

British Columbia Utilities Commission

**FortisBC Energy Inc. 2017
Long Term Gas Resource Plan (LTGRP)**

BCUC Project No.1598946

**Final Submission of
B.C. Sustainable Energy Association and Sierra Club B.C.**

December 6, 2018

William J. Andrews, Barrister & Solicitor
1958 Parkside Lane
North Vancouver, BC, V7G 1X5
Phone: (604) 924-0921
Fax: (604) 924-0918
Email: wjandrews@shaw.ca

Table of Contents

PART 1 – INTRODUCTION	1
A. Final Submission of BCSEA-SCBC	1
B. BCSEA and SCBC interests in the proceeding	1
C. BCSEA and SCBC involvement in the proceeding	2
D. Remedies Requested by FEI.....	2
Part 2 – BCSEA and SCBC Key Points.....	2
A. Reduced GHG emissions from the combustion of natural gas.....	2
B. Locked-in natural gas infrastructure.....	3
C. Proposed Woodfibre LNG Export Project	3
D. Capacity-focused DSM to defer capital infrastructure	4
E. Natural Gas for Transportation	5
F. Biomethane	5
G. Emerging technologies for GHG reductions	5
PART 3 – LEGAL FRAMEWORK.....	6
PART 4 – SECTION 44.1(2) REQUIREMENTS	7
A. Gross (Pre-DSM) Demand Forecast, UCA s.44.1(2)(a)	7
B. Long Term DSM Plan, Load Forecast Net of DSM Savings, Why Supply-Side Resources Instead of DSM	10
a. Long Term DSM Plan	10
b. Load Forecast Net of DSM	11
c. Why Supply-Side Resources Instead of DSM	11
C. New Facilities	12
D. Energy Purchases	12
E. Other Information Required by the 2014 FEU LTGRP Decision.....	12
F. Resource Planning Guidelines.....	13
PART 5 – SECTION 44.1(8) CONSIDERATIONS.....	14
A. British Columbia’s Energy Objectives	14
B. <i>Clean Energy Act</i> , sections 6, 19.....	16
C. Adequate, Cost-Effective DSM.....	16
D. Interests of Current and Future Customers.....	16
PART 6 – OTHER ISSUES RAISED IN THE PROCEEDING.....	16
A. Adequacy Under the DSM Regulation	16
B. Use of ‘Maximum Achievable Savings’ in DSM Analysis.....	16
C. DSM Impacts on Infrastructure Requirements	19

D. Innovative Gas Technologies	19
E. Price Risk Management Principles	19
F. 50% Reduction in GHG Emissions from Buildings by 2030.....	20
G. Impact of 'Demand on a Day' Exceeding FEI Distribution Capacities	20
H. Renewable Natural Gas Program.....	21
I. Zero Emissions Energy Alternative and DSM MTRC Cost-Effectiveness Test	21
PART 7 – CONCLUSION.....	21

PART 1 – INTRODUCTION

A. Final Submission of BCSEA-SCBC

1. This is the final submission of the B.C. Sustainable Energy Association (BCSEA) and Sierra Club BC (SCBC) in the B.C. Utilities Commission's proceeding regarding the FortisBC Energy Inc. (FEI) 2017 Long Term Gas Resource Plan (LTERP). This submission is filed pursuant to the regulatory timetable approved in Order G-132-18 dated August 29, 2018 [Exhibit A-8].
2. This submission responds to FEI's November 22, 2018 final argument.

B. BCSEA and SCBC interests in the proceeding

3. BCSEA is a member-based registered charity comprised of citizens, professionals and practitioners committed to promoting the understanding, development and adoption of sustainable energy, energy efficiency and energy conservation in British Columbia. BCSEA supports the province's transition to a lower carbon economy. BCSEA has four chapters across B.C. with approximately 350 individual and corporate members and an extended community of over three thousand British Columbians. Virtually all of BCSEA's members are ratepayers of one or more of BC's public energy utilities. BCSEA represents individuals and corporations in BC who care about energy sustainability and climate change, and who want the energy they purchase and use to be sustainably produced and transported.
4. SCBC is a non-profit organization of British Columbians from all walks of life. SCBC represents individuals in BC who care about a broad range of environmental issues, including climate change and clean energy, and who want the energy they purchase and use to be produced and transported in ways that minimize harm to the natural environment. SCBC has five local groups and over 12,000 members and supporters across the province. Many of SCBC's members are ratepayers of FEI.
5. Tom Hackney of BCSEA-SCBC participates on FEI's Energy Efficiency and Conservation Advisory Group.

6. BCSEA-SCBC's interests in this proceeding are as a non-profit public interest environmental and energy policy organizations, and as representatives of their members' interests as ratepayers.

C. BCSEA and SCBC involvement in the proceeding

7. BCSEA and SCBC have participated fully in this proceeding. They made two rounds of information requests to FEI regarding the Application and FEI's responses to information requests. They retained Mr. James Grevatt of Energy Futures Group, Inc. (EFG) to provide the Commission with expert evidence on demand-side management (DSM) aspects of the 2017 LTGRP and LT DSM Plan. Mr. Grevatt's evidence is filed as Exhibit C2-7. BCSEA-SCBC and Mr. Grevatt filed responses to information requests on Mr. Grevatt's evidence by Commission staff,¹ FEI,² and Commercial Energy Consumers (CEC).³ BCSEA-SCBC made information requests to FEI⁴ regarding FEI's rebuttal evidence.⁵

D. Remedies Requested by FEI

8. FEI seeks Commission acceptance of the 2017 LTGRP under s.44.1(2) of the UCA. FEI does not seek specific approvals in this filing.

