

**2021 LTERP – Resource Planning Advisory Group Meeting  
June 25, 2020  
Meeting Notes**

**Attendees via Webex:**

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|--------------------------------|---|
| • David Craig                  | Commercial Energy Consumers Association of BC |
| • Nicola Simon                 | British Columbia Utilities Commission         |
| • Phil Stallard                | British Columbia Utilities Commission         |
| • Avery Jones                  | British Columbia Utilities Commission         |
| • Sanket Oswal                 | British Columbia Utilities Commission         |
| • Jim Quail                    | Movement of United Professionals              |
| • John Rich                    | BC Hydro                                      |
| • Steve Davis                  | Clean Energy Association of BC                |
| • Tom Hackney                  | BC Sustainable Energy Association             |
| • Tom-Pierre Frappé-Sénéclauze | Pembina Institute                             |
| • Hoda Talebian                | Pembina Institute                             |
| • Warren Walsh                 | BC Ministry of Energy and Mines               |
| • Brian Mennell                | Irrigation Rate Payers Group                  |
| • Alex Love                    | BC Municipal Electric Utilities               |
| • Robert Hobbs                 | Industrial Customers Group                    |
| • Andrew McLaren               | Intergroup                                    |
| • Mike Hopkins                 | FortisBC                                      |
| • David Bailey                 | FortisBC                                      |
| • Dan Egolf                    | FortisBC                                      |
| • Ron Zeilstra                 | FortisBC                                      |
| • Steven Groves                | FortisBC                                      |
| • Ryan Steele                  | FortisBC                                      |
| • Keith Veerman                | FortisBC                                      |
| • Joyce Martin                 | FortisBC                                      |
| • Ken Ross                     | FortisBC                                      |
| • Dan Higginson                | FortisBC                                      |

**Guest Speakers:**

- |                      |                       |
|----------------------|-----------------------|
| • Peter Steele-Mosey | Guidehouse (Navigant) |
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**Load Forecast**

Comment: the confidence interval range on the reference case forecast is very narrow.

- The confidence interval shown is currently based only on the Business as Usual (BAU) forecast historical load drivers. Once we incorporate uncertainty re EV charging, we expect the confidence interval to widen out more.

Question: does the load forecast include changes to the Clean Energy Act and a clean energy product for customers?

- We plan to address clean energy resources in our portfolio analysis which will come later this year. Most of the FortisBC (FBC) existing generation is clean and renewable.

Question: What is S1 through S5 on the graph?

- These are the various scenarios. For example, S1 is the upper bound, S2 is the lower bound, and S3 to S5 are the 3 other intermediate scenarios being considered. Peter will be discussing these in more detail later in the meeting today.

Question: the COVID-19 impacts on BC Hydro's load have been more immediate – why less impact on FBC's loads?

- In general, FBC's residential load has increased, commercial load has decreased, but the net effects have been generally neutral – so far.
- Differences in COVID-19 impacts could be associated with being a different service territory with a different customer base (e.g. downtown Vancouver vs downtown Kelowna; FBC has less industrial load).
- FBC is monitoring impacts of COVID-19 on a weekly basis.
- FBC will check that our forecast assumptions are still valid in the fall of 2020.

Question: where are small commercial farms included in the load forecast customer groups?

- It depends on the size of the farm. Larger farms would be included in the commercial customer group and smaller ones in the residential customer group.

Question: are large loads with greater than 75% probability included in the reference case forecast?

- Yes. The 100% probability loads are included in the BAU forecast. The 75% probability loads are also included in the reference case load forecast by applying a 75% adjustment factor.

Question: what is the FBC shared service territory population growth?

- FBC customer level is currently about 179,000 (including individual wholesale customers). The number of customers grows to about 215,000 by 2040.

Question: what about the impacts of more public charging, especially from tourism?

- Tourism impacts have not been included in the EV charging impacts. Some people would be driving into the province/service territory, while others would drive out during summer travel tourism season. Guidehouse (Navigant) suggested this may not be material compared to the other EV charging considerations.

Question: has FBC conducted a use per customer (UPC) study recently?

- We have completed a Residential End Use Study (REUS) recently. The REUS will provide a snapshot of what people are actually doing, but FBC does not use end use-based forecast methodologies at this time.
- From FBC's most recently completed REUS, lighting usage dropped from 2.2 MW to 1.1 MW per user. FBC is speculating that the drop in UPC is partially related to the adoption of LED lighting programs.

Question: Is the Kelowna EV data point on slide 20 based on point of sale?

- No, it is based on location of the vehicle registration.

Question: are 2-way EV chargers possible so that the utility can access the EV battery?

