

Meeting	Technical Advisory Committee – Meeting #7 Portfolio Modelling & Self-Sufficiency
Date	December 16, 2020 – 9:00 a.m. to 3:30 p.m.
Location	WEBEX Virtual Meeting
Committee attendees (participants and alternates)	<p>BC Hydro – Committee Chair & Presenter – Kathy Lee BC Hydro – Committee Moderator & Presenter – Basil Stumborg Association of Major Power Consumers (AMPC) – Melissa Davies BC First Nations Energy & Mining Council (BCFNEMC) – Cam Osler BC Public Interest Advisory Council (BCPIAC) – Irina Mis BC Public Interest Advisory Council (BCPIAC) – Leigha Worth BC Sustainable Energy Association (BCSEA) – Thomas Hackney BC Sustainable Energy Association (BCSEA) – Bill Andrews BC Utilities Commission (BCUC) – Nicola Simon* Canadian Association of Petroleum Producers (CAPP) – Geoff Morrison Clean Energy Association of BC (CEBC) – Stephen Cheeseman Clean Energy Association of BC (CEBC) – Peter Zell Climate Action Secretariat – Chris Gilmore Commercial Energy Consumers (CEC) – David Craig City of Vancouver – Matt Horne FortisBC (Electric) – Mike Hopkins FortisBC (Gas) – Ken Ross Ministry of Energy, Mines and Petroleum Resources (MEMPR) – Jack Buchanan* Ministry of Energy, Mines and Petroleum Resources (MEMPR) – Paul Wieringa* Movement of United Professionals (MoveUP) – Jim Quail Pembina Institute – Tom Pierre Frappé-Sénéclauze Pembina Institute – Hoda Talebian * MEMPR and BCUC members attend as observers</p>
BC Hydro attendees	<p>Daniel O'Hearn, Powerex – Presenter & Subject Matter Expert Bill Clendinning Anne Wilson Tony Chu Sanjaya De Zoysa Dale Flood Amy Pryce-Phillips Chris Sandve Doug Robinson Magdalena Rucker Alex Tu</p>
Meeting materials	Presentation slides

Welcome & Agenda Overview

Presented by Basil Stumborg (slides 1-18)

Basil welcomed participants and outlined the meeting objectives and agenda for the day. The first two sections of the slide deck include background information on the portfolio modelling and decision framework elements. It outlines the approach to decision making in this IRP, including looking first at how to address the capacity question in the Lower Mainland and Vancouver Island region. The discussions today focused on initial results of the portfolio modelling for near-term energy and capacity choices including non-cost considerations of choices; as well as self-sufficiency and clean energy standards.

TAC members were also invited to fill out the survey/provide an attributed submission as part of the broader customer/public and Indigenous Nations consultation. TAC members will be provided with a pdf of the survey following the meeting, and for those that are participating will be due by the end of January 2021.

Near-Term Energy Choices

Presented by Basil Stumborg (slides 19-26)

Summary of Discussion

BC Hydro presented slides on the incremental value that demand-side management (DSM) energy efficiency and limited renewals of electricity purchasing agreements could play in meeting our energy needs beyond 2028. TAC participants had questions about the methodology used in this analysis and challenged BC Hydro to be broader in its review of DSM to ensure we are capturing its maximum potential in meeting prospective energy requirements.

Q&A Notes

Q: Does the DSM shown here represent all cost-effective DSM available? Will you test further the limits for additional DSM to meet system needs?

A: The “Base + Higher DSM” option (outlined in slide 22) is the highest level of DSM BC Hydro is currently modelling. These options shown are going up the cost curve (i.e. increasingly expensive options relative to expected savings) but may not represent the upper limit. We will take away, and consider, the suggestion there could be more cost-effective DSM available.

Q: How can energy efficiency add value during times of energy surplus?

A: Though it may seem counter intuitive, the costs incurred to save energy can be lower than the potential revenues gained by selling that saved energy into the market. And so, while reducing load will increase the energy surplus, the net financial impact is positive.

Q: How does the model deal with social and Indigenous impacts of the EPA renewals?

A: The model focuses solely on costs, i.e. what options are the most economic. However, BC Hydro can layer different objectives after modelling, such as social benefits or employment gains.

Q: Which spot market price forecast is used for energy modelling? Did you consider that these prices might be increasing in the future as carbon prices increase?

A: BC Hydro is using the market price forecast information for spot market prices. The numbers shown use the mid market price which includes the current view of the future path of carbon prices. This was presented at the end of TAC Meeting #6 and can be found in the meeting materials. BC Hydro can test the different portfolios to higher market prices under even higher carbon prices as a sensitivity.