Part 2 – BCSEA and SCBC Key Points

9. BCSEA-SCBC highlight the following key points.

A. Reduced GHG emissions from the combustion of natural gas

10. BCSEA-SCBC want major reductions in BC's GHG emissions. As the largest natural gas delivery public utility in BC, FEI should, and will, play a significant role in helping to reduce GHG emissions. While BCSEA-SCBC strongly support the rapid expansion of FEI's nascent biomethane program, almost all of the natural gas delivered by FEI and consumed by its customers is a conventional fossil fuel. Reducing the consumption of conventional natural gas by FEI customers is a high priority and a major prerequisite for BC to achieve its climate action commitments.

¹ Exhibit C2-8.

² Exhibit C2-10.

³ Exhibit C2-9.

⁴ Exhibit C2-11.

⁵ Exhibit B-11.

11. Policy support for substantial GHG emissions reductions remains high in British Columbia. When FEI filed the 2017 LTGRP in December 2017, it said that the minority government status creates uncertainty as to whether and how the BC government will implement mandates such as the Energy Roadmap, reinvigoration of the Innovative Clean Energy Fund, a new climate action strategy with new 2030 GHG reduction target and sectoral targets, and increases in the carbon tax.⁶ However, BCSEA-SCBC submit that no such uncertainty has been evident in the year since FEI filed the LTGRP. The government has raised the carbon tax,⁷ re-affirmed legislated GHG reduction goals, added a 2030 GHG reduction target, and today issued a new climate action plan emphasizing, among other things, substantial reductions of GHG emissions from the use of natural gas in the buildings sector.

B. Locked-in natural gas infrastructure

12. From BCSEA-SCBC's perspective, a significant planning challenge is that FEI already has in place considerable system resources for delivering natural gas, and this expensive 'locked in' infrastructure is paid for by customers through their ongoing delivery rates. Unfortunately, this creates pressure for continued or increased natural gas throughput at the same time as action on climate change requires reductions in the use of fossil fuels.

C. Proposed Woodfibre LNG Export Project

13. This dilemma is epitomized by the proposed Woodfibre LNG Export Project that would increase FEI's throughput by almost half while facilitating the overseas combustion of almost 100 million GJ/y of conventional natural gas.⁸ BCSEA-SCBC reject the claim by the proponent of the Woodfibre project that this exported natural gas would reduce global GHG emissions.⁹ While FEI does not claim GHG reductions benefits associated with the possibility of the Woodfibre LNG Project becoming an FEI customer, FEI does note the substantial incremental throughput

⁶ Exhibit B-1, p.48.

⁷ Exhibit B-3, FEI Response to BCSEA IR 33.4.

⁸ FEI provides an estimate of 94.9 million GJ/y annual demand growth associated with the Woodfibre LNG Export Project: Exhibit B-3, FEI Response to BCSEA IR 2.1.

⁹ At the first level of analysis, LNG from the Woodfibre project would displace LNG exported from some other location, not higher-carbon fuels.

the Project would provide.

14. The 2017 LTGRP treats the Woodfibre LNG Project as an “example” of a potential future very large new load, and not as a planning objective. Nevertheless, BCSEA-SCBC believe that FEI should not overtly encourage implementation of the Project.

D. Capacity-focused DSM to defer capital infrastructure

15. BCSEA-SCBC’s concern that locked-in natural gas infrastructure will hamper future GHG reduction measures is reflected in their desire to ensure that focused, cost-effective demand-side measures are fully considered and implemented ahead of any large system expansion projects.
16. BCSEA-SCBC ask the Commission to direct FEI to accelerate its examination and development of demand reduction and demand response measures that would cost-effectively defer infrastructure investments. This request is supported by Mr. Grevatt’s expert evidence.¹⁰
17. FEI acknowledges that “Growth in peak demand is among the most significant challenges for FEI’s long term planning.”¹¹ FEI states that it “has not conducted analysis addressing above-Plan DSM to address any of VITS, CTS, or ITS constraints,” but that it “is developing the means to conduct such an analysis.”¹² However, FEI states that “many years will be required to establish the measurement solutions and develop the end-use method to a point where a reliable determination of the impacts of DSM on peak demand projections and capacity related infrastructure investments can be made.”¹³
18. The issue is one of timing. FEI says it intends to examine the potential use of DSM to defer capacity-related infrastructure investments, but it submits that the BCUC should not direct FEI to provide a proposal and timetable for doing so.¹⁴ BCSEA-SCBC are concerned that an open-ended timeframe would not ensure that FEI has the requisite data on the potential peak-reducing benefits of DSM in order to analyze DSM alternatives to specific capacity-related infrastructure investments FEI brings to the BCUC for approval.

¹⁰ Exhibit C2-7, pp.3-8.

¹¹ Exhibit B-1, FEI LTGRP ES-7, lines 21-22.

¹² Exhibit B-3, BCSEA IR 1 response 5.3

¹³ Exhibit B-3, FEI response to BCSEA IR 1.23.3.1, pdf p.61 (underline added).

¹⁴ FEI Final Argument, para.82.

19. In response to the ICF rebuttal evidence submitted by FEI, BCSEA-SCBC acknowledge that DSM for deferred capital expenditures by natural gas utilities is an emerging approach that in practice may be ‘easier said than done.’ That is precisely why BCSEA-SCBC emphasize that FEI’s analysis of the opportunities should be conducted under a clear plan and timeframe.

