

2022 Long Term Gas Resource Plan (LTGRP)

Resource Plan Advisory Group (RPAG) Session Long Term System Planning and Gas Supply

- DRAFT -

Session held on December 1, 2021

The following notes from the December 1 RPAG session should be reviewed in conjunction with the slides, as the speaking points of the FortisBC presenters are not captured in these notes. The presentation slide deck was sent to attendees prior to the session.

1. Welcome, Introductions & Session Overview

Paul Chernikhowsky, Directory of Regulatory Projects and Resource Planning

- Welcome, acknowledgement and FortisBC guiding principles

Ken Ross, Manager, Integrated Resource Planning and DSM Reporting

- Review session objectives and introductions
 - Status of the Resource Planning process
 - Feedback from previous session
- a. *RPAG Member*: One member expressed that during the last call they had raised concern about proceeding with the March filing date in view of the revised provincial CleanBC Roadmap, but that upon reflection is now inclined to agree that it makes sense to go ahead with the March filing date.

2. Renewable Gas – Comprehensive Review Filing

- Note: FEI's RG proposal is flexible and will allow FortisBC to pivot based on the recent CleanBC Roadmap. Therefore we will proceed with filing.
 - The billing system complexities to incorporate different rates and carbon taxes is under development. This will require about three months with plans to go live in January 2023.
- a. *RPAG Member*: BCH is filing IRP in December, LTERP is still in process, the RG filing will be soon, FEI LGTRP will be in March. This is an important time for these regulatory pieces to fit together. We need a reasonable process to ensure that this all works together for the good of the province overall.

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- i. *FortisBC*: Agreed, FortisBC wants to work together in a harmonious way. FortisBC's Cost of Capital proceeding is in place as well. FEI is working to ensure all of our numbers line up and are aligned across the different proceedings.
- b. *RPAG Member*. Thanks for the comment on aligning the various utility submissions.
- c. *RPAG Member*. Does the supply forecast include CleanBC Roadmap targets?
 - i. *FortisBC*: This was built prior to the announcement however the program is built to be flexible to allow for increased renewables as these new regulations come into market. We will be able to respond with increased percentage of renewables.
- d. *RPAG Member*: Member is in support of gas supply requirements. I don't see noted the technological innovations that both compete for and increase your supply in LGTRP. For example new technology with improved hydrogen production compared to other alternatives – this is a game changer potentially. Electric heat pump hot water and other ASHP equipment that supplies energy for what gas does now and notably some equipment runs at 120 volts. There will be competition from the electrification pathway. The models presented seem to be somewhat internally focused.
 - i. *FortisBC*: These are great examples of new technologies that we can consider discussing in the LTGRP and keeping an eye on as the future unfolds. If others have ideas of new technologies that we should consider please email us with your ideas. FEI may reach out to this member to discuss further.
- e. *RPAG Member*: Is the cost versus supply equation addressed? Gas is regularly \$3/GJ but RG estimates look to be \$30/GJ. The equity lens will not be fair. Carbon taxing may partially compensate for the higher costs of renewables. How do we look at this to achieve parity for all customers?
 - i. *FortisBC*: (*Note to attendees: some additional information to that provided during the session on RNG costs is included here for completeness*): As volumes increase we expect that the costs will come down as the transportation rider effects on bills will be able to be absorbed in the short term. The cost comparison should not be made between \$3 versus \$30/GJ. Currently, the cost is \$3 plus carbon tax which in 2030 is expected to be \$8.40 (therefore this results in over \$11/GJ). Further, a comparison with electricity is valid. Currently electricity rates are between 9 and 14 cents per kWh. Site C alone will cost more than 16 cents for generation only. Adding 5 cents for transmission and delivery results in over 20 cents/kWh. Translating this to gas numbers, electricity will cost between \$25/GJ at tier one to \$54/GJ for power generated at Site C. Similarly, to electricity cost allocation, FEI customers will be paying for costs of RG via a commodity (Storage and Transport) rider. Therefore customers will

