



**FEI 2017 LONG TERM GAS RESOURCE PLAN**  
**EXHIBIT B-1-1**

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May 3, 2018

British Columbia Utilities Commission  
Suite 410, 900 Howe Street  
Vancouver, BC  
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Attention: Mr. Patrick Wruck, Commission Secretary and Manager, Regulatory Support

Dear Mr. Wruck:

**Re: FortisBC Energy Inc. (FEI)**  
**Project No. 1598946**  
**2017 Long Term Gas Resource Plan (LTGRP) (the Application) - Errata**

On December 14, 2017, FEI filed the Application referenced above. Concurrent with this Errata filing, FEI submitted its responses to Information Requests (IR) No. 1.

During the course of responding to IRs, FEI determined a few corrections are required to the Application, Exhibit B-1. The following outlines the corrections make as part of this Errata.

IR Reference:	Affected Pages (Exhibit B-1)	Correction
	Application, page 60, Line 12	Reference should be "Figure 3-1"
BCUC IR 1.12.1	Application, page 62, Line 8	"The Company had 979 industrial customers in 2015." should read, "The Company had <b>995</b> industrial customers in 2015."
CEC IR 1.18.1	Application, page 85, Lines 22 and 26; page 198, Line 8	"...13 million GJ per year..." should read, "... <b>7</b> million GJ per year..."

These corrections do not result in any impacts to the results or recommendations contained in the Application.

FEI has attached the blacklined version of the affected pages.

FEI apologizes for any inconvenience this may have caused to the Commission and Interveners in reviewing the Application.

If further information is required, please contact Ken Ross at (604) 576-7343.

Sincerely,

**FORTISBC ENERGY INC.**

***Original signed:***

Diane Roy

Attachments

cc (email only): Registered Parties

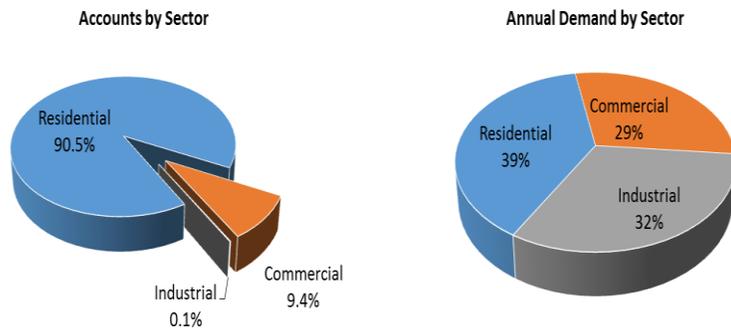
- Sections 3.4.6 and 3.4.7 discuss the annual demand impact of FEI's NGT and RNG initiatives; and
- Section 3.4.8 outlines FEI's total annual demand forecast while Section 3.4.9 discusses the impact of potential new large industrial point loads on this annual demand.

### 3.2 EXISTING RESIDENTIAL, COMMERCIAL, & INDUSTRIAL CUSTOMER DEMAND

The 2017 LTGRP uses a 2015 base year, starts its forecast in 2016 and ends the forecast horizon in 2036. The 2017 LTGRP selected the 2015 base year because FEI had not finalized its 2016 actuals in time for the 2017 LTGRP analysis to import this data while also being able to conclude in the 2017 submission year.

FEI's customer base includes approximately one million customers, consisting predominantly of residential customers that account for approximately 90 percent of the overall customer base (see [Figure 3-1](#) below). However, on an annual demand basis, there is a more even split between the residential, commercial, and industrial groups. The makeup of the Company's customer base and demand patterns has implications for infrastructure requirements and conservation goals as discussed throughout this LTGRP.