E. Natural Gas for Transportation

20. BCSEA-SCBC take a very cautious approach to FEI’s “Natural Gas for Transportation” (NGT) emphasis within the 2017 LTGRP. The use of fossil fuels for transportation accounts for a substantial component of BC’s GHG emissions. The best approach is to reduce transportation energy use and to adopt zero-carbon transportation fuels such as clean renewable electricity and hydrogen.¹⁵ In very limited circumstances, there may be a case for using natural gas as a short-term substitute for higher-carbon-intensity fuels such as diesel and oil. Even these narrow exceptions, however, are increasingly obviated by the growing availability of zero-carbon transportation technologies. In BCSEA-SCBC’s view, FEI’s NGT program should be scrutinized for GHG reductions effectiveness in future iterations of the long term resource plan.

F. Biomethane

21. As noted above, BCSEA-SCBC strongly support FEI’s biomethane program (“Renewable Natural Gas” or RNG). Demand for RNG is growing rapidly.¹⁶ BCSEA-SCBC recognize that even annual demand forecast scenarios that assume a high level of RNG demand result in RNG accounting for a small proportion of FEI’s total annual demand by the end of the planning period. However, this analysis assumes current biomethane supply technologies. As FEI notes, “If cellulosic biogas technologies become commercially scalable at reasonable cost, RNG demand may account for a significant share of FEI’s demand within 20 years.”¹⁷

G. Emerging technologies for GHG reductions

22. BCSEA-SCBC cautiously support FEI’s commitment in the 2017 LTGRP to

¹⁵ (assuming it is produced from a clean and renewable feedstock)

¹⁶ Exhibit B-7, FEI Response to CEC IR 2.3.1.

¹⁷ Exhibit B-1, ES-10-11.

support emerging GHG reduction technologies. These include: “[technologies] to de-carbonize the natural gas stream and enable the natural gas infrastructure to store electric energy (indirectly by injecting into the pipeline system hydrogen derived via electrolysis), de-carbonize natural gas end-use appliances or increase beyond 100 percent the efficiency of natural gas appliances.”¹⁸

PART 3 – LEGAL FRAMEWORK

23. Sections 44.1(2), (6), (7) and (8) of the UCA are the main statutory provisions governing the Commission’s review of FEI’s 2016 LTGRP. The basic test is whether the Commission finds that the long term resource plan is in the public interest, pursuant to s.44.1(6).
24. BCSEA-SCBC do not disagree with FEI’s specific submissions in paragraphs 6 to 14 of its Final Argument. However, in BCSEA-SCBC’s respectful submission FEI’s emphasis on a stark separation between the requirements of s.44.1(2) and the public interest considerations in s.44.1(6) and s.44.1(8) goes too far. BCSEA-SCBC submit that the public interest test for the Commission’s acceptance or rejection of all or a part of a long-term resource plan filed under s.44.1 is the overarching lens through which the Commission must review the plan in relation to the various provisions of s.44.1.
25. This broad view of the s.44.1 public interest test is supported by the description of the intention of the resource planning process under the UCA provided by the Commission Panel in the FEU 2014 LTRP Decision:

“The purpose of the LTRP process is to support utilities to develop plans that reflect their specific circumstances. From the Commission’s perspective LTRPs support, in principle, regulatory efficiency. The Commission’s mandate of evaluating resource plans is to “facilitate the cost-effective delivery of secure and reliable energy services” while addressing government policy.

It must be emphasized that resource planning, from the Commission’s perspective, is not simply a perfunctory matter whereby utilities file template material cut and pasted from annual reports available in public records. Rather, resource planning is a process requiring utilities to consider all anticipated resources required to meet the demand for a utilities product and services. The intent of resource planning is to facilitate the cost-effective delivery of secure and reliable energy

¹⁸ Exhibit B-1, ES-11

services. In the words of the previous panel from the FEU 2010 LTRP, 'resource plans should provide a comprehensive 20 year view of a [utility's] trajectory and provide a strong support for programs and initiatives which will be filed with the Commission.'"¹⁹

26. The FEU 2014 LTRP Panel said it considers that the purpose of the FEU's LTRP is to:

- Provide strategic direction and insight for future applications where the UCA specifically requires consideration of the LTRP (Certificate of Public Convenience and Necessity (section 45, UCA), Energy Supply contracts (section 71, UCA), and DSM (section 44.2, UCA));
- Provide direction on broader policy issues that may arise in other applications, such as rate design, extension policy and revenue requirement applications; and
- Identify and consider areas where there may be public interest concerns (for example, with regard to support for BC's Energy Objectives)."²⁰

27. In paragraph 15 of its Final Argument, FEI asserts that "If the BCUC has concerns with the 'quality' of the plan, as opposed to its 'adequacy' in meeting legislative requirements, the appropriate response is for the BCUC to issue directions for future plan filings," citing the Terasen Utilities 2010 LTRP Decision, p. 23, and FEU 2014 LTRP Decision, p. 10. This is overstated, in BCSEA-SCBC's respectful submission. In each of those two decisions the Commission Panel chose to act on its concerns by issuing directions for future plan filings while accepting for filing the plan in question. BCSEA-SCBC submit, however, that if the Commission had concerns that amounted to a long term resource plan not being in the public interest then the appropriate response would be to reject the plan as required by s.44.1(6)(b).