- Short answer is yes - this is commonly referred to as Vehicle-to-Grid technology. This is not something FBC expects to use in the near term, though, as there are a few technical issues to work through such as:
  - o how does the utility control this resource (requires grid modernization)
  - o warranty issues on the battery itself as the battery would cycle more often

### **Load Scenarios**

Question: is EV charging in multi-family dwellings and condos included in the EV charging forecast?

- The load driver is based on the ZEV act targets which does not distinguish between multi-family and single family dwellings, rather it is based on total car sales; therefore the forecast is agnostic to the resident type.
- The ZEV Act targets are based on new car sales, not vehicles on the road or type of dwelling.

Question: how does the IPSS commercial rooftop solar charge at night?

- It charges from the grid since there is no sunlight at night.

Question: is the 73% hydrogen efficiency for production or creation and use?

- It is assumed just for production.

Question: is carbon capture and storage (CCS) geographically specific? Carbon can be injected into the ground depending on locational geography or it can be altered and stored anywhere.

- Geographic location was not specifically considered for the CCS load driver.

Question: what level of charging is assumed for LD vs. MHD EVs?

- Level 1 and 2 charging is assumed for LD EVs when charging at home, with the level 2 proportion increasing over time. Level 2 and Level 3 (fast charging) is assumed for public LD EV charging. Level 2 and 3 charging is assumed for MHD EVs.

Question: has shifting of heating load off peak, like EV charging, been considered in the load scenarios?

- No. This would make more sense to include if FBC had a time of use (TOU) rate like Ontario used to have. (For clarification, FBC has TOU rates for commercial and industrial classes but the TOU rate for residential is now closed to new customers).

Question: will the LTERP include identification of TOU or other EV charging mitigation options?

- Yes. We expect the LTERP will discuss these types of options and how they could mitigate EV charging impacts but specific information regarding rates will be left for future rate design or other applications. The purposes of the LTERP is not to determine or propose specific rates.

Question: will the Guidehouse (Navigant) load scenarios study be made public?

- Yes, it will be included as an appendix in the LTERP (which will be a public document). The Guidehouse (Navigant) presentation and other presentations from the meeting today will be uploaded to the FBC resource planning webpage in the coming weeks.

Question: for climate change, was there any consideration of the Pacific Climate Impact Consortium (PCIC) work in terms of potential temperature extremes?

- No. We relied on historical data and temperature distribution profiles for Penticton as a proxy for the FBC service territory.

Question: has there been consideration of the penetration of air conditioning which could increase as climate change temperatures increase and have a non-linear impact on the climate change load driver?

- Our 2017 REUS indicates that FBC customer air conditioning penetration is already at 93%, meaning that climate change warming temperatures are likely to have more of a linear effect on customer loads. Historical air conditioning load impacts are already taken into account in the BAU load forecast.

Question: is there any evidence of the temperature extremes used in the cold snaps and heat waves in FBC historical data?

- The scenario cold snaps and heat waves are based on historical Penticton temperature data and used the extreme distribution curve values.

Question: is the amount of hydrogen production based on the FortisBC Energy Inc. (FEI) requirements for 15% renewable gas content?

- The hydrogen production is based on the Navigant Energy Vision 2050 study. The specific mix of hydrogen and renewable natural gas is yet to be determined by FEI – but 5% hydrogen is a reasonable initial assumption, given limitations of hydrogen mix in the natural gas system.

Question: will FBC be the supplier of hydrogen to FEI?

- Some of the hydrogen for FEI may be produced in the FBC service area. Location and cost will be key factors.

Question: in terms of climate change, could the impacts on irrigation demand as impacted by precipitation be included in the load scenarios?

- We did not specifically consider impacts from precipitation but considered only temperature changes as a simpler approach for developing the scenarios.

Comment: the potential for global recession will certainly impact the load scenarios.

- Yes, but there is still a lot of uncertainty in terms of COVID-19 impacts on the economy and changes in people's behavior – for example, do we end up driving less if working from home more in the future? We will get another chance to see how things have changed in terms of behaviour and energy usage when we develop the LTERP after this 2021 version. Note that our power supply portfolio has the flexibility to manage current variances in loads.

### **Stakeholder Scenarios Slider Tool**

Question: is the July 24 date for return of the slider tool submission firm?

- No, this is just a target. Please let us know if you will submit after this date and we will wait to collect all the submissions.

Question: Is the slider tool only open to the RPAG members?

- No, you can share it with other people as long as the responses are associated with an affiliation that attended the RPAG session.
- Everyone must fill out the form independently - that is the principle of the crowd forecast method.

Question: what are the impacts from climate change, such as precipitation and snow pack levels, on our resources?

- With our Canal Plant Agreement (CPA) entitlement, FBC is provided a fixed entitlement regardless of the hydrology situation. FBC does not anticipate any material changes to the CPA that would change entitlements at this time.

Comment: it would be useful if you could include more explanation around the default assumptions for the climate change load driver so users have some more context when using the climate change slider.