Figure 3-1: FEI Customer Base and Demand Overview, 2015



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### 3.3 CUSTOMER ADDITIONS FORECAST

FEI uses a well-established method to forecast customer additions that remains consistent with previous LTRP filings. The forecast of residential customer additions is grounded in the Conference Board of Canada housing starts forecast for BC, while commercial customer additions are forecast based on recent trends in growth for the commercial customer group. In its decision on FEI's 2014 LTRP, the BCUC noted that it expects FEI's future LTRP filings to show "forecast variability in new customer additions for all scenarios based on different

1 Figure 3-3 shows the Reference Case long term account forecast for commercial rate schedule  
2 customers for each of FEI's service regions. The Reference Case predicts continued growth of  
3 31 percent across the planning horizon with regional distribution remaining relatively  
4 unchanged.

5 **Figure 3-3: Long Term Customer Forecast by Region – Commercial (Excluding NGT)**



6

7 **3.3.1.3 Industrial**

8 The Company had 995 industrial customers in 2015. At the time the long term forecast was  
9 prepared, there were no firm commitments for new industrial customers to take natural gas  
10 service or for existing customers to close their accounts. Hence, no material growth or decline  
11 in industrial customers has been forecasted.

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12 **3.4 FORECAST METHODS**

13 The amount of natural gas that the Company expects its customers to use over the course of a  
14 year determines both the amount of gas that FEI needs to acquire and transport on behalf of its  
15 customers on an annual basis, and the number of units of energy per year over which the  
16 Company is able to recover its cost of service. Hence, the forecast of annual demand is a key  
17 early step in identifying the resources the Company needs to put into place in order to meet  
18 customers' future energy needs.

19 Using historical data to prepare short term time series forecasts of future consumption is a  
20 common and accepted industry practice. This method provides a high level of confidence for  
21 near-term business and operational decision making. All short-term demand forecasts for  
22 revenue requirements at FEI rely on historical data and the short-term Forecast Information  
23 System (FIS), which has been in use for over a decade.

24 However, as described in Section 2, on-going changes in the end-use energy solutions  
25 available to customers and the way in which customers are using energy means that historical

1 The key early adopters of LNG in BC were on-road heavy duty trucking customers. However,  
2 after the preferred high horsepower Cummins-Westport 15 litre high pressure direct injection  
3 (HPDI) engine was discontinued in 2013, causing a technology gap in the market, LNG adoption  
4 for on-road trucking essentially halted. The key markets that have emerged over the past  
5 number of years as consumers of LNG fuel have been high horsepower applications such as  
6 marine vessels, mine haul trucks, locomotives, and remote power generation for industrial  
7 applications. Similar to the CNG demand forecasts, FEI formulated the LNG demand forecasts  
8 by accounting for commitments that have been made by customers to take LNG supply under  
9 RS46, then applying inflation and forecasting the impacts of a variety of factors. These factors  
10 include the availability of Original Equipment Manufacturer (OEM) technology capable of  
11 adopting natural gas, regulatory changes that are expected to drive natural gas adoption and  
12 assumptions regarding market size and adoption rates based on past experience for some of  
13 the market segments.

14 The LNG demand scenarios presented below include demand from a number of different  
15 market segments that are suited to adopt natural gas as a fuel.

16 LNG for the marine market could be the largest share of the overall demand if this market  
17 segment adopts natural gas over the forecast period. As such, any changes in these marine  
18 markets in terms of suitability of adopting natural gas will have a larger impact on the overall  
19 LNG demand forecasts as this market segment makes up a large share of the overall demand  
20 forecast.

21 **3.4.7.2.1 LNG LOW SCENARIO DEMAND FORECAST**

22 For the Low demand forecast scenario, FEI assumed that LNG demand would grow to about 7,  
23 million GJ per year by about 2025 through the capture of key LNG markets such as coastal  
24 freight vessels, domestic passenger ferries, locomotives, mine haul trucks and stationary power  
25 generation for industrial applications. Under this scenario, no growth is expected beyond this  
26 initial capture of 7 million GJ per year through to the end of the forecast period of 2036. This  
27 scenario also assumes that no trans-Pacific marine vessels adopt LNG as a marine fuel in  
28 response to the tighter emissions regulations that are expected to be imposed on the marine  
29 industry by the IMO beginning in 2020 (see Section 2).