PART 4 – SECTION 44.1(2) REQUIREMENTS

A. Gross (Pre-DSM) Demand Forecast, UCA s.44.1(2)(a)

28. The 2017 LTGRP provides 20-year forecasts of gross (pre-DSM) annual demand²¹ and peak demand (maximum daily natural gas demand expected under extreme

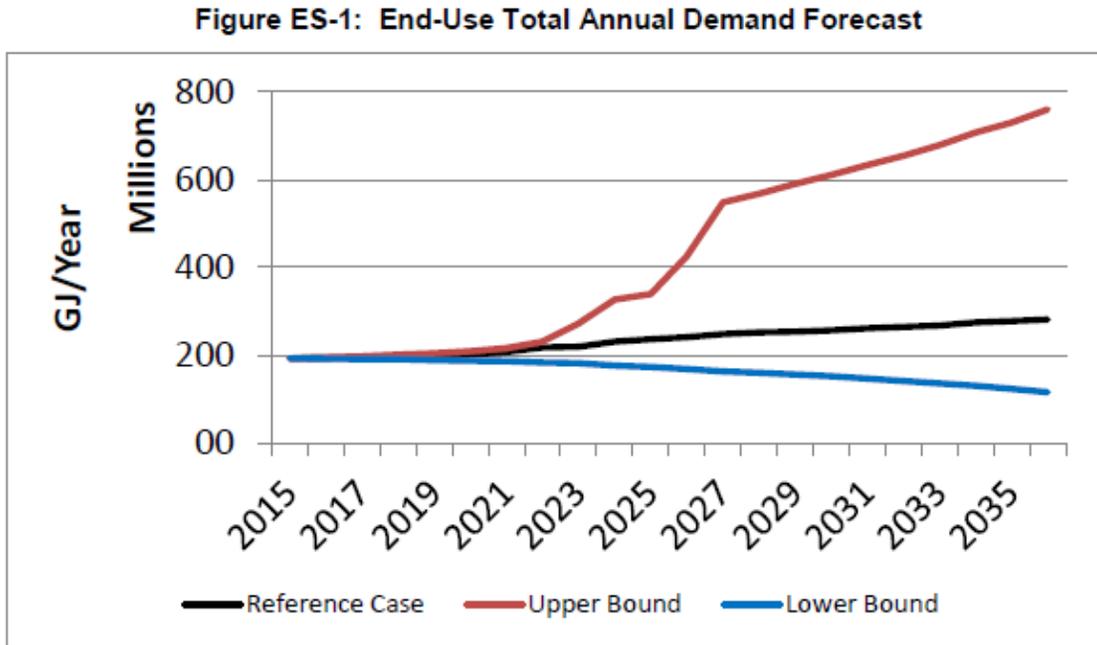
¹⁹ FEU 2014 LTRP Decision (Decision and Order G-189-14), p.5.

²⁰ *Ibid.*

²¹ Exhibit B-1, Chapter 3.

cold weather conditions).²² Reference, Upper Bound and Lower Bound scenarios are provided. The annual demand forecast has implications for FEI's acquisition of future gas supplies.²³ The peak demand forecast has implications for FEI's system resource needs and alternatives. It is the peak demand forecast that is the primary driver for FEI's infrastructure planning.²⁴

29. Figure ES-1 illustrates the pre-DSM end-use annual demand forecast:



30. The Reference Case annual demand grows from just under 200 million GJ/Year in 2015 to roughly 280 million GJ/Year in 2035. The Upper Bound forecast jumps up to almost four times the 2015 demand by 2035. The Lower Bound forecast declines to about half of the Reference forecast by 2035. The Upper Bound forecast does not include the possible Woodfibre LNG Project load of 94.9 million GJ/y.²⁵

²² Exhibit B-1, Chapter 6.

²³ FEI is not a vertically integrated utility. It purchases natural gas supplies on the market. It does not produce the natural gas it delivers to its customers. In this respect, FEI's long term planning is different than that of BC Hydro and FBC (electric), which maintain and plan for their own generation facilities to meet their customer load in whole or in part.

²⁴ FEU 2014 LTRP Decision, p.15.

²⁵ The figure is from Exhibit B-3, FEI Response to BCSEA IR 2.1.

31. FEI says the Upper Bound scenario is driven largely by higher than expected Natural Gas for Transportation (NGT) demand, and the Lower Bound scenario is driven largely by climate policy and regulation that favours displacing natural gas with other fuels for space heating and hot water.²⁶
32. FEI says it plans for the Reference Case demand trajectory, but “will remain vigilant” for indications that demand is unfolding more toward the Upper, or Lower, scenarios. FEI says it does not assign probabilities to any particular forecast outcome.
33. It can be observed that there is a very substantial difference between the Lower Bound and Upper Bound annual demand forecasts by the end of the planning period. The Upper Bound annual demand by 2035 is more than six times as high as the Lower Bound estimate.
34. FEI has presented annual demand forecasts derived from both a Traditional methodology and an End-Use methodology.
35. BCSEA-SCBC acknowledge that the 2017 LTGRP provides an estimate of the demand for energy FEI would expect to serve if FEI does not take new demand-side measures during the 20-year plan period, as required by UCA s.44.1(2)(a).
36. However, BCSEA-SCBC are concerned to see FEI forecasting the possibility of a very large increase in throughput of natural gas, given the GHG emissions that combustion of this natural gas would necessarily result.
37. BCSEA-SCBC acknowledge that LNG fuel for ships would cause fewer GHG emissions than the use of bunker fuel. However, notwithstanding the analysis of the International Energy Agency cited by FEI,²⁷ they are not convinced that a wholesale switch of shipping to LNG would reduce GHGs enough to align with the stringent GHG reduction needs to prevent more than 1.5° to 2° Celsius of global warming. The reductions are in the order of “more than” 30%²⁸ (or 29% for coastal vessels²⁹) relative to bunker fuel. The GHG reductions needed to stabilize climate change are closer to the long term target reflected in BC’s *Climate Change Accountability Act* (recently re-affirmed): 80% below 2007 levels by 2050.

²⁶ Exhibit B-1, p.ES-4.

²⁷ Exhibit B-1, Appendix E, page 8, pdf page 3474.