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- only see a small increase initially in their cost of energy, ramping up to \$4 GJ by 2030.
- ii. *FortisBC:* As technologies improve, and as supply becomes available through economies of scale we expect these costs to come down over time. The overall bill to the customer may not change as much as these costs/GJ indicate. We will work with the government on addressing these cost considerations.
- f. *RPAG Member:* How much do you anticipate utilizing purchased carbon credits to meet your RNG blend targets? And where will FBC acquire them? Looking for reassurance that these will be purchased from local suppliers to support CleanBC Circular Economy objectives.
- i. *FortisBC:* In the Long Term Gas Resource Plan we are not modelling a reliance on purchasing carbon credits. That does not mean we won't consider it and if such purchases are required, FortisBC would certainly look for local opportunities.
 - ii. *RPAG member:* Follow-up: how does FEI classify RG contracts from Ontario and the US where the molecules are not likely to make it into BC pipes?
 - iii. *FortisBC:* I was taking the question to mean carbon credits purchased from a carbon credit market as opposed to energy purchases from energy projects that would become part of the portfolio of renewable and low-carbon gas supplies.
- g. *RPAG Member:* What I see is that FEI is complementary to the electrification plan. I admire FortisBC's efforts in this space and we need all pieces working together. As we spread the cost over all ratepayers, a lower rate spread out over customers may change the cost competitiveness of electrification. Since we are tackling all solutions together, we need to know how this impacts new builds in particular.
- i. *FortisBC:* Although customers may get different volumes, we are supplying new and existing customers in a non-discriminatory fashion while trying to meet our regulatory requirements. New and existing customers will pay the same price but the volumes will be different since existing customers are getting the blend as we take renewables on to the system.
 - ii. *FortisBC:* It is great to show the comparison of RG and conventional gas and carbon taxes are going to change these increments. Many projects are less than \$30/GJ and these costs will be blended. This is the cost we bear for decarbonization, and we need to move swiftly to achieve provincial goals.
- h. *RPAG member:* As I understand it, the older homes that are not built as efficiently will be paying the same rates as the new efficiently built structures. In some regions of the province where it is colder, most residences are heated by NG and many of the lower income residents live in old, inefficient homes and will be experiencing much higher bills as a result of these rate changes and their high demand in the winter. With

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housing/rental prices increasing significantly and many residents already having much higher bills, this could result in increased financial burden and displaced people.

- i. *FortisBC*: Balancing costs for decarbonization with the need to maintain affordability is going to be an issue for the province's infrastructure as a whole. It is something we will continue to look at very carefully.
- ii. *RPAG member*: In relation to the member's point, decarbonizing our economy will impose serious financial hardship on low-income households, and this is one of the ways that will play out. Addressing differential scales of hardship across the population is an element of the larger "just transition" strategy that labour and progressive environmental groups have been advocating for some time. An adequate response will require significant changes to the regulatory framework and the regulator's mandate, as well as initiatives from government.
- iii. *RPAG member*: One final comment and question on RNG, which relates to the original comment - providing 100% RNG to new residential gas customers is essentially a subsidy from natural gas customers to renewable gas customers, and this may have the effect of pushing new buildings towards renewable gas, whereas without the subsidy, they may have chosen to electrify. If these new buildings instead electrified, the RNG they use could be "re-allocated" towards increasing the mandatory blend (i.e. increasing from the current targeted 1%), which would enhance decarbonization of buildings that are currently using natural gas.

3. System Planning

Note: Peak demand forecasts were provided by rate schedule as requested in the November 3 RPAG session

- a. *RPAG member*: To clarify, are you saying that RNG will not require expansion of your system?
 - i. *FortisBC*: Correct. Basically RG and conventional natural gas are the same molecules. Same capacity and system requirements are needed for moving one stream or another. There would be some upgrades for bringing the projects to the system but system itself is not impacted.
- b. *RPAG member*: Should FortisBC's forecast of renewable gas not materialize, and FortisBC is increasing gas throughput, it may be difficult for FortisBC to meet the 6 MT GHG emissions cap in 2030. How will FortisBC ensure that they meet the 6 MT GHG emissions cap, if sufficient renewable gas supply does not materialize?
 - i. *FortisBC*: To respond to question in the chat, "What do we do if we cannot bring on enough RG?" Our RG team is full out contracting supply and I am confident that we can make our targets. Last year we completed 13 projects and in 2021

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- to date there are 6 to 7 in process. There will be a few more processed by the end of 2021 or early 2022 and we will grow from there.
- ii. *FortisBC*: At a high level we use about 200 PJs annually and 30 PJs of renewables are in our line of sight. We will be seeing 65 PJs by 2030. We need more DSM and more renewable gas to hit these targets. Our supply studies suggest that there is plenty of supply. We doubled the size of the team. We are ahead of our 30x30 preliminary targets. We will be able to use renewable gas as a drop in fuel for our infrastructure.
 - iii. *FortisBC*: The changes that will impact us through the updated CleanBC Roadmap, we are feeling confident we can meet them.
- c. *RPAG member*: The graphs that show the line for capacity – how did you create those lines? Does this include the peaking calculations?
- i. *FortisBC*: Capacity is complicated to demonstrate on a two dimensional graph.
 - ii. *RPAG member*: Is there a constraint for the delivery pressure to serve the downstream systems?
 - iii. *FortisBC*: The capacity curve reflects the demand curve (all customers in the system) if it intersects.
 - iv. *RPAG member*: Does this incorporate all the peaking capabilities?
 - v. *FortisBC*: Yes it does.
- d. *RPAG guest*: Can you explain how an increasing proportion of hydrogen in the system affects the use of LNG regasification as a tool to meet capacity? Noting that hydrogen will not liquefy in the LNG process.
- i. *FortisBC*: With respect to hydrogen in the gas stream and its impacts on FEI's LNG operations, this was explored during the Tilbury LNG Storage Expansion (TLSE) Project CPCN Application. I'd refer you to the responses to BCUC IR1 21.1, Sentinel IR1 51, and the BCUC IR2 83 series for a discussion of this topic. Specifically, the 83.X series addresses the technology to remove hydrogen from the gas stream.
- e. *RPAG Member*: If LNG is required for system resiliency, could you clarify why LNG storage would not be sited closer to Sumas, instead of upgrading the CTS?
- i. *RPAG member follow-up*: Why would we not consider Sumas as place for expansion for resiliency rather than Tilbury?
 - ii. *FortisBC*: The Tilbury LNG Storage project is needed for system resiliency in the Lower Mainland because it makes up the largest share of the demand on FEI's system (approx 60%) and has the least amount of resiliency to upstream supply disruptions. Interior customers have access to greater pipeline connectivity compared to the Lower Mainland, which greatly increases system resiliency for the Interior region.

The proposed TSLE project could theoretically be placed anywhere within the Coastal Transmission System (with access to the large NPS 36-42" CTS pipelines) and provide resiliency by replacing the gas supply shortfall that might occur at Huntingdon (Sumas) in an upstream supply disruption. However, the existing Tilbury site already has a role as a peak shaving facility that injects vapourized LNG when required (under peak demand) into the CTS maintaining adequate system pressures at all points. From that perspective, the Tilbury site being more central to the major CTS demand points is more efficient and less LNG injection is required to maintain adequate system pressures at all points in the system than could be achieved by a facility located at Sumas (located much further from the demand center). FEI determined that the Tilbury site was preferred as it is already an established LNG industrial site. Expanding the existing site rather than establishing an additional new industrial LNG facility at Sumas or another undeveloped location in the CTS maintains a greater benefit for the purposes of peak shaving and an equal benefit for resiliency.

- iii. *FortisBC*: to build further on these comments: the optimal location of the LNG storage in the Lower Mainland was also explored in the TLSE information request process. Please refer to BCUC IR1 24.3 for a more detailed exploration of this question. Let us know if you need assistance accessing these responses (they are published on both the BCUC and FortisBC websites).

- f. *RPAG Member*: Why do you need LNG in the Interior? Why can you not borrow capacity from one system to another?
 - i. *FortisBC*: A capacity deficiency within a system results in a low pressure at some point within the system. This is a result of the pressure drop that occurs in the process of moving natural gas through the system to satisfy the local consumer demand in the low pressure area. The deficit can only be corrected by reducing the rate of pressure drop that is occurring in the system. Simply increasing the available upstream supply into the system does not correct the loss of pressure that is occurring as gas moves through the capacity constrained system. The deficit needs to be corrected within the system through such means as increasing the pipe size (to reduce the rate of pressure drop), boosting pressure with a compressor or injecting gas (LNG or CNG) near the low pressure site to boost pressure. High pressure in another system (reflecting sufficient or excess capacity in that system) is not able to be physically relocated to offset a capacity deficit or low pressure in another region. An LNG facility is one alternative for resolving such a low pressure situation.

- g. *RPAG Member*: Regarding hydrogen and LNG regasification, what I was getting at is: Does moving to very high proportions of hydrogen in the system reduce the attractiveness of new LNG storage/regasification as capacity resource options?

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- i. We still expect methane (whether conventional or renewable) to be the predominant gas in the gas stream for many years to come. This point will be illustrated further in the Gas Supply presentation.

- h. *RPAG Member:* What proportion of the newly contracted renewable gas supply / expected supply is from projects in BC and what is from other jurisdictions across North America?
 - i. *FortisBC:* We have provided the current status, and we will be looking to source more supply locally over time. In the shorter term, we may need to look outside the province but will look to increase the amount of BC produced renewable and low carbon gas where it makes sense over the planning horizon. This concept of producing renewable energy in one jurisdiction and applying the emission reduction benefits in another jurisdiction is well established throughout North America and can be a way to optimize resource value. FEI agrees that the development of the renewable energy supply industry in BC is important over the long term.
 - ii. *FortisBC:* Of the 27 current projects 14 are out of province and 13 are domestic. If we can bring in local projects that are cost effective and that meet the needs of our customers, we will do so.

- i. *RPAG Member:* Regarding the chart on slide 64 – in terms of LNG projects and the jogs upward on supply graphs, do we know if this (Woodfibre LNG project) is going ahead?
 - i. *FortisBC:* We understand that they are going ahead. We are planning for it to proceed in our demand forecasts as we will need to be ready to transport this gas. Last week there was an announcement that they would be in production in 2027.
 - ii. *RPAG Member:* What are some of these other two bumps in the chart on slide 64?
 - iii. *FortisBC:* These are potential demand increases we have factored in that represent possible future demand increases from industrial projects. For illustrative purposes, slide 65 uses examples of additional demand at Woodfibre or Tilbury to complete the discussion.
 - iv. *FortisBC:* The Table in slide 65 describes these in more detail:
 - Adding liquefaction at Tilbury to enable bunkering of ferries, industrial load, transportation such as trucking (Vedder)
 - Additional step changes at Tilbury are incremental increases in demand. We are looking at different magnitudes and timing. We are also looking at the capacity for the installed liquefaction. We will plan for this in advance so that we have flexibility to support demand over the year.
 - This is not fully fleshed out so FEI built in these forecasts for future potential demand increases.

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- j. *RPAG Member:* What about servicing small-scale containers as PNG northern facilities are doing? In terms of supplying small-scale container supplies of LNG?
 - i. *FortisBC:* While, this represents an opportunity, FEI is not counting on this container load in its planning scenario demand forecast.

- k. *RPAG Member:* Referring to Slide 71 and the peak shaving plant. Is this necessary if FEI proceeds with the OCU upgrade?
 - i. *FortisBC:* Yes we will always look at this as it is a resiliency option that could be used rather than pipeline looping. All of these viable alternatives will be examined.
 - ii. *RPAG Member:* So FEI is not currently applying to build this.
 - iii. *FortisBC:* No, we are just putting these into planning scenarios.

- l. *RPAG Member:* What is the volume of on system versus off system proportion over the next ten years?
 - i. *FortisBC – Note to attendees:* since the workshop time allocated for questions during this portion of the session was exceeded this response was not provided during the session but is added here as a follow-up item. FEI currently procures renewable natural gas supplies both within BC through direct connection to its grid and outside of BC through energy displacement. Currently a higher proportion is sourced off-system; however, this may change over time, with the location of each individual source of supply being subject to many factors, including price. FEI is interested in growing BC sourced renewable gas supplies, although FEI recognizes that BC suppliers may sell their product in an open market.

4. Gas Supply

- a. *RPAG Member:* Shared their opinion that the "Customer Choice" program does not necessarily serve customer needs nor demand and it may be time to re-examine this program offering.

5. Infrastructure Transition to Renewables and Resiliency

- a. *RPAG Member:* What is involved in making a pipeline "hydrogen ready"? Is this required for all transportation and distribution pipes intended to take hydrogen?
 - i. *FortisBC:* We are looking at all the requirements for flowing hydrogen. We are doing a province wide study from selected metallurgy for higher concentrations, compressor stations, velocity and all pieces. This business case will fit in with this project.

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- ii. We are working with other partners and looking at blends to determine what proportion can be used in our existing infrastructure.

- b. *RPAG Member:* Under the low demand scenario (i.e. accelerated electrification), would that change the "resiliency need" for LNG storage and the RGSD, or do you still see them as being critical?
 - i. *FortisBC:* The answer is yes, we need LNG storage. We will continue to need the methane to flow through the system even as we bring these renewables on board.
 - ii. *FortisBC:* We are planning for the planning scenario. If we start to see the lower scenario – as in increased electrification, we will continue to look at these different scenarios to determine how much resiliency we need. The rate of gas demand decline will provide the indication of how much we need. These extreme weather impacts are showing that we need to have these energy systems working together to support this energy transition.
 - iii. *FortisBC:* At this point in time, we are still relying on the single point of failure and as such we need the LNG storage facility. We remain too reliant on the T-South pipeline.

6. Wrap-up & Next Steps

FEI acknowledges that there was a lot of information presented and there will be more to discuss in the future session that we are planning for early 2022.

Please send additional questions and comments on what was presented and we will address as we can. Thank you for great discussions and forward-thinking insights.

Meeting notes will be completed and distributed for review prior to finalizing. A reminder that the next RPAG session will be scheduled in early 2022. The session was drawn to a close.