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30 **3.4.7.2.2 LNG BASE SCENARIO DEMAND FORECAST**

31 In the Base forecast scenario, FEI built upon the Low scenario but included some capture rate  
32 of trans-Pacific marine vessels as LNG fuel adopters. Through market intelligence and industry  
33 research, FEI has identified a certain segment of the trans-Pacific marine segment (international  
34 car and vehicle carriers) that would be ideal early adopters of LNG as a marine fuel. Over the  
35 forecast horizon to 2036, FEI assumed an annual growth rate of about 5 percent per year  
36 beyond 2028 as a Base case demand growth scenario.

37 **3.4.7.2.3 LNG HIGH SCENARIO DEMAND FORECAST**

38 For the High forecast scenario, FEI further built upon the Base scenario but incorporated a more  
39 aggressive LNG adoption scenario, particularly from the trans-Pacific deep sea marine

1 **8.2.1 NGT**

2 Section 3.4.7 discusses the impact of varying levels of NGT market transformation on customer  
3 demand for natural gas over the 20-year planning period. This section splits the analysis into  
4 CNG and LNG demand. FEI assumes a range from one to 15 percent CNG market capture in  
5 the relevant transportation market sectors by 2036. While capturing 15 percent of the applicable  
6 CNG market is reasonably possible, FEI's Reference Case demand forecast uses a more  
7 modest 4 percent market capture rate by 2036. FEI's LNG demand forecast ranges between  
8 adding a low amount of 7 million GJ only to adding a high amount of more than 500 million GJ  
9 over the planning period. While adding more than 500 million GJ over 20 years is reasonably  
10 plausible by transforming energy use in the marine market, FEI's Reference Case uses a more  
11 moderate LNG demand forecast, which assumes only 5 percent additional annual growth  
12 beyond 2028 and adds approximately 78 million GJ of annual demand by the end of the  
13 planning horizon.

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14 Section 6.3 analyses and discusses the impact on FEI's infrastructure needs of these alternate  
15 NGT adoption scenarios.

16 **8.2.2 C&EM Technologies**

17 Section 4 of this 2017 LTGRP addresses the annual demand impact of C&EM technology  
18 (Figure 4-1 summarizes this impact). Sections 6.2 and 6.3 discuss the impact on system  
19 resources of such technologies.

20 Although FEI has not identified the extent of market transformation that will occur for each  
21 measure or technology via specific C&EM programs, the analysis results do represent an  
22 estimate of the amount of energy efficiency that can be achieved by the Company over the  
23 planning horizon.

24 **8.2.3 Low Carbon Thermal Energy**

25 Low carbon thermal energy solutions such as geo-exchange systems, waste heat recovery  
26 systems and solar thermal systems can displace both existing and future expected demand for  
27 natural gas. While FEI does not offer these services to its customers, the potential for other third  
28 party service providers to do so creates a risk to FEI's annual demand profile and thus to the  
29 Company's revenue expectations. The 2017 LTGRP has addressed this risk by including  
30 varying levels of displacement of natural gas demand by low carbon thermal technologies in its  
31 alternate future scenarios (presented in Section 3 and Appendix B-1). The highest level of  
32 displacement is included in the lowest natural gas demand scenario (Lower Bound) while the  
33 lowest level of displacement is included in the highest natural gas demand scenario (Upper  
34 Bound).

35 Figure 8-1 below illustrates the low carbon thermal energy demand profile for the Reference  
36 Case as well as the Upper and Lower Bound scenarios over the next 20 years. In the Reference  
37 Case, low carbon thermal energy demand grows by seven percent over the planning period. In  
38 the Upper Bound scenario, this growth switches to a decline of nine percent. In the Lower