²⁸ Exhibit B-1, PSE Tacoma Liquefied Natural Gas 2-pager, pdf 2891.

²⁹ Based on Exhibit B-3, FEI Response to BCSEA IR 37.3.

38. BCSEA-SCBC note that the Upper Bound forecast is contingent on circumstances that have not yet arisen, and FEI proposes no specific actions in its Action Plan to contract for or build infrastructure to implement the Upper Bound case.

B. Long Term DSM Plan, Load Forecast Net of DSM Savings, Why Supply-Side Resources Instead of DSM

39. UCA sections 44.1(2)(b), (c) and (f) require FEI's long term resource plan to include a plan of how intends to reduce the estimated pre-DSM demand by taking cost-effective demand-side measures, an estimate of post-DSM demand expected to be served, and an explanation of why any proposed supply-side resources are not planned to be replaced by demand-side measures.

40. FEI addresses these requirements in Section 4.2 of the 2017 LTGRP.

a. Long Term DSM Plan

41. FEI's plan of how it intends to reduce the estimated pre-DSM demand by taking cost-effective demand-side measures is provided in two paragraphs in Section 4.2.4 of the 2017 LTGRP.

42. Key elements of FEI's long term DSM plan are:

- (a) FEI's next upcoming DSM expenditure schedule (which was filed on June 22, 2018) will be based on the results of the BC CPR and the 2017 LTGRP C&EM analysis, in light of BC provincial energy goals.
- (b) FEI will file DSM expenditure schedules, successively throughout the 20-year planning period.
- (c) FEI projects that it will continue to perform residential, commercial, industrial, low income, innovative technologies, conservation education and outreach as well as enabling C&EM activities.
- (d) FEI will continue monitoring the cost effectiveness of its C&EM activities and identifying any new measures that can be included in its activities.
- (e) FEI's specific program offers will likely change to suit the evolving marketplace, legislative provisions (including future adequacy requirements), end-use technologies, and FEI customer needs.

- (f) FEI will update its long term C&EM analysis via successive future LTGRPs.³⁰
43. In BCSEA-SCBC's view, this long term DSM plan is thin on detail. However, a considerable amount of work is embodied in the BC CPR for FEI, and this is presented in the LTGRP.
44. The figures showing Reference case DSM expenditure trajectories over the 20-year planning period show rising expenditures in the early years followed by substantial declines.³¹ BCSEA-SCBC strongly disagree with any 'fall off' of mid- to long-term DSM expenditures and savings. However, it is noted that these figures are not included in the long term DSM plan.
45. The timing of the 2017 LTGRP meant that, as anticipated in the LTGRP, FEI's 2019-2022 DSM Expenditure Schedule was filed half way through the LTGRP proceeding. In some respects, this has complicated the consideration of both the long term DSM plan and the four-year DSM expenditure schedule. Looking to the future, BCSEA-SCBC support a filing date for the next LTGRP that allows sufficient time for a decision before the next DSM expenditure schedule is filed. This is discussed further, below.
46. For its next long term DSM plan, BCSEA-SCBC encourage FEI to include a broader array of principles and objectives. For example, it is important that the plan confirm FEI's commitment to continue to offer cost-effective DSM to customers across all customer classes, including hard-to-reach customers such as low income customers and renters.

b. Load Forecast Net of DSM

47. BCSEA-SCBC acknowledge that Section 4.2.3 of the 2017 LTGRP provides an estimate of the demand for energy that FEI expects to serve after it has taken cost-effective demand-side measures.³²

c. Why Supply-Side Resources Instead of DSM

48. FEI says that Sections 6.2.1.3 and 6.3 of the 2017 LTGRP provide FEI's s.44.1(2)(f) explanation of why the demand for energy to be served by new

³⁰ Exhibit B-1, p.123.

³¹ Exhibit B-1, Figures 4-6, 4-7, and 4-8.

³² FEI Final Argument, para.30.

facilities and purchases are not planned to be replaced by demand-side measures.³³

49. In particular, FEI says the following statement constitutes the required explanation:

“Since the exploratory end-use method is not based on metered FEI customer data, the Traditional Peak Method forecast which intrinsically reflects the current effects of DSM programs remains FEI’s base forecast for determining infrastructure requirements and timing for addressing capacity constraints. By relying on the Traditional Peak Method, Section 6.3 thus addresses the requirements of section 44.1(2)(f) of the UCA. FEI will continue monitoring potential metering solutions that may allow FEI to field-validate the projections of the exploratory end-use peak demand forecast method and to better serve its customers.”³⁴

50. BCSEA-SCBC acknowledge this is explanation complies with s.44.1(2)(f). They comment elsewhere that FEI’s examination of the potential for DSM to reduce peak demand should be the subject of a transparent plan and timetable.

C. New Facilities

51. UCA s.44.1(2)(d) requires FEI’s long term resource plan to include a description of the facilities that FEI intends to construct or extend in order to serve the estimated demand after planned demand-side measures have been taken.

52. BCSEA-SCBC acknowledge that this is discussed in Chapter 6 and, in particular, Sections 6.2, 6.3, and 6.4. It is noted that FEI is not seeking approval of any capital expenditures in this filing.

D. Energy Purchases

53. BCSEA-SCBC acknowledge that Chapter 5 and associated responses to information requests provide information required by UCA s.44.1(2)(e).

E. Other Information Required by the 2014 FEU LTGRP Decision

54. Table 1-5 of the 2017 LTGRP lists the directives from the 2014 FEU LTGRP Decision and FEI’s actions taken in response. BCSEA-SCBC acknowledge that the directives relevant to the 2017 LTGRP have been substantially met.

³³ FEI Final Argument, para.31.

³⁴ Exhibit B-1, p.155.

55. However, BCSEA-SCBC respectfully submit that several directives (numbers 9, 15, 17 and 18) warrant restatement in the Commission's decision. Updated, these would be as follows:
- (a) In the next LTGRP, FEI is directed to provide a fulsome analysis of opportunities for DSM to be cost-effectively used to replace or defer infrastructure investments.
 - (b) The Panel directs FEI to provide in the next LGTRP: (i) an analysis of the GHG targets as set out in British Columbia's energy objectives and an estimate of the portion of the required reduction that the Company believes it can reasonably attain over time; and (ii) an outline of the impact of the implementation of new initiatives on the demand forecast and GHG emission reductions.
 - (c) If, in the next LTGRP, FEI provides a demand forecast that includes the possibility of there being insufficient supply for both NGT BC customers and non-BC LNG export customers, then the Panel directs FEI to address how it will insure compliance with section 44.1(8)(d) of the UCA.
 - (d) The Commission Panel directs FEI to file its next LTGRP on or before [a date certain].
56. In terms of the date for the filing of FEI's next LTGRP, BCSEA-SCBC suggest a date in 2021 for three reasons. First, the policy environment will likely change quickly in the next few years. Second, it would be desirable to have a decision on the next LTGRP before FEI files a DSM expenditure schedule to follow the 2019-2022 schedule. Third, there is an extremely wide divergence between the Upper Bound, Reference and Lower Bound forecasts of annual demand starting in about 2021.

F. Resource Planning Guidelines

57. BCSEA-SCBC do not disagree with FEI's assertion that the 2017 LTRP is consistent with the elements of the BCUC's resource planning guidelines that are applicable.

PART 5 – SECTION 44.1(8) CONSIDERATIONS

A. British Columbia's Energy Objectives

58. In paragraph 44 of its Final Argument, FEI paraphrases the BC energy objectives relevant to the LTGRP. BCSEA-SCBC do not generally disagree. However, they note that:

(a) CEA s.2(d) includes not only “fostering the development in B.C. of innovative technologies that support energy conservation and efficiency,” but also “and the use of clean or renewable resources.”

(b) CEA s.2(g) includes not only “reducing GHG emissions,” but also specific reduction targets:

“(iii) by 2020 and for each subsequent calendar year to at least 33% less than the level of those emissions in 2007,

(iv) by 2050 and for each subsequent calendar year to at least 80% less than the level of those emissions in 2007, and

(v) by such other amounts as determined under the *Climate Change Accountability Act*”

(c) CEA s.2(k) includes not only “encouraging economic development,” but also “the creation and retention of jobs.”

59. It should also be noted that the recent *Climate Change Accountability Act* (formerly called the *Greenhouse Gas Reduction Targets Act*) contains two new GHG reductions milestone years, one of which falls within the 2017 LTGRP's 20-year planning period and the other shortly thereafter:

“2(1)(a.1) by 2030 and for each subsequent calendar year, BC greenhouse gas emissions will be at least 40% less than the level of those emissions in 2007;”

“2(1)(a.2) by 2040 and for each subsequent calendar year, BC greenhouse gas emissions will be at least 60% less than the level of those emissions in 2007;”

60. BCSEA-SCBC do not disagree that FEI's DSM activities, NGT and RNG initiatives are the key initiatives in the plan that contribute to advancing BC's energy and GHG emission goals.

61. BCSEA-SCBC commend FEI for the analysis in “Appendix E, Potential GHG

Emissions Reduction Pathways.”

62. BCSEA-SCBC acknowledge the specific initiatives FEI is working on with other entities to reduce carbon emissions from the natural gas stream:

“1. A project that seeks to prove the commercial scalability of RNG from wood waste. If such cellulosic biogas does become available at reasonable prices, it could dramatically increase RNG supply enabling FEI to substantially increase its ability to serve demand via its RNG program;

2. Work with the Canadian Gas Association (CGA) and its member companies to explore injection of hydrogen into the natural gas pipeline system. Hydrogen combusts without generating GHG emissions and can be derived via electrolysis or methane reformation. As such it may be employed to decarbonize the natural gas stream by storing in the form of hydrogen in the gas pipeline system, energy generated from renewable sources or using carbon capture technologies;

3. A pilot project to capture carbon emissions from commercial natural gas end-use appliances such as commercial furnaces or boilers, and make the captured by-product available in a commercially usable format;

4. Investigating the commercialization of gas-driven heat pumps which could help natural gas appliances exceed 100 percent end-use efficiency;

5. Investigating a commercial deep energy retrofit pilot with the City of Vancouver;

6. Investigating using AMI for load aggregation, efficiency and detection of fugitive emissions; and

7. Conducting analysis to determine carbon intensity of RNG in the BC Renewable and Low Carbon Fuel Requirement Regulation and developing programs to promote RNG use in transport.”³⁵

63. In addition, BCSEA-SCBC acknowledge FEI’s work toward reducing upstream GHG emissions:

“FEI is an active participant in the Natural Gas Innovation Fund (NGIF), created by the Canadian Gas Association, which works collaboratively with various stakeholders including utilities, industry and government to drive natural gas technology innovations both upstream and downstream.”³⁶

³⁵ Exhibit B-3, FEI Response to BCSEA IR 1.1.

³⁶ Exhibit B-3, FEI Response to BCSEA IR 1.2

64. BCSEA-SCBC conclude that the 2017 LTGRP does foster the applicable BC energy objectives to a certain extent, but that much more could be done.

B. *Clean Energy Act*, sections 6, 19

65. BCSEA-SCBC agree with FEI³⁷ that sections 6 and 19 of *Clean Energy Act* apply only to electric public utilities and not to FEI's UCA s.44.1 filings.

C. Adequate, Cost-Effective DSM

66. BCSEA-SCBC consider that the 2017 LTGRP meets the UCA s.44.1(8)(c) requirement to show that FEI intends to pursue adequate, cost-effective demand-side measures with reference to the adequacy and cost-effectiveness methodologies specified in the DSM Regulation. BCSEA-SCBC note that FEI's 2019-2022 DSM expenditure schedule filing contained much more detail than the LTGRP regarding the adequacy requirements.

D. Interests of Current and Future Customers

67. BCSEA-SCBC believe that the 2017 LTGRP serves FEI's current and future customers only to a limited extent. They believe that FEI will have to considerably expand and deepen its GHG-reduction and energy conservation and efficiency actions in order to achieve the objectives and commitments of the new BC climate action plan.

PART 6 – OTHER ISSUES RAISED IN THE PROCEEDING

A. Adequacy Under the DSM Regulation

68. As discussed above, BCSEA-SCBC accept that the 2017 LTGRP meets the UCA s.44.1(8)(c) requirement. They take no position regarding FEI's legal arguments in paragraphs 69 to 71 of its Final Argument.

B. Use of 'Maximum Achievable Savings' in DSM Analysis

69. BCSEA-SCBC support Mr. Grevatt's evidence that the Reference Case savings in the LTGRP, based on the BC CPR's Market Potential Forecast, are very likely to

³⁷ FEI Final Argument, para.52.

significantly underestimate the savings that FEI could be expected to achieve through programs that are designed to maximize savings.

70. Mr. Grevatt's point is summarized as follows:

"FEI's approach to developing its "Reference Case" DSM savings trajectory is inadequate. FEI relies on the Conservation Potential Review by Navigant Consulting Ltd., which [implicitly] rejects "Maximum Achievable Savings" and instead provides savings estimates of "Market Potential." This leaves an information gap that causes the DSM savings projection in the "Reference Case" to be overly conservative (low) because the full scale of available savings is not considered."³⁸

71. There are two distinct reasons why Mr. Grevatt says the approach used by Navigant in the CPR fails to provide the BCUC with a complete picture of the maximum available cost effective savings:

(1) the CPR does not attempt to quantify the "Maximum Achievable" savings that are available; and

(2) potential studies are inherently conservative.³⁹

72. FEI filed an October 2, 2018 report by Navigant⁴⁰ in rebuttal to Mr. Grevatt's evidence regarding DSM savings trajectories.

73. In response to the first three of the four points cited by FEI in paragraph 74 of its Final Argument, these points are not inconsistent with Mr. Grevatt's point in this regard.

74. The fourth of the four points in paragraph 74 is incorrect in asserting that Mr. Grevatt ignores what Navigant describes as "a diminishing rate of acquired savings per dollar of incentive spending." On the contrary, Mr. Grevatt emphasizes that:

"Incentive levels and consumer willingness to adopt measures are two examples of factors that are within the realm of influence of C&EM programs. As FEI has demonstrated in its sensitivity analysis, higher incentives will lead to significantly higher cost effective savings."⁴¹

75. Mr. Grevatt expressly cites the sensitivity of savings to incentive levels:

³⁸ Exhibit C2-7, p.9.

³⁹ Exhibit C2-7, p.9.

⁴⁰ Exhibit B-11, pdf p.40, *et seq.*

⁴¹ Exhibit C2-7, pp.10-11, underline in the original.

“FEI states that its DSM analysis “incorporates all cost effective demand-side measure activity,” implying that it is pursuing all the cost-effective savings that are available. However, the “Market Potential” forecast that FEI uses as a basis for its reference case DSM forecast clearly falls short. This is demonstrated by FEI’s analysis of how the assumed level of incentive spending impacts forecast portfolio level C&EM expenditures and energy savings.⁴² This sensitivity analysis showed that annual savings under the assumed Baseline Incentive DSM scenario (which corresponds to the reference case and the Market Potential Forecast) are substantially less than the amount of cost-effective annual savings that would be captured under the Highest Incentive scenario. FEI states that “the Highest Incentive scenario—having aggregate incentives that are 44% higher than the Baseline Incentive scenario—results in 2035 annual savings that are 34% higher than the Baseline Incentive scenario.”⁴³ This shows that FEI’s Reference Case DSM scenario, based on the CPR Market Potential, does not include all cost-effective DSM savings.”⁴⁴

76. In response to paragraph 75 of FEI’s Final Argument, the 2017 LTGRP states that FEI’s analysis incorporates all cost-effective DSM measures,⁴⁵ not just that it considered all cost-effective DSM measures.
77. BCSEA-SCBC respectfully disagree with paragraph 76 of FEI’s Final Argument.
78. To be clear, Mr. Grevatt’s point regarding the difference between “Market Potential” and “Maximum Achievable” does not address whether FEI ought to plan for, or the Commission ought to require FEI to plan for, a certain amount of DSM savings. His point is that an understanding of the maximum achievable savings would place in a useful context any savings level proposed by FEI.⁴⁶
79. To be equally clear, as to the appropriate level of DSM savings for FEI to pursue, Mr. Grevatt’s opinion is as follows:

“The appropriate level of savings to include in FEI’s long term resource plan is determined by both economic and non-economic factors. From an economic perspective, Mr. Grevatt’s view is that it would be appropriate to plan for all cost-effective savings, assuming that the cost-effectiveness test used for such an analysis monetizes and reflects all of

⁴² Exhibit B-1, FEI LTGRP p.ES-5 lines 15-17.

