# 2021 LTERP – Resource Planning Advisory Group Workshop

# November 26, 2019

**Meeting Notes**

**Attendees:**

* David Craig Commercial Energy Consumers Association of BC
* Hillary Cheung British Columbia Utilities Commission
* Jim Quail Movement of United Professionals
* Kathy Lee BC Hydro
* Lejla Uzicanin British Columbia Utilities Commission
* Madi Kennedy Pembina Institute
* Martin Mullany Clean Energy Association of BC
* Tom Hackney BC Sustainable Energy Association
* Tom-Pierre Frappé-Sénéclauze Pembina Institute
* Warren Walsh BC Ministry of Energy and Mines
* Mike Hopkins FortisBC
* David Bailey FortisBC
* Dan Egolf FortisBC
* Ron Zeilstra FortisBC
* Steven Groves FortisBC
* Ryan Steele FortisBC
* Shannon Price FortisBC
* Joyce Martin FortisBC
* Robert Schuster FortisBC

**Guest Speakers:**

* Peter Steele-Mosey Navigant

**Called in:**

* Robert Hobbs Industrial Customers Group
* Dixon Grant Navigant

**Absent:**

* Alex Love BC Municipal Electric Utilities
* Camille Leblanc Friends of Kootenay Lake Stewardship Society
* Nicole Simon British Columbia Utilities Commission
* Leigha Worth BC Public Interest Advocacy Centre

**FortisBC Overview, Resource Planning Advisory Group**

 Q: Are the Power Point slides going to be distributed?

* Yes, they will be uploaded to our resource planning webpage. Notes will also be distributed within a few weeks after the workshop. Comments and questions will be included, but kept anonymous

Q: Is the 30BY30 target for Fortis Energy Inc. (FEI) gas only, or FortisBC Inc. (FBC) electricity?

* The 30BY30 target is FortisBC collectively (combined between FEI and FBC)

Q: What is the baseline for the 30% reduction?

* The target is a fixed number based on the year 2007 to generally align with the federal and provincial government targets – based on customer emissions estimated in that year
* It is an offset to the BC Economy and the global economy

Q: In light of 30BY30, is there more integration between the FortisBC electric and gas resource plans?

* Yes, much more collaboration. Development of load scenarios, shared advisory groups, shared community input sessions. Collaboration is mainly within the planning environment. The portfolio analysis approaches are different.

**Resource Planning Process, BCUC Decision, Action Items**

Q: With respect to the shared service territory, and fuel switching, how does FBC address the relationship between the two entities and manage the risk for stranded gas resources? Are the gas and electric utility scenarios at odds?

* Load scenarios will drive the examination of impacts on the utilities
* FBC expects there to be some degree of alignment in the load scenarios to present an electrification scenario as well as a diversified scenario

Q: Are the FBC and FEI resource plans going to be filed together.

* No, the plans are not going to be filed together, but we are working together on the planning environment sections

Q: Can you explain why the DSM was excluded from the LRMC calculation?

* FBC excluded DSM from the LRMC used for DSM cost-effectiveness test purposes but did not exclude DSM from the other portfolios in the 2016 LTERP
* In the 2016 LTERP decision, the BCUC encouraged FBC to consider revising its LRMC method in its next LTERP

Q: Why was DSM excluded from the LRMC calculation

* FBC did not exclude DSM from the LRMC of its preferred portfolios
* The BCUC decision stated that this is not an approach used by other BC utilities
* FBC commented that the LRMC is just a number representing cost and does not have other attributes relating to value of resource in terms of timing of energy and capacity

Q: How do you decide where to put EV chargers?

* Space them out to reduce range anxiety
* FBC is putting into 12 addition DC fast chargers this year

Q: What approvals does FBC have relating to public EV charging?

* FBC has approval for a charging rate, but does not have approval to put charging assets into rate base yet (BCUC decision pending)
* FBC does expect to include EV charging infrastructure in rate base in the future

Q: How many are you installing by 2022?

* about 20 chargers, with federal & provincial funding

Q: How many Net Metering Customers does FBC have?

* About 500, with a total of ~ 4.5MW installed

Stakeholder comments:

* Trends in changes to step code; Rooftop solar is becoming economical for the first time
	+ Every house is going to be net zero, rooftop solar and self-generation could be a big part of achieving that objective

FBC acknowledged the potential for an increase in distributed generation and will explore further in load scenarios

Q: Has FBC had any discussions with cryptocurrency customers about taking them off the peak?

* We are currently looking into how to address this
* Cryptocurrency customers may potentially decide to become transmission customers, which are not included in rate payer load

Stakeholder comments:

* These types of customers have the ability to suck up a lot of power when other customers should be considering fuel switching – i.e. these customers use electricity that could otherwise be used for beneficial electrification
* FBC should not be picking and choosing loads
* Quebec prices are more attractive given their lower electricity rates and it would be surprising if FBC requests outpaced more attractive jurisdictions
* FBC is advised not to invest a big infrastructure if there is significant uncertainty of future loads
* There could be more impacts from artificial intelligence load driver than cryptocurrency

Q: What is the utility’s ability to say yes or no to customers – do we have a duty to connect?

* FBC is required to connect customers that want service, however FBC’s tariff provides that large commercial and industrial customers may be required to contribute to costs where installation and upgrading of substation and transmission facilities may be required.

Stakeholder comments:

* Artificial intelligence is complementary to the cryptocurrency – although cryptocurrency has uncertainty, artificial intelligence & data centers are likely to be a big component of the future
* As illegal less efficient cannabis grow-ops are displaced by legal, more efficient facilities, there could be an offset in load

Q: What accounts for the differences in the 2016-2018 actual winter and summer peak compared to the 2016 LTERP forecast?

* FBC can speculate about reasons for the apparent trend but does not have end-use models to test what specifically is driving load changes. Examples of speculative reasons include LED lighting and air conditioning

**Resource Planning Environment**

Q: What is the source for the regional resource adequacy graph? Does it include BC or California?

* Source is Northwest Power and Conservation Council’s Pacific Northwest Power Supply Adequacy Assessment for 2024 dated Oct.31, 2019
* No, it only includes Pacific Northwest states

Q: If FBC is long in capacity, is market resource adequacy really a concern?

* Not right now, but the load scenarios suggest there is load uncertainty in the future. If FBC load was to increase materially, this might become more of a concern
* FBC may continue to rely on market energy but reliance on market capacity may be a risk that FBC discusses in this LTERP
* Market energy prices may increase due to competition from hydrogen, data centers, and other large load drivers that are not temperature sensitive

Q: Is there going to be a big discussion on the Columbia River Treaty (CRT) in the LTERP application?

* FBC expects there will be a small discussion in the planning environment section, but anticipates that BCH will provide a more in-depth discussion as they are the representing entity for the CRT

Q: What is the connection between FBC resources and the Canal Plant Agreement (CPA)?

* Dan provided a high-level overview of the CPA - in short, BCH gets dispatch rights and in exchange FBC gets a fixed entitlement
* FBC is responsible for managing Kootenay Lake levels (under the International Joint Commission (IJC) order), but BCH controls the generation flows

Q: Does FBC have any annual variability in the entitlements?

* No, the CPA entitlements are fixed – but could be reviewed in the future

Q; Have any municipal government declared climate emergencies in our service territories?

* FBC is not are aware of any but recognizes that other jurisdictions have done so and it is a possibility in the future

**Customer Profile, Trends and Load Forecasting**

Stakeholder comment:

* The purpose of the slider tool should be used to look at scenario extremes, not averages as there is less value when looking at an average

FBC plans to show all the stakeholder-produced forecasts generated from the slider tool as well as show the average in order to provide comparisons to the FBC reference case load forecast and scenarios

Q: Is there is a difference between the reference case vs business as usual?

* business as usual is based on historical load and the reference case include non-historical load drivers such as the things the utility believes are very likely to happen in the future

Q: What is the definition of certainty or ‘something that will happen’ in the future?

* FBC recognized this is somewhat subjective but it is intended to include load commitments and plans embedded in regulations such as the Zero Emission Vehicle (ZEV) Act targets
* Not all of the items included within the CleanBC plan, such as deep electrification of space and water heating, are embedded in regulations

Q. Why is the forecast on the gas side end-use, but not end-use on the electric side?

* There are many more end uses for electricity than gas, making an end-use forecast more difficult to develop
* The gas side uses an end-use method whereas the LTERP uses a more macro-approach to calculating scenario load deflection but the taxonomy seeks to align across resource plans

**Load Drivers and Scenarios**

Q: How will FortisBC address the conflict between the gas and electric resource plans? Is the electric side going to downplay electrification because of the gas business?

* FortisBC intends to explore electrification and diversified load scenarios in the gas and electric resource plans
* There is no certainty at this point which load scenario will play out in the future, nor is FBC planning to assign probabilities to the scenarios

Q: Does solar PV impact capacity requirements? What happens if batteries are charged during the peak hour?

Stakeholder comments:

* storage is a policy response (e.g. time of use (TOU) rates), not an embedded component; PV without storage has a more natural economic incentive already
* Separating storage out could help make this more informative
* At the moment, there is no driver to incent storage
* FBC should distinguish scenarios by whether they are most helpful to the grid versus least helpful to the grid (specifically for solar and batteries) – this could help drive rates/policies
	+ The deep electrification scenario should assume that solar impacts work well with the system and storage is used to extend the solar benefit - the distributed energy future scenario could serve as the counterpoint to this as customers charge their batteries when solar generation drops

Navigant noted that FBC could look at different levels of storage for different scenarios since policy/rate initiatives would influence the storage response.

Q. how do you handle the interplay of the various load drivers?

* They are kept separate on purpose so you can see the individual effects of each driver

Q. Doesn’t synthetic methane result in some carbon emission? Why not just make hydrogen?

* You can only inject so much hydrogen into the gas system

Stakeholder comments:

* Synthetic methane may slow the transition to a GHG neutral economy - but this would be carbon recycling and could help slow carbon emissions growth
	+ Synthetic methane is not energy efficient - multiple operations are required to crack and recombine the elements
	+ but you have to weigh this against the economics of using cheap electricity during off-peak periods to produce and inject synthetic methane
	+ Synthetic methane can help bridge the engineering practicalities of using renewable gases

The Navigant Appendix G in the last 2016 resource plan provides an explanation of how the load modeling approach works - the peak shape of each driver is investigated on a monthly basis for the peak period (5-7 pm).

Stakeholder comments:

* One stakeholder expressed more interest in the capacity impact of the load drivers, rather than just the annual energy impacts
* Slide tool should show energy and capacity impacts

Q: How is DSM included in the deep electrification scenarios? What scenarios encompass DSM already? Could DSM offset some of the impacts from load-increasing scenarios?

* FBC is not exploring DSM as a load driver – it is considered outside of the load scenarios
* Per BCUC resource planning guidelines, FBC is required to develop gross load scenarios before DSM is applied
* FBC to determine if it will consider DSM impacts on load scenarios

Stakeholder comment:

* Climate change will be more dramatic in the future and it is too timid assumption to assume historical impacts of weather will be consistent in the future
* High EV penetration could be limited by supply constraints
* The upper boundary scenario should include almost 100% EV sales and deep electrification almost as high
* Smart deep electrification could have energy requirements go up but could use technology, TOU, other to keep peak from increasing
* Reference case forecast should assume declining UPC trend

Q: In the ‘Gas to Electric’ load driver, is FBC assuming technology as becoming more efficient?

* FBC will assume technology efficiency as identified in the technical potential of the CPR
* Deep electrification should assume very efficient heat pumps that do not exist today - but how can scenario planning be tied to reality in this case?

Stakeholder comments:

* The maximum of the EV driver should exceed the ZEV mandate
* Stakeholder would be interested in information on GHG comparisons among the scenarios, even if an a qualitative level
* The diversified pathway is against government policy - but running these scenarios will help inform the discussion
* Rethink the name of distributed energy future

Some stakeholders find the diversified energy future scenario counterintuitive (why would customer switch to natural gas if electricity prices rise when they could switch to even more solar? - some stakeholders think this is extremely unlikely) - other stakeholders like this scenario as a counterpoint to deep electrification.

**Demand-Side Management**

Q: The costs of renewables have plummeted, what does that do to your DSM avoided costs/LRMC?

* FBC expects the LRMC may decrease with the decline in wind generation costs
* The LRMC does not impact what is possible, but what is economical. FBC is considering investigating sensitivities to the LRMC

Q: Does FBC use average cost vs marginal costs for DSM cost effective testing?

* As per DSM legislation, FBC uses the Long Run Marginal Cost

Q: What is an example of innovative technology?

* Heat pump water heaters, cold climate heat pumps

Q. Are batteries part of the DR pilot?

* No, but could be in the future

Q. Do you coordinate DR with BC Hydro?

* No, but we look to see what they are doing as they have more DR going on

Q: How substantial is the issue of transmission and distribution limits in the summer – is there value for solar?

* Capacity constraints are different at different locations on the system
* Solar could have value depending on specific feeders

Q. Is FBC doing a multi-fuel CPR analysis jointly with the FortisBC gas utility and BC Hydro?

* No, because FBC is doing a CPR update this time rather than a full-blown provincial CPR

Q. How costly is upgrading the distribution system to meet growing peak demand?

* A transformer addition to a substation is a few million dollars
* FBC will look at the peak balance at the system level to approximate the larger-scale impacts

Q: Does FBC engage with the Ministry on DSM regulations in any way?

* FBC has no plans to do this

**FBC Resources and Power Markets**

Q: Should FBC continue to look at the market as a resource?

* FBC will assess this in the LTERP
* FBC expects that access to market energy will be ok but capacity could still be risky

Q: Does FBC rely on the market?

* FBC is not currently reliant on the market to meet peak load as we can use PPA for coverage
* FBC optimizes the PPA and market purchases to provide savings to the ratepayer

Q: Will FBC consider self-sufficiency again?

* We will assess this in next LTERP given BCUC 2016 decision

Q. Are the summer and winter peaks getting closer? What is the air conditioning penetration?

* A/C penetration is about 85%
* We will explore weather impacts in the load scenarios

Q. Can FBC resell WAX capacity?

* We have an agreement to sell some back to BC Hydro and we can sell any excess to the market

Q: Are FBC market purchases clean energy?

* Some are and some are not clean
* We get the same market mix as BC Hydro under the purchase and sale agreement with Powerex
* FBC assumes the Washington state average resource mix for its market purchases
* FBC could buy green credits for this specific purpose - the California market is offering specified products now that have to declare their origin
* FBC is exploring options with Powerex

**Load-Resource Balance, Resource Options and Portfolio Analysis**

Q: How much can FBC rely on 71L; what is the capacity of 71L?

* FBC has access to 370 MW capacity for both import and export. Teck has first rights to the line, therefore FBC effectively has 150 MW it can rely on for planning purposes
* FBC cautioned that if planning to use 71L to meet load, then it is not available as a contingency resource in the case of an outage

Q: Does FBC have any ideas of what battery technology it will be looking at?

* FBC will be collaborating with BC Hydro on resource options including batteries
* FBC expects BC Hydro will consider lithium-ion and flow batteries

Stakeholder comment:

* Companies are starting to package intermittent resources together as an aggregate product offering (i.e. wind + solar + battery), which increasing its firming properties

Q: Does FBC have a policy around relationship with Indigenous people in terms of resource development?

* FBC has not developed such a policy explicitly relating to supply-side resources

Stakeholder comments on portfolio analysis rating framework:

* Creating multiple socioeconomic metrics in addition to cost is useful in order to make an informed decision that is not only motivated by lowest cost
* The ultimate scenario selection should be a judgment call, rather than a pure calculation of points across weighted metrics - certain resource options can have effects across multiple metrics that would cause a dysfunctional portfolio when aggregated with another resource, so good judgment is still critical (the metrics simply help create an informed consideration across portfolio options)
* BC Hydro found evaluating socioeconomic metric difficult even for very lumpy resource decisions like Site C - e.g. how do you compare the centralized footprint of a dam to a similar but decentralized footprint of independent power producers?
* There was a suggestion to include Indigenous collaboration/opportunities as a portfolio attribute in the portfolio rating framework
* FBC should avoid looking at single portfolio attributes in isolation; need to look at the collective impacts
	+ e.g. self-sufficiency averaged over 10 years, rather than individual years
* There are several items on the attribute list aimed towards climate action, which should be looked at collectively rather than individual attributes
* Make sure to include lead times into your analysis - e.g. if large load sectors take 5 years to transform and serving them with resources takes 8 years, we know that we have time pressure for responding to these drivers

Stakeholder comment:

* As other utilities become more reliant on the market, there is risk to the market in terms of supply
* On the flip side, there might be more supply resources available with decreasing cost but increasing transmission constraints.

Stakeholder comments:

* Even if the various utilities disagree on their scenario views of the future, they should endeavor to find a similar format and method for preparing and presenting their assumptions to facilitate public review and comparison of these
* It would be very helpful to develop a full set of common assumptions between BC Hydro and FBC around the future load scenarios - i.e. economic outlook, EV growth, lead times around the different resources, etc.
* Some additional written materials included with the meeting request to facilitate meaningful conversation was requested
	+ For example, what is included in the reference case forecast, and what is included in the load scenarios.
	+ If FBC sent this out in advance, the conversation would be around those items, rather than asking those questions in the workshop

FBC attempts to send out the meeting materials in advance so stakeholders can review them before the workshops – however, this is not always possible.