

## 2017 Long Term Gas Resource Plan (LTGRP) – Meeting 1

November 30, 2016

**Orange** items provide suggestions from RPAG members for direct input into FortisBC Energy Inc.'s (FEI) 2017 LTGRP preparation tasks.

**Green** items denote follow-up questions for FEI. FEI's responses use bold black font.

### 1. Introduction

- a. Multiple attendees indicate that they are interested in opportunities for expanding district energy systems and participation in energy efficiency initiatives.
- b. Multiple attendees would like to discuss how natural gas can serve as a bridge fuel and what business opportunities might exist for FEI to cost-effectively supply British Columbia (BC) energy needs in light of federal and provincial greenhouse gas emissions (GHGe) reduction targets.
- c. One attendee would like to discuss deepening engagement with local governments and opportunities related to energy step codes.
- d. One attendee wonders whether Demand Side Management (DSM) cost tests will need to be adjusted to keep supporting evolving energy goals.
- e. The British Columbia Utilities Commission (BCUC) clarifies its involvement in the RPAG meetings as follows:
  - i. Commission staff will participate in your utility led workshop group and any related discussions regarding the FEI 2017 Long Term Resource Plan Application in a Clarification/Information Provider role in an effort to promote the efficiency and effectiveness of the Commission through greater communication with FEI and/or to gain an understanding of the issues and context around certain matters.
  - ii. In the Clarification/Information Provider role staff may ask clarifying questions and inform the group of applicable regulatory information such as on legislation, orders, decisions, regulatory process information, Commission-stated issues, and government stated policy issues. In the event that the discussions evolve into consensus building staff would excuse themselves from participation in the group as Commission staff may be involved in the review of any application to the Commission related to the work of this group.
  - iii. As a quasi-judicial tribunal, the Commission must maintain an independent, arms-length relationship with the companies it regulates. Commission staff do not have voting privileges and cannot advocate for specific interests or interest groups, recommend ideas or solutions, take positions on issues, or provide written support for the work of the group.
  - iv. Commission staff involvement in the resource planning advisory group cannot be claimed as endorsement for any projects or initiatives presented at the group. Under the Utilities Commission Act only Commissioners have decision-making power and any information provided by Commission staff is non-binding on the Commission.

### 2. Resource Planning Objectives

- a. **On behalf of the Province of BC, the BC Ministry of Energy and Mines clarifies that the Province considered Canada's federal energy objectives when developing the Climate**

Leadership Plan; as such, federal energy objectives can be deemed to be implicit in BC's provincial energy objectives.

- b. The 2017 LTGRP analysis should take care to distinguish different elements of energy and emissions policy: high-level targets should be assigned less significance than enacted actionable policies to achieve such targets.
- c. Analyses should focus on cost effective GHGe reductions:
  - i. Some attendees believe that policy may lead to suboptimal cost outcomes.
  - ii. One attending utility has strict rules from its regulator for determining cost effectiveness of GHGe reductions.
  - iii. The 2017 LTGRP should champion this focus on cost-effective GHGe reductions by reflecting this in the resource planning objectives.

### 3. Forecast Approach

- a. On slide 23, the downward inflection in the 2014 LTGRP reference case near 2016 is caused by the assumption that recent industrial demand increases would not continue, in part due to switching from natural gas to other fuel alternatives:
  - i. What price spread underlies this switch and is FEI approaching this price spread in its actuals?
    1. **FEI notes that the current annual review of the 2014-2018 Performance Base Ratemaking filing does not show this inflection occurring in the short term annual demand actuals.**
- b. Attendee observations about the forecast process:
  - i. Attendees who also attended the 2016 Long Term Electric Resource Plan (LTERP) Resource Planning Advisory Group appreciated the scenario slider tool, which allows the user to examine a range of outcomes within the expected maximum and minimum values of various critical uncertainties; FEI indicates that a similar tool may not be possible for the 2017 LTGRP, since the 2017 LTGRP annual demand forecast logistics are different from the 2016 LTERP, but FEI will try to develop something similar.
  - ii. FEI should clearly document the assumptions that underpin the maximum and minimum outcomes of the critical uncertainties for its scenario analysis.
  - iii. FEI should include critical uncertainties that address the potential for fuel switching from natural gas to electricity in the existing building stock.
  - iv. Finalizing forecast scenarios typically is an iterative process, so FEI should revisit this item early during the 2017 LTGRP process (e.g. by hosting a scenario-specific RPAG meeting before spring of 2017).
- c. Attendee observations about peak demand forecasting:
  - i. One of the attending utilities has experienced challenges with developing updated load shapes; the utility highlights this as a risk for the 2017 LTGRP and is also interested in opportunities for collaboration on this item.
  - ii. One of the attending utilities uses one-in-twenty year peak weather conditions across 60 years of historical weather data.
  - iii. FEI can impact its peak demand via demand or supply side actions, such as additional storage options, increased pipe capacity, or time of use rates; FEI should consider commenting on potential thermal energy storage options in its 2017 LTGRP report.
  - iv. Is FEI considering advanced metering for the bulk of its natural gas customers to gather better load shape data?