⁴³ Exhibit B-3, FEI response to BCSEA-SCBC IR 1.22.1, pdf p.59 (underline added).

⁴⁴ Exhibit C2-7, pp.9-10, emphasis in the original.

⁴⁵ Exhibit B-1, p.92.

⁴⁶ Exhibit C2-10, BCSEA Response to FEI IR 3.2.

the benefits that accrue from FEI's programs, including benefits related to BC climate policies."⁴⁷

C. DSM Impacts on Infrastructure Requirements

80. BCSEA-SCBC's comments on this point are provided in paragraphs 15 to 19, above.

D. Innovative Gas Technologies

81. BCSEA-SCBC are satisfied with FEI's stated commitments to pursuing innovative gas technologies. FEI confirmed that:

"(a) it is already exploring various activities under its existing funding regime and hopes that some of them will be fruitful;

(b) it will explore additional activities that are not yet foreseeable;

(c) it will pursue funding as required (i.e., via the BCUC or via government) if Item 8 activities require more funding than is currently available."⁴⁸

82. Further, FEI states:

"As with FEI's other innovative service initiatives (e.g., DSM, RNG and TES), FEI is fully committed to pursuing the innovative natural gas technology projects described in the response to BCSEA IR 1.1.1 through to their conclusion in the hope and expectation that some or all of the projects will prove to be viable. FEI maintains that innovation in this regard is vital to the interests of its customers and the long-term future of the gas utility. FEI is therefore also committed to pursuing approval of a funding envelope, as needed, to enable these projects to proceed. FEI will seek approval(s) of a funding envelope when the requirements of these projects necessitate additional funding sources."⁴⁹

E. Price Risk Management Principles

83. BCSEA-SCBC take no position on this topic.

⁴⁷ Exhibit C2-9, BCSEA Response to CEC IR 6.2.

⁴⁸ Exhibit B-6, FEI Response to BCSEA IR 2.46.1, cited in paragraph 102 of FEI's Final Argument.

⁴⁹ Exhibit B-6, FEI Response to BCSEA IR 2.46.2, cited in paragraph 103 of FEI's Final Argument.

F. 50% Reduction in GHG Emissions from Buildings by 2030

84. FEI provides a useful summary of this topic in paragraph 111 of its Final Argument where it states:

“111. In certain information requests, BCSEA inquired as to whether FEI appropriately considered the probability of possible emissions reduction policies becoming effective during the forecast horizon. In BCSEA IR 2.51.3, for example, BCSEA asked FEI to explain whether increased building energy performance standards, such as net zero buildings, or a 50% reduction in GHG emissions from buildings by 2030, are incorporated into any of the alternate future scenarios, and if “yes”, which ones? In response, FEI advised that it did not complete an alternate forecast scenario specific only to the BC building sector reducing GHG emissions by 50 percent by 2030 for the 2017 LTGRP. However, in its response to the information request, FEI pointed out that under the hypothetical assumption that a reduction in GHG emissions from the building sector were to be mirrored by an equal reduction in natural gas demand, the directional effect on FEI’s delivery rates as a result of reducing 50 percent of GHG emissions from the building sectors by 2030 can be estimated using the 20-year vision of FEI’s delivery rate impact under the Lower Bound Scenario already available in Section 8.6 of the Application.” [footnotes omitted]

85. BCSEA-SCBC welcome FEI’s conclusion that “FEI’s scenario analysis is sufficiently broad to simulate the outcomes of such action even if FEI is not certain as to how they will become implemented.”⁵⁰

G. Impact of ‘Demand on a Day’ Exceeding FEI Distribution Capacities

86. As noted above, BCSEA-SCBC do not disagree that FEI has complied with direction 17 in the FEU 2017 LTRP Decision. However, BCSEA-SCBC submit that a renewed version of the direction should be included in the Commission’s forthcoming decision on the 2017 LTGRP.

87. FEI argues that “With the exception of a scenario of an unforeseen and temporary interruption in supply due to circumstances upstream of FEI’s system, there is a low probability of a scenario arising where all system demands could not be met under normal operating circumstances.”⁵¹ Without belabouring the point, the unexpected rupture of the Enbridge pipeline on October 19, 2018 upstream of the

⁵⁰ FEI Final Argument, para.116.

⁵¹ FEI Final Argument, para.115, underline added.

FEI system is a reminder that unforeseen supply interruptions do occur from time to time.

H. Renewable Natural Gas Program

88. BCSEA-SCBC take no position on the specific issue addressed in paragraphs 118 to 121 of FEI's Final Argument. BCSEA-SCBC's comments regarding Biomethane are in paragraph 21, above.

I. Zero Emissions Energy Alternative and DSM MTRC Cost-Effectiveness Test

89. BCSEA-SCBC agree with FEI "for the purposes of comparison with the ZEEA value of \$27.78 per GJ,¹⁰² FEI submits that the most reasonable LMRC for acquiring RNG is based on the maximum acquisition price established by the BC Ministry of Energy and Mines. This is valued at \$30 per GJ."⁵²

PART 7 – CONCLUSION

90. For the reasons set out above, and respectfully noting the comments and recommendations made above, BCSEA-SCBC do not object to Commission acceptance of FEI's 2017 LTGRP.

91. This concludes BCSEA-SCBC's final submission regarding FEI's 2017 LTGRP.

ALL OF WHICH IS RESPECTFULLY SUBMITTED.

December 6, 2018



William J. Andrews
Counsel for B.C. Sustainable Energy Association and Sierra Club B.C.

⁵² FEI Final Argument, para.126, citing Exhibit B-2, BCUC IR 1.26.4.