Near-Term Capacity Choices Presented by Basil Stumborg (Slides 27- 50)

Summary of Discussion

BC Hydro recapped previous TAC materials about various options that could provide additional capacity, such as DSM energy efficiency programs or new rate structures. There were additional slides regarding the value of rate structures and demand-response tools to address capacity peaking, and the various uncertainties in modelling these options. Some TAC participants had several questions about Low Carbon Electrification (LCE) and vehicle electrification potential, and how much that plays into any future capacity deficit.

Q&A Notes

Q: Is the pairing of Demand Response options with rate designs for portfolio modelling purposes only, or is BC Hydro proposing to integrate them?

A: BC Hydro has combined Demand Response options for modelling purposes. We also think that we need to give customers technologies, such as load shifting timing devices, for them to truly take advantage of these rates. BC Hydro is looking into determining the right level of customer support.

Q: How big is our shortfall compared to potential Electric Vehicle (EV) growth in the planning horizon?

A: By 2040, the forecast shortfall is 2,000 GWh, approximately half of which is due to EVs.

Q: Why does BC Hydro's load forecast assume a 25 per cent reduction in EV peak (slide 34) attributable to actions outside of BC Hydro?

A: As a clarification, these percentage numbers refer to the percentage of EV drivers influenced to reduce their peak usage in some way. The assumption is 25 per cent of customers will be influenced to act outside of programs or incentives offered by BC Hydro. Examples include new codes or standards or natural behaviors. This 25 per cent shift has been built into our modeling.

Q: What are the risks to using rate design to shift capacity peak? Would this negatively impact BC Hydro's customers adopting EVs?

A: It is premature to say, as we don't know the balance of incentives and price increases/price differentials. For example, a clear price signal would incent positive behavior, such as acquiring a load-shifting timer for a home EV charger. The cost savings could act as a 'carrot' for potential EV purchasers.

Q: Would a rate design process be separate from this IRP?

A: We do expect to have processes separate from the IRP for rate design. The IRP may set broad direction or strategy for new rate structures, which will then have separate processes for specific design features and implementation.

Q: What resource options get deferred (not selected) in the model when the "Base + Higher DSM" option is selected?

A: Generally, all storage capacity options. Examples include batteries, pumped storage, small-storage hydro, small capital upgrades and the addition of Revelstoke 6.

Self Sufficiency & Clean Energy Standards

Presented by: Kathy Lee & Daniel O'Hearn (Powerex) (Slides 50-70)

Summary of Discussion

BC Hydro defined for TAC members two principles unpinning this IRP, (i) that BC Hydro will assume a 100 per cent clean energy standard; (ii) BC Hydro will examine the impact(s) of the elimination of self-sufficiency. BC Hydro then outlined the current planning position of assuming average water, and various planning positions that increase or decrease that potential for energy surplus or deficit. TAC members had several questions about BC Hydro's planning should there be extreme drought conditions, questions about the structured definitions of clean power, and various planning impacts about the elimination of self-sufficiency.

Q&A Notes

Q: Is there a universal definition for clean power?

A: Different jurisdictions use different definitions. BC Hydro uses the definition outlined by the Government of B.C. for clean power.

Q: Does the clean standard, when incorporating trade and the removal of self-sufficiency, assume BC Hydro will become a net importer of power?

A: No, that is not our current assumption. The slide regarding the clean standard provides an outline of standards in other jurisdictions. The intention is that the clean supply sold to others is not replaced by a non-clean supply to domestic customers.

Q: Other jurisdictions such as Hydro Quebec build for export. How will export potential be reflected in this IRP?

A: The purpose of an IRP in BC is to show how BC Hydro is preparing to serve domestic load. BC Hydro's trade with its neighbours is part of its ongoing operations. The government would need to give us a policy directive before building for export as part of long-term planning could become within the scope of an IRP.

Q: For planning purposes, what are BC Hydro's assumptions around critical water?

A: Critical water refers to the driest sequence of years on record in our 80-year database. This stretch of low inflows for B.C. occurred from 1942 to 1946.

Q: How does BC Hydro's modelling take into the account the potential of a severe drought?

A: The model that determines system capability includes 80 years of historical record and accounts for droughts, including a severe one lasting 3.5 years. The model also accounts for the fact that in years of drought, we may import power to serve load.

Tracking Follow-Up Items

BC Hydro staff have committed to following up on a number of questions that have been asked by TAC members in this meeting as well as in previous meetings. Responses to these follow-up items will be made available in subsequent meeting notes.

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