BC Hydro Integrated Resource Plan

Technical Advisory Committee Meeting #2a Summary Notes June 16, 2020

Session	Technical Advisory Committee – Load Forecast – Meeting #2a
Date	June 16, 2020 – 10:00 a.m. to 12:00 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 Academic Representative (UVIC) – Andrew Rowe Association of Major Power Consumers (AMPC) – Carlo Dal Monte BC First Nations Energy & Mining Council – Cam Osler British Columbia Utilities Commission (BCUC) – Nicola Simon British Columbia Utilities Commission (BCUC) – Yolanda Domingo British Columbia Utilities Commission (BCUC) – Kristine Bienert City of Vancouver – Matt Horne Clean Energy BC (CEBC) – Laureen Whyte Clean Energy BC (CEBC) – Nuno Louzeiro Commercial Energy Consumers Association of BC – David Craig Commercial Energy Consumers Association of BC – Janet Rhodes FortisBC (Electric) – Mike Hopkins FortisBC (Electric) – Ryan Steele
BC Hydro attendees	John Rich – Presenter Amanda Young – Presentation support Arsia Assadipour Bill Clendinning Dale Flood Margo Sadler Chris Sandve Amanda Ward Anne Wilson
Meeting materials	Presentation slides

Welcome & Introduction
Presented by Basil Stumborg (Slides 1-14)

Summary of Comments

The virtual Technical Advisory Committee (TAC) session began with introductory slides, and then BC Hydro moderating an 'expectations roundtable' with TAC participants on their specific areas of interest regarding load forecasting.

TAC Participants had a high degree of engagement on two topics – forecasting load growth for electrification initiatives, including electric vehicles (EVs), how BC Hydro is forecasting the impacts of the COVID-19 pandemic.

Secondary topics of interest included a desire to understand the load forecast at a more granular level, more details about the range of outcomes reflected in high and low uncertainty bands, and general questions about the assumptions underlying what's included in the forecast.

COVID-19 and the Load Forecast
Presented by John Rich (Slides 20-24, 38-40)

Summary of Comments

Discussion of the COVID-19 pandemic and its impacts on the load forecast and subsequent impacts to the Integrated Resource Plan (IRP) was ubiquitous throughout the presentation. TAC participants had a strong desire for more information about the April 2020 COVID-Adjusted Reference Load Forecast which was adopted as the reference case taking into account preliminary analysis of COVID-19 impacts. Specifically, what is included or not included in that forecast, does it remain viable and how is it tracking to actuals, which sectors are changing in this scenario relative to the pre-COVID load forecast.

TAC participants were also engaged with how BC Hydro will continue to monitor the COVID pandemic as it develops future iterations of the load forecast, cautioning BC Hydro to be flexible and alive to rapidly changing and unknown environments.

Q&A Notes

Q: The April 2020 COVID-Adjusted Reference Load Forecast has a similar load decline to the 2008 recession, what are the drivers?

A: The load declines in the reference forecast are primarily driven by declines in the commercial and industrial (e.g. forestry and mining) sectors. There are multiple discussions about the long-term impacts of COVID and how it might impact some industries. We are continuing to work through this information and it will be reflected in the next load forecast (December 2020).

Q: Is BC Hydro's April 2020 COVID-Adjusted Reference Load Forecast too conservative? Do short-term results indicate we are exceeding this forecast?

A: BC Hydro is tracking well to the reference forecast, but we are only two months into the dataset. Mining actuals are exceeding the forecast, but a second wave of COVID could depress commodity prices and impact mines later in the year

Q: How many months of actuals will be included in your next load forecast (December 2020)? With the possibility of a second wave of COVID, will you have a similarly uncertain forecast in the fall?

A: BC Hydro produces load forecasts using the previous fiscal year actuals as a starting point. Our next forecast will be based on actuals as of March 31, 2020. That said, we will be continuing to use a similar methodology to the COVID cases which will be influenced by actual trends. We will monitor actual load trends over the summer. Second-wave or not, the real challenge is what structural changes may occur that may impact load. We are considering this using the limited information available.

Q: How are the recent bill relief programs/initiatives for industrial customers reflected in the load forecast?

A: The April 2020 COVID-Adjusted Reference Load Forecast assumes declines in both the forestry and mining sectors. While the decline in forestry is consistent with the forecast, the same is not true for mining. It could be that the bill deferral program has impacted the ongoing operations of the mines. BC Hydro's assumptions in the reference scenario showed mines being shut down temporarily, but the bill deferral program may have helped mines to continue operating.

Q: From the reference case, a lot of employers are facing the impacts of working from home. The pace of folks returning to work is delayed and unknown. Does this factor in to the low reference case? For example, would this impact commercial space heating, EV use in commuting etc.?

A: We are in early stages of discussion on this with the Conference Board of Canada with respect to the longer-term prospects for issues such as this. We are trying to consider long term change to the workplaces that impacts consumption at workplaces, homes, and transportation.

Electric Vehicles and the Load Forecast Presented by John Rich (Slides 36-37)

Summary of Comments

TAC participants were highly engaged on potential load growth associated with EVs, as it is seen as an area in which public policy can play a large role in shaping that growth.

TAC participants were interested in details of how BC Hydro is working within the policy direction from the EV components of the Government of B.C's CleanBC Plan, and the extent we have reflected that direction in the load forecast, and in particular in the April 2020 COVID-Adjusted Reference Load Forecast.

Q&A Notes

Q: There is interest in understanding the inputs for the load forecast, more details on those inputs, recognizing that there are some uncertainties. Wondering about CleanBC and EV targets in the load forecast?

A: Our EV forecast is aligned with the CleanBC Plan. However, our reference load forecast does not capture all the potential in the oil and gas sector, but the high scenario does capture some of that potential. In the Lower Mainland, EV growth rates are the most significant uncertainty factor.

Q: Are we expecting B.C. to be ahead of our 2040 EV target?

A: We are expecting that they will achieve the 2040 target. In early years, our modelling is expecting us to be ahead of target. The model is influenced in the early years based on actual sales and use but we expect it to moderate before 2040.

Q: Is there any assumption made in the forecast around load factors for EVs? When you look at the uncertainty bands, there is potential in future for industrial loads with traditionally high load factors to be displaced by new loads (EVs) with low load factors?

A: Our load forecasting model makes assumptions around how cars will charge. The load factor is based on North American data associated with charging levels.

Q: Does the April 2020 COVID-Adjusted Reference Load Forecast does not include any load from medium or heavy duty EVs?

A: Confirmed.

Load Forecast Results (Overall) Presented by John Rich (Slides 25-40)

Summary of Comments

TAC participants had a series of questions generally about the load forecast, its methodology, update schedule, and connection to other supply options like demand-side management (DSM). Participants from the BCUC also asked questions about the projected filing date for the IRP.

Q&A Notes

Q: In terms of the reference case, your DSM and net metering are treated separately but how do they affect the reference forecast?

A: The forecast that will be used for the IRP only includes existing codes and standards and conservation rate structures; and DSM program savings whose expenditures have been approved and committed. The IRP modelling will look at additional DSM options as part of supply options to reduce net load. For net metering, we do not expressly include it because at the moment it is not material enough. That said, we will develop a scenario to consider impacts of distributed generation.

Q: When you talk about the reference forecast, it is based on regression of GDP information – i.e. the past is predictive of the future adjusted for the lows and highs?

A: Different methods are used depending on customer class. Appendix O from the F2020-F2021 Revenue Requirements Application describes in detail the methodologies used for BC Hydro to produce this load forecast.

Q: For existing buildings what is assumed in the forecast?

A: In the forecast, we have incorporated estimates from our low carbon electrification program (which was filed in the last RRA), focused on growth from EVs and the oil and gas sector. We do not include explicit electrification assumptions for the built environment other then what's captured in the low carbon electrification program.

Q: Other than EVs, do you plan to incorporate other electrification targets in the CleanBC Plan, or are you waiting until they are legislated?

A: BC Hydro is not waiting for them to be legislated. We must balance what has been announced and what is legislated against what we intend to do. We have incorporated assumptions around EVs, and electrification of the upstream oil and gas sectors. However, we have assumed less electrification in other sectors at this time within the forecasts. However, those aspects will be incorporated within various electrification scenarios.

Session Schedule & Next Steps
Presented by Basil Stumborg (Slides 41-42)

To conclude the session, BC Hydro conducted a roundtable of all participants as an opportunity for them to summarize their feedback, which is provided in the table below.

Consideration of TAC Meeting Feedback

TAC Member Feedback	Consideration
TAC participants were empathetic to the challenge BC Hydro has in creating a load forecast and an Integrated Resource Plan in the COVID environment, recognizing that there is a high probability that the load forecast may be wrong. Within this uncertain environment, there is a strong desire for more information for how various load scenarios will be captured in the IRP.	BC Hydro will engage TAC participants in our decision framework and how that framework accounts for uncertainties in the load. Each of the scenarios in the IRP needs to have a fulsome narrative around it, what is included, what is not, and why.
TAC participants were wanting key questions for feedback earlier, so they could be more prepared and contribute in a more focused or strategic way.	BC Hydro will endeavor to provide TAC participants directed questions in advance with clearer expectations of areas we are specifically seeking their input.
TAC participants wanted more information regarding how BC Hydro calculates load factor for EVs, and how it compares to how BC Hydro calculates load factor for industrial customers.	BC Hydro will follow up with more details about the calculation.

TAC participants wanted a return to a more normalized cycle for BC Hydro releasing resource plans and have an energy portfolio flexible enough to manage uncertainties.	BC Hydro is returning to a more consistent cycle for producing Integrated Resource Plans, with each plan subject to full review by the BCUC.
TAC participants wanted more granular datasets where possible as a replacement for charts with large-scale axis. These charts were considered hard to understand and interpret.	BC Hydro strive to communicate quantitative information in a more user friendly way.

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