1. FEI is monitoring the business case for advanced metering of its natural gas customers but has not made any final decisions on this item.

#### 4. Policy Environment Review

- a. FEI should clarify whether it is referring to energy consumption or GHGe on the various charts for its slides on the provincial energy landscape.
- b. Can FEI show a comparison chart of per capita GHGe for BC, Canada, and the world?
  - i. **This data exists but does not directly add value to the resource planning process.**
- c. One attendee notes that marine bunkering of Liquefied Natural Gas (LNG) presents a sizable GHGe reduction opportunity; the current level of GHGe from ships coming into BC is higher than the total GHGe attributed to BC in its entirety.
- d. One attendee suggests that increasingly stringent building and appliance energy codes will increase the capital cost of natural gas space heating equipment so much that lifecycle economics will drive fuel switching from natural gas to electricity. FEI requests comprehensive quantitative evidence for this suggestion in order to consider this for input into the 2017 LTGRP scenario analysis.
- e. One attendee notes that the targets and actions in the BC Climate Leadership Plan will only achieve one third of British Columbia's 2050 GHGe target and that further actions may follow.
- f. FEI's 2017 LTGRP should consider the impact of a potential federal low-carbon fuel standard.
- g. The City of Vancouver and the City of Victoria are promoting a vision of reaching 100% renewable energy by 2050; the City of Vancouver and other BC municipalities have differing powers for pursuing actions in support of this vision.
- h. Individual GHGe reduction plans that are submitted under the Paris Agreement are not legally binding, unless they are domestically legislated in the member countries.
- i. One attendee notes that the provincial GHGe inventory does not include GHGe from First Nations:
  - i. This hinders First Nations energy and emissions planning to the extent that the GHGe inventory forms the basis for developing Community Energy and Emissions Plans.
  - ii. This also hinders wider BC energy and emissions planning since separating First Nations emissions from the inventory causes regional data gaps.
  - iii. One attendee notes that FEI may be able to play a leadership role by referencing such issues in its planning documents which may help institutionalize such issues in public discourse.
- j. Slide 37 displays a comparison of residential energy rates by fuel type:
  - i. Could FEI include the following information in this slide:
    1. Especially for remote communities that are considering different fuel options for their citizens, a cost category for wood burning stoves.
      - a. **FEI does not track the price of fuel for wood burning stoves and notes that different fuel types exist (e.g. wood pellets vs. wood chips).**
      - b. One attendee suggests that FEI could focus on wood pellets because these are not as heavily impacted by competition from other end uses as other wood sources.
        - i. **In the context of resource planning, this slide illustrates heating fuels for the province as a whole.**

Wood stoves do not constitute a large share of heating appliances throughout the province. FEI will explore the appropriateness of including a statement in the LTGRP that the economic and cultural value of using wood as an energy resource in remote communities receive fair consideration.

2. An electric category which is based on heat pumps rather than electric baseboards.
    - a. **FEI will consider including this information in future resource planning-related slide decks.**
  3. The relative GHGe for each category; multiple attendees note that this is crucial information if we seek to achieve cost-effective GHGe reductions and balance these with energy affordability across the province.
    - a. **FEI will consider including this information in future resource planning-related slide decks.**
    - ii. One attendee suggests that the economics in this chart may change if large proportions of the housing stock shift to one specific fuel type.
  - k. Slide 38 compares distributions of household natural gas consumption for FEI's customer base in 2011 with customers that FEI added between 2011 and 2014:
    - i. FEI should clarify that this slide refers to the Lower Mainland only and should consider showing similar information for its other regions.
      1. **FEI has not developed this data for all of its service regions. Since this slide simply illustrates that new residential customers, on average, consume less natural gas than existing customers, adding the requested information does not directly add value to the resource planning process.**
    - ii. FEI should also consider pinpointing on this slide customer groups with different end uses (e.g. homes with natural gas space heating versus homes with natural gas kitchen appliances only).
      1. **FEI notes that the difference between the two consumption distributions accounts for changing energy use patterns, natural conservation, as well as the impact of FEI Conservation & Energy Management programs; disaggregating the respective effects of these factors in the consumption distributions would require substantial effort. Since this slide simply illustrates that new residential customers, on average, consume less natural gas than existing residential customers, adding the requested information does not directly add value to the resource planning process.**
5. **Regional Gas Market Update**
- a. The Shale/Tight Oil category on FEI's charts indicates natural gas production from oil extraction activities.
  - b. FEI typically procures about 75% of its natural gas from Station 2 and 25% from AECO. Station 2 gas is typically cheaper than AECO gas which, in turn, is typically cheaper than Henry Hub gas.
  - c. **Could FEI show a comparison of the natural gas commodity cost versus its distribution costs?**

- d. **This information is readily available on [FEI's website](#): the cost of gas per GJ indicates the commodity cost, storage & transport indicates the cost of FEI's contracted storage assets and transportation required to bring natural gas to the FEI service area, the basic and delivery charges refer to the distribution cost once natural gas is on the FEI system.**
- e. Comparing natural gas price forecasts from different sources:
  - i. The US Energy Information Administration's (EIA) price forecast contains different assumptions about the development of the LNG export market than forecasts from other sources; this largely explains why the EIA forecast differs from other forecasts.
  - ii. Wood Mackenzie's (Woodmac) forecast assumes that current LNG prices will continue into the future and does not include projections about potential LNG price convergence in regional markets across the globe.
  - iii. The following factors may explain why LNG prices have converged in regional markets across the globe in recent years:
    - 1. The market is subject to a global supply glut; this situation may change in the longer term.
    - 2. LNG trading is increasingly evolving from regional markets to an interconnect global market; this means that LNG customers are becoming more sophisticated when negotiating supply agreements and are considering LNG in relation to other global energy supply options, such as oil.
- f. Given global LNG price convergence and the current global LNG supply glut, the forecast sources that FEI subscribes to expect approximately two BC LNG projects only to proceed:
  - i. Woodfibre LNG will likely be one of these projects.
  - ii. Woodfibre is much smaller than other proposed LNG export projects (approximately 1/6 in proposed natural gas export volume) but is able to operate at these smaller economies of scale (and thus higher break-even prices) because it is directly underwritten by a Singapore utility which intends to use the supply for its own generation.
  - iii. LNG export facilities would change FEI's system peaks if these facilities are connected to FEI's pipeline network (e.g. Woodfibre); most larger facilities will have their own pipeline connections to the regional network and would thus impact the regional system peak only.
- g. **The 2017 LTGRP should consider discussing FEI's future storage requirements:**
  - i. FEI directly owns storage at its Tilbury and Mount Hayes LNG facilities; these facilities are intended for peak and emergency capacity as well as Natural Gas for Transportation (NGT) rather than shifting load across seasons.
  - ii. FEI's typical storage contracts last approximately 10 years; this means that contracts will expire during the 20-year 2017 LTGRP forecast horizon.
  - iii. FEI details its storage contracting considerations and price risk management initiatives in its Annual Contract Plans and Price Risk Management Plans; FEI's current Price Risk Management Plan contains both physical as well as financial hedging activities.
- h. Projected continental gas flows and pipeline capacity:
  - i. Future projects may augment pipeline connections between BC and Alberta and may thus enhance market access for BC natural gas producers.

- ii. At the same time, natural gas supply from the US Northeast may displace Western Canadian gas in Eastern Canada.
- iii. Potential westward transmission of US Northeastern gas supplies will primarily impact the California market but may have knock-on effects on the Pacific Northwest region that BC is connected to.

### 6. Scenario Analysis

- a. When presenting its scenario analysis to the Resource Planning Advisory Group, FEI should be very clear about what specific feedback it is seeking from the members of the group; FEI will circulate a follow-up survey with specific questions about the scenario analysis and appreciates any additional feedback it receives from the RPAG via this survey.
- b. FEI should be clear about whether LTGRP scenarios are targets for its business operations or reflect potential changes in the planning environment which may impact its resource requirements; FEI should consider the purpose and objectives of its resource plans when determining its approach to this issue.
- c. Comments on the boundaries for scenario analysis and the rate of change across the forecast horizon:
  - i. Two attendees note that FEI's scenario assessment should refrain from mere sensitivity analysis and should consider building its scenarios into drastically alternate futures by combining the impact of multiple critical uncertainties. In doing so, FEI should outline what contexts would cause critical uncertainties to combine into such futures in order to establish signposts for checking which scenarios may be playing out and how they impact business strategy. The resulting maximum and minimum annual demand should vary by more than 15 per cent from the reference case demand.
  - ii. Two attendees note that FortisBC should treat the evolution of delivery cost charges as an endogenous variable in its forecast model and simulate how changes in annual consumption impact delivery cost charges which may create a self-reinforcing feedback loop.
  - iii. Other attendees suggest that FEI should be cautious and conservative when preparing the scenario analysis boundaries since major energy shifts are likely to proceed slowly.
  - iv. One attendee notes that change often happens slowly at the beginning but then experiences an S-curve.
  - v. One attendee suggests that the roots of integrated resource plans are in electric utility planning but that natural gas infrastructure can typically be modified faster than electric infrastructure; FEI should consider its reaction time for infrastructure development when determining how much its maximum and minimum scenarios should depart from its reference case beyond the horizon of its immediate action plan.
  - vi. Two attendees note that FEI should include projection intervals in its analysis, such as "actual demand is 90 per cent likely to proceed within the maximum and minimum forecast demand trajectories". Other attendees caution that this approach may not be appropriate for the LTGRP scenario analysis method.
- d. RPAG members who also attended the BC Conservation Potential Review (BC CPR) Technical Advisory Committee (TAC) appreciated how the BC CPR explained its scenario mechanics and suggest that the 2017 LTGRP should provide similar explanations; the FEI

## Resource Planning Advisory Group Meeting Notes

---

resource planning team will consult with the FEI CPR team to explore opportunities for adopting a similar approach to explaining scenarios.