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January 22, 2016

Industrial Customers Group
301-2298 McBain Avenue
Vancouver, BC V6L 3B1

Attention: Mr. Robert Hobbs

Dear Mr. Hobbs:

Re: Project No. 3698852
FortisBC Energy Inc. (FEI)
Application for its Common Equity Component and Return on Equity (ROE) for 2016 (the Application)
Response to the Industrial Customers Group (ICG) Information Request (IR) No. 2

On October 2, 2015, FEI filed the Application referenced above. In accordance with Commission Order G-177-15 setting out the Regulatory Timetable for the review of the Application, FEI respectfully submits the attached response to ICG IR No. 2.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Diane Roