

**2021 LTERP – Resource Planning Advisory Group (RPAG) Meeting  
June 15, 2021  
Meeting Notes**

**Attendees via Teams:**

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|----------------------|--|
| • David Craig        | Commercial Energy Consumers Association of BC    |
| • Janet Rhodes       | Commercial Energy Consumers Association of BC    |
| • Phil Stallard      | British Columbia Utilities Commission            |
| • Jim Quail          | Movement of United Professionals                 |
| • Alex Tu            | BC Hydro   |
| • Tom Hackney        | BC Sustainable Energy Association                |
| • Bill Andrews       | BC Sustainable Energy Association                |
| • Brian Mennell      | Irrigation Rate Payers Group                     |
| • Colton Kasteel     | Pembina Institute                                |
| • Tahra Jutt         | Pembina Institute                                |
| • Scott Spencer      | Nelson Hydro and BC Municipal Electric Utilities |
| • Robert Hobbs       | Industrial Customers Group                       |
| • Peter Helland      | Residential Consumers Intervener Association     |
| • Jack Buchanan      | Ministry of Energy & Mines                       |
| • Laureen Whyte      | Clean Energy Association of BC                   |
| • Mike Hopkins       | FortisBC   |
| • David Bailey       | FortisBC   |
| • Dan Egolf          | FortisBC   |
| • Ryan Steele        | FortisBC   |
| • Keith Veerman      | FortisBC   |
| • Corey Sinclair     | FortisBC   |
| • Ken Ross           | FortisBC   |
| • Dan Higginson      | FortisBC   |
| • Jeremy Webber      | FortisBC   |
| • Paul Chernikhowsky | FortisBC   |
| • Jesse Scharf       | FortisBC   |

**Introductions**

Jim Quail noted that his title in the RPAG member list slide should be 'Legal Counsel'.

**DSM Scenarios**

Question: Are the values on slide 9 additive?

Response: The benefits to the customer are additive but the avoided cost values are not as the LRMC represents avoided energy and capacity generation and is stated in the unit \$/MWh while the DCE

represents avoided transmission and distribution capacity infrastructure and is stated in the unit \$/kW-Year.

Question: Do all the scenarios on slide 12 still pass the Total Resource Cost (TRC) test?

Response: Yes.

Question: are the average DSM level costs on slide 14 comparable to the LRMC on slide 9?

Response: No. The LRMC value on slide 9 represents the marginal cost of BC clean or renewable resources used for the purposes of evaluating the cost effectiveness of DSM and therefore does not include any DSM costs.

Question: Please confirm the DSM level in 2040 is cumulative and the 5,000 GWh forecast load in 2040 is pre-DSM.

Response: Confirmed that the DSM on slide 11 is cumulative and ~5,000 GWh forecast load in 2040 is pre-DSM.

Question: Do you know the rate impacts for the different levels of DSM?

Response: For the analysis presented in this meeting, FBC has determined the rate impacts on a portfolio basis, including the various levels of DSM. Rate impacts specific only to various DSM levels are usually included in the DSM Expenditure filings.

### **EV Charging Mitigation**

Comment: As ICE vehicles decrease with growth in EVs, costs to maintain gas stations could go up causing a decline in the number of gas stations – this could result in more EVs than expected.

Comment: more charging stations will add to EV growth and enable smaller, more affordable EVs which will also add to the growth.

Question: Does the EV charging profile on slide 23 include measures to shift charging?

Response: No, it is before any measures to shift charging. This is the base EV charging profile used by Guidehouse to develop the EV load driver impacts.

Question: Is it FBC's role to manage the timing of charging EVs on its system?

Response: Yes, this is in the best interests of all FBC customers to manage peak demand impacts.

Comment: Agreed, it is a DSM role.

Question: If people can control their home security with their smart phone, why not manage EV charging in the same manner and with a charging rate?

Response: FBC found one study that showed low adoption rates with this approach.

Question: Is adoption low for whole home TOU rate or EV-specific TOU rate?

Response: Both approaches indicate low levels of effectiveness in shifting EV charging.

Question: Are there any examples FBC can provide of companies that provide software to manage EV charging?

Response: FBC provided the following link for one example: <https://ev.energy/solutions/grid-network-operators/>

Question: EV charging pilot participation can be quite different than general public participation and so how do you manage false indications?

Response: Yes, this can be difficult and the pilot results may not be representative of all FBC customers, but a pilot can provide some indications of adoption in FBC's specific service area

Question: What about whole home TOU that is not opt-in?

Response: At this stage, FBC feels that voluntary behavior-change programs will have a higher effectiveness than mandatory programs, since "forcing" customer inclusion may create negative customer sentiment and decrease actual participation. This is particularly relevant when the program (e.g. whole home TOU) is perceived to have been created for the benefit of a small portion of the rate payers (e.g. EV drivers).

## **Load-Resource Balance**

Question: Is BRX contract able to be renewed?

Response: FBC is optimistic we could renew it but renewal is not guaranteed. It is a clean and renewable source of power.

Question: Why are there differences in the amount of winter and summer resources like WAX?

Response: It relates to water availability – with less water energy in the winter, FBC is able to get more residual capacity then. FBC entitlements vary by month under the Canal Plant Agreement (CPA).

Question: Why not show BRX renewal as a different shading like the PPA?

Response: The BRX contract is based on energy and capacity from the Brilliant and Brilliant Expansion plants which was not under contract to either FBC or BC Hydro. The BRX contract expires in a similar timeframe as to the BC Hydro contract with the Brilliant Expansion plant. This creates considerable uncertainty as to what products may be available to FBC. While it is possible that the BRX contract could be renewed, FBC considers it more likely that all the power available will be purchased by a single buyer, either FBC or by a third party such as BC Hydro. Given this uncertainty, FBC choose not to show the BRX contract being renewed as well as to not include any additional power from the Brilliant Expansion as a

resource option. The PPA, on the other hand, is energy and capacity that has been allocated to FBC and that FBC fully expects will remain available through a renewed PPA after the existing PPA expires in 2033.

Question: Does precipitation change from climate change impact the resources?

Response: The entitlements under the CPA are set and so, at this time, there are no impacts. However, this could be reviewed in the future and entitlement changes are possible over the long term.

Question: Are the existing resources aligned with provincial GHG targets?

Response: Our existing resources are mostly hydro based. Our portfolio analysis also looks at resource options that are clean and renewable.

Question: Why is there a jump up in WAX supply?

Response: There is a Residual Capacity Agreement (RCA) which includes the sale of 50 MW of WAX capacity to BC Hydro and it expires in Sept 2025.

Question: Are there monthly changes in existing resources?

Response: Yes, but the entitlements don't change on an annual basis.

### **Portfolio Analysis – Preliminary Results**

Question: Does an SCGT using RNG take RNG away from FEI?

Response: An SCGT using RNG would run minimally and so could use only about 0.5 PJ in total from 2030 to 2040. This is less than 2% of the FEI 15% RNG target by 2030 of about 30 PJ – and FEI would have more RNG supply than this after 2030. It is possible that the SCGT using RNG could have its own dedicated source of RNG.

Comment: There would be political risk with trying to build an SCGT plant even if fueled with RNG. This risk may be lower if the RNG fuel is directly sourced for the plant. RNG production could be local or there could be onsite storage of RNG fuel.

Comment: In emergency situations, to prevent blackouts, conventional natural gas could be used instead of RNG.

Comment: Using RNG for SCGT plants seems very effective.

Question: Why have a 93% clean target minimum when the government is considering a 100% clean electricity standard?

Response: Most of the portfolios exceed this 93% minimum and are closer to 98% and 99% clean. FBC has also included 100% clean portfolios.

Question: For the 0.5 PJ of RNG fuel, how many MW of capacity are associated with that?

Response: The portfolio referenced by this question, labelled 'Clean' on slide 46, includes one 100 MW RNG SCGT plant with a second 50 MW RNG plant near the end of horizon. The plants generate an approximate average of 6.5 GWh of energy per year over the last 8 years of the planning horizon. Other portfolios may use more or less RNG fuel, depending on how much the SCGT plants are utilized.

Question: What type of batteries is FBC assuming?

Response: The batteries are lithium-ion with 4-hour discharge duration.

Question: Does FBC consider declining battery costs?

Response: We use the same data provided to us from BC Hydro as part of their resource options update. This data includes declining costs over time for batteries.

Comment: Other battery technologies have lower costs than lithium-ion so FBC should consider those.

Response: We are not able to consider other resource options at this stage in the LTERP but can consider this for future LTERPs. FBC draws from the same list of resource options considered by BC Hydro in its most recent updating of its Resource Options Inventory.

Question: Can you clarify what the LRMC value of \$90/MWh for the DSM LRMC on slide 43 represents?

Response: This is a notional portfolio including only BC clean and renewable resources for the purposes of determining a LRMC for the cost effectiveness test for DSM regulation purposes – it does not include any DSM and is not able to use market energy. The other portfolios on this slide include DSM as well as supply-side resources. The values on this slide cannot be compared to the DSM average costs on slide 14 because the slide 14 values include DSM costs only whereas the slide 43 values include DSM and supply-side resources.

Question: Why does the DSM High portfolio use an SCGT plant first while the other portfolios select batteries first?

Response: The portfolio analysis optimization routine selects resources based on the timing and size of the remaining resource gaps. For DSM Low and DSM Med portfolios, SCGT3 is selected, which has a size of 100 MW. In DSM High and DSM Max portfolios, SCGT1 is selected which has a size of 50 MW. The SCGT units are able to provide a little more dependable capacity to meet monthly peak requirements after DSM. In the DSM max portfolio, the gap is a smaller, allowing the battery to be dispatched first.

Comment: For presentation, market acquisitions should be noted, whether under Resource Mix or in a note.

Question: Do the portfolios on slide 46 include market?

Response: Yes, for energy (and capacity only in June). Most portfolios favor the market to provide a large volume of energy. FBC will include market purchases in the portfolio resources listing for the figures in the LTERP or provide a note indicating which portfolios include market purchases.

Question: What about showing a portfolio that relies on market energy and capacity?

Response: Such a portfolio is counter to FBC's assertion that reliance on market capacity is not recommended. Furthermore, such a portfolio does not meet the minimum reliability requirements. Planning reserve margin is about capacity. Market access is used as a contingency resource to meet planning reserve margin requirements. Using the same resource (US market) to meet both expected load as well as provide reliability to ensure planning reserve margin targets are met is not appropriate in FBC's view. FBC recognizes that market capacity may be available from within BC, thereby avoiding the issue. However, FBC has no information about what, if any, BC based market capacity resources may be available.

Comment: Given the likely difficulty in permitting/citing an SCGT plant, it is surprising to see it in the preferred portfolios.

Comment: It will be politically challenging to construct an SCGT plant in BC.

Question: For the Self-Sufficiency portfolio on slide 49, could FBC produce a hybrid LRMC to capture the changes to the existing costs?

Response: FBC will take this into consideration for the LTERP.

Question: Is the base portfolio the preferred one?

Response: No, it is really a starting point for comparison. FBC is looking for stakeholder feedback on the preferred portfolio. FBC might lean towards the clean portfolio and perhaps the self-sufficiency one if market conditions changed such that reliance on market energy became unreliable.

Question: Powerex released a study regarding clean market power – has FBC looked at this?

Response: Yes and FBC has been talking to Powerex about clean market purchases and has included the clean market price adder on its portfolio market purchases.

Question: Is the lead time for an SCGT 3 years?

Response: We believe it might be closer to 4 or 5 years and so would file our next LTERP with this in mind to allow enough lead time before any new resources are required.

## **Transmission and Distribution**

Question: Has capacity-focused DSM been included in the mitigation?

Response: No, not specifically relating to space or water heating. We have plans to conduct a pilot to determine the potential.

Question: On slide 49, does footprint include associated upstream impacts?

Response: No, footprint relates to plant area and connection to the transmission system.

Question: Please confirm FBC does not need any new resources until 2030?

Response: Confirmed, provided FBC has access to the market for energy purposes (and June capacity) and based on the current load forecast.