSM savings from codes and standard development, and the role of DSM to help shift a capacity deficit for the overall system.

Q&A Notes

Q: Can we assume spend on DSM programs only at start of an initiative, and not ongoing over 20 years? For example, do things drop off after year 10?

A: BC Hydro is assuming funding is available over the full span of a program (20 years for this example). However, energy savings only persist for a certain length of time. For example, if we fund heating, ventilation, air conditioning (HVAC) efficiency improvements, BC Hydro would only claim savings for the life of the equipment (10+ years), because we would then assume that after a 10-year period any savings that continue are no longer attributable to us. However, customers could continue to realize those savings by selecting the same or an even more efficient technology at end of life.

Q: Does BC Hydro look at capacity savings potential from building codes (e.g. building codes that require time-controllable EV charging or water heaters)?

A: BC Hydro's model does consider existing building codes and standards but had not incorporated conceptual or future codes and standards.

Q: Can we get comment on what year a capacity deficit is forecast for the overall system, and how DSM demand response programs could help that? Do you have any examples on a regional basis?

A: Based on our last supply demand outlook, the deficit period for the overall system is mid 2030s. We are updating the outlook and will come back in July to further the discussion. DSM demand response would help when we have a deficit need. We are looking at demand response to defer transmission needs as well. On a regional basis, as an example, Vancouver Island/Lower Mainland serving EV in these regions could have a huge impact on load, demand-response would significantly help BC Hydro manage this potential load growth.

Q: When portfolio analysis is done to capture capacity and energy savings, can you talk about other impacts of DSM programs are captured. Example, jobs, economic development?

A: BC Hydro's model optimizes for system constraints for energy across the province in a least cost way, which gives us an optimal portfolio from a net-present value. With that optimal portfolio, we can add other impacts like employment, economic development and greenhouse gas reduction, and add in various uncertainties, and perform sensitivity analysis to those uncertainties.

Q: How can lost opportunities related to DSM programs be captured in IRP planning or modelling? Is there a way to quantify? Example – a refrigerator buyback program can be offered at any time without losing that energy-savings opportunity, however with other programs (e.g. new construction, or replacing equipment that has failed) the opportunity for

savings is lost opportunity if not captured at that time. Is there a way to quantify this and incorporate in the IRP modelling?

A: BC Hydro has tried to quantify this in the past, but to date has not done so for the DSM IRP options. This might be more in scope for a discussion on evaluation framework (i.e. how the various IRP options are evaluated/traded off). We will have to think about whether we can capture or quantify, and whether it can be included in IRP assessment.

Session Schedule & Next Steps Presented by Basil Stumborg (Slides 46-48)

The next steps component of this conversation was not held due to time constraints. However, below is a summary of commitments BC Hydro made during the session.

Consideration of TAC Meeting Feedback

TAC Member Feedback	Consideration
Who pays for a connection fee for solar generation? There are conversations that this is a large barrier to entry.	In July, we will consider solar in the context of distributed generation and how our net metering tariff could impact solar as well as options for removing barriers.
Space heating and other load for off peaking, understanding the trade offs of such a policy, has BC Hydro considered this? How sensitive is the load to be added from various low-carbon electrification initiatives?	This may be of more focus for BC Hydro's future rate design applications. However, BC Hydro will take this back and give this more thought.
Can we get comment on what year a capacity deficit is forecast for the overall system	We are updating the outlook and will come back in July to further the discussion.
When portfolio analysis is done to consider energy and capacity gaps, there are multiple parameters considered (GWh of MW, jobs etc.). Can you talk about where these other attributes are captured and quantified? Where does the TAC provide input on these?	As noted above, we consider these additional attributes after determining the optimal portfolio from a net present value perspective. We will bring forward a preliminary discussion of the attributes we will consider in July and then the modelling results in September will allow us to compare.

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