

2021 Long Term Electric Resource Plan (LTERP) &  
2022 Long Term Gas Resource Plan (LTGRP)  
Shared Services Territory  
December 2-3, 2020

Green items denote follow-up questions for FortisBC. FortisBC responses use **bold black font**.

1. Energy planning landscape in BC
  - a. Attendees provided feedback on how the energy planning landscape in BC impacts them and identified the following challenges and opportunities:
    - i. Reliability and resiliency along with costs, affordability, and funding challenges were among the primary concerns. Funding challenges related specifically to rebates and implementation of other clean energy technologies. Climate change and reducing GHG emissions, rooftop solar energy generation and storage, electrification of vehicles, and education to change energy consumption behavior were also identified as priorities.
      1. Further to the point around resiliency and reliability, this was flagged as a concern by several attendees, especially for more rural areas. It's challenging to transition to low carbon options, such as electric vehicles, when areas face electricity outages, sometimes for extended periods of time. The same challenge applied to fuel switching away from wood fire or propane in these areas. Micro Gen has been pretty well opposed in BC which means that people in these rural areas must always have a backup of GHG intensive generators to protect themselves.
      2. Further to the point around funding challenges, an attendee flagged that since FortisBC electricity is primarily clean, they cannot find funding or grants for other clean energy projects. In addition, it's very challenging to find funding for rooftop solar projects and the economics are not there to do it without incentives.
      3. Further to the point around costs and affordability, an attendee commented that lower natural gas costs help with affordability which makes it difficult to transition transportation to electricity.
      4. Further to the point around reducing GHG emissions, an attendee commented that GHG reductions from transportation in FortisBC's 30BY30 plan was relatively small compared to the other opportunities. They asked if global LNG reduces coal usage in other countries. Yes it does – reducing GHG emissions is a global issue that has no boundaries. The global LNG pillar in FortisBC's Clean Growth Pathway to 2050 includes bunkering as well as marine transportation which reduces local and global GHG emissions.
      5. Further to the point on climate change and reducing GHG emissions, it is a challenge to swap out fuel sources for items such as Hydrogen or renewable natural gas fuel for refuse collection or larger freight. It is a challenge to look forwards on these options as many of the programs for infrastructure development are primarily Lower Mainland based. It's

- definitely understandable that the focus is on denser population hubs but it makes it challenging to keep pace when the infrastructure differential is so large.
6. Further to the point on rooftop solar energy generation and storage, attendees noted the following concerns around batteries: space limitations, ongoing maintenance costs and further work needed to increase capacity. While some entities may receive funding for capital, there is no funding for the maintenance of the systems once in place.
  7. Further to the point around electrification of vehicles, an attendee mentioned looking at switching from Compressed Natural Gas (CNG) to electric due to incentives. In addition, another attendee discussed the difficulty in finding funding for electric vehicle infrastructure which results in delays in construction of electric vehicle charging facilities and inquired if FortisBC could assist in dealing with the Province on this.
  8. Further to the point around changing energy consumption behavior, an attendee highlighted the different factors that makes this challenging, including: concerns around affordability, social culture norms, concerns about reliability and system resiliency.
- ii. An attendee suggested that FortisBC explore game theory to help customers reduce GHG emissions. For example, provide rebates as incentives for customers to hit lower consumption targets. This would be a game the ratepayers can play and could serve as an educational opportunity.
    1. FortisBC recently introduced a new customer engagement tool called My Energy Use. My Energy Use is an enhancement to Account Online that provides natural gas residential customers with a better understanding of their home's energy use. Customers can now set and track goals, create tailored action plans and complete recommended energy-savings tasks. Completed tasks help customers earn points that can be redeemed as bill credits. The electric version of the program is expected to be launched in 2021.
  - iii. An attendee also suggested further investments in programs to educate customers about energy consumption and provide incentives for changing behavior.
    1. Another attendee agreed and noted they have GHG reduction goals both in the community and corporately. This attendee noted that they had completed, or continue to work on, many actions to reduce their GHGs in transportation and buildings but have not seen much of a reduction in GHGs. It feels like a change in culture and behavior is needed to really have an impact on reducing GHGs.
  - iv. **Looking at the energy demand in BC by sector, could FortisBC provide the breakdown of the transportation sector (e.g. logistics/trucking, commuting and public transit)? FortisBC utilized data on energy demand in BC and GHG emissions in BC from the Canada Energy Regulator. For further information about this data, please visit [www.cer-rec.gc.ca](http://www.cer-rec.gc.ca) and refer to the Provincial and Territorial Energy Profile for BC in addition to Canada's Energy Future 2019 Report.**
  - v. **What percentage of FortisBC electricity is clean? FortisBC confirmed that the majority of the electric energy it delivers is clean. FortisBC's current supply is**

largely hydro generation. However, a small portion of FortisBC's supply comes from the regional PNW market, specifically the US, some of which is produced by fossil fuels, such as coal, as well as renewables. Note, the US PNW is moving away from coal production so this supply will become cleaner in the future. Therefore, the FortisBC electricity supply is almost all clean but it is not 100% clean.

- vi. **How is FortisBC approaching and engaging with industry to drive opportunities in a circular economy or other alignment with GHG reduction priorities (as this will take innovation)?** FortisBC recognizes there is a large opportunity to reduce GHG emissions within the Commercial and Industrial sectors. FortisBC has Demand Side Management (DSM) programs for both of these segments and acknowledges there may be opportunities for renewable gasses to displace carbon emitting fuels. Recently, FortisBC has applied for an increase in the natural gas Industrial DSM budget due to the success and uptake of the program.
  - vii. **Are there any opportunities for FortisBC to provide funding for battery storage or collaboration on a project?** FortisBC will consider this in the future.
  - b. FortisBC outlined the work being done for gas heat pumps and for deep energy retrofits.
    - i. An attendee discussed the work their organization is doing with Natural Resources Canada (NRCAN) around energy mapping. Flagged as a potential opportunity to collaborate with FortisBC.
    - ii. **Where is the pilot for the deep energy retrofit?** FortisBC will announce additional details about this pilot on our website. Visit [www.fortisbc.com/about-us/projects-planning/future-of-energy-efficiency](http://www.fortisbc.com/about-us/projects-planning/future-of-energy-efficiency) to learn more about ongoing pilots and sign up to be notified about upcoming pilot program opportunities.
    - iii. **When looking at retrofit projects, doesn't FortisBC face a conflict around fuel switching from natural gas to electricity?** The deep energy retrofit pilot will help to identify the opportunities available and the technology that can be utilized (for example, natural gas heat pumps). FortisBC's goal is to find a balance that achieves energy savings and allows FortisBC to continue serving customers.
    - iv. **Does FortisBC see a struggle between reducing GHG emissions and maintaining affordability?** This is a central factor outlined in the Guidehouse Pathways report that FortisBC commissioned. If we look at reducing GHG emissions in the short term, the cost differences between an Electrification Scenario and Diversified Scenario are minimal. However, the study shows that in the long term, the costs in the Electrification Scenario exceed the Diversified Scenario as new electricity infrastructure is required.
2. Electricity future demand scenarios
- a. An attendee expressed surprise at seeing a decrease in net metering in 2019/2020. In addition, they found the hydrogen component an interesting consideration.
    - i. An attendee pointed to valuable learnings from Alberta regarding Power Purchase Agreements (PPA).
    - ii. Several attendees expressed support for PPAs for residential, commercial and municipal generators.
  - b. An attendee flagged a couple of large load projects in the Regional District of Kootenay Boundary and a 10 year electrification plan with a major focus on electric vehicles. The

attendee also noted that Big White Ski Resort which has no access to natural gas and has a large peaky load may see an expansion in the near future.

- c. Several attendees support electric vehicle charging education and investing resourcing to shift charging to off-peak hours.
  - d. An attendee expressed their focus on fuel switching from natural gas to electricity. While they think renewable natural gas is appealing, they are focusing on electrification right now.
  - e. One attendee commented on the importance of smart load management and managing peak demand with new loads like electric vehicle charging.
  - f. An attendee commented about their focus on electrifying school buses and doing audits on existing buildings to determine the best way to make these buildings energy efficient.
    - i. **Is FortisBC considering special electricity rates for schools? Keeping in mind that they would need to charge electric busses during the day. FortisBC will consider this in the future.**
  - g. **What is FortisBC's electric peak window? For resource planning purposes, FortisBC considers 5:00-7:00 pm in December and January to be the peak winter demand period.**
  - h. **What's the basis for the hydrogen production? The basis for including hydrogen is the expectation of an increased load in order to generate hydrogen with hydroelectricity. Looking at the Guidehouse Pathways report that FortisBC commissioned, in order to de-carbonize the gas system, renewable gasses, such as hydrogen, will play a key role.**
  - i. **How much electricity is the FortisBC Fruitvale Renewable Natural Gas project using vs. how much it is producing? FortisBC estimates the annual energy requirements to be about 26 GWh to produce the expected renewable natural gas volume of about 1 PJ per year.**
  - j. **Would FortisBC be interested in working with municipalities on microgeneration projects? FortisBC electric currently does not require any new supply resources until later this decade based on our current load-resource balance. However, FortisBC would consider smaller projects if they were cost competitive with FortisBC's short term marginal cost of energy and also provided that they met FortisBC's timing of energy and capacity requirements.**
  - k. **What are examples of large electricity loads? FortisBC explained this can include cannabis, data centres and bitcoin facilities along with greenhouses.**
  - l. **Has FortisBC explored vehicle to grid as a way to balance the load? Not at this point but FortisBC recognizes that this may be an option, along with other smart energy management technologies, in the future.**
  - m. **Has FortisBC considered giving employers incentives to build infrastructure that can offset electric vehicle charging during peak hours? FortisBC will consider this in the future. FortisBC is here to help with the unique challenges and opportunities associated with electric vehicle charger installation. For the time being, customers should proceed with the typical path for electrical upgrades by visiting [www.fortisbc.com/services/electricity-services](http://www.fortisbc.com/services/electricity-services). If further assistance is required, we can have FortisBC staff get in touch with you.**
3. Electricity supply options
    - a. **Does it make sense that run of river supply is categorized as intermittent? This option is considered a variable, rather than intermittent, resource option but FortisBC categorized it as intermittent for the purpose of simplicity.**

- b. **Is FortisBC keeping an eye out on the impact of Site C? Yes, FortisBC monitors BC Hydro major infrastructure and generation developments and works with BC Hydro to determine if there are opportunities for any BC Hydro surplus to be purchased by FortisBC in the future.**
  - 4. Natural gas future demand scenarios
    - a. **FortisBC's 30BY30 goal looks at decreasing customers' GHG emissions, shouldn't the natural gas demand be decreasing? FortisBC explained that decarbonizing the natural gas system by displacing more carbon intensive fuels in the transportation sector and employing technology such as Carbon Capture and Storage (CCS) the gas system can maintain the same demand while reducing GHG emissions.**
    - b. An attendee highlighted that there are many unknowns surrounding the retrofit code. This may have a big impact and will drive action but may take longer than anticipated to be implemented. This attendee envisions that the retrofit code will be similar to step code.
      - i. Another attendee also highlighted that the retrofit code could have a big impact on them. They are supportive of FortisBC engaging the government on these discussions to ensure that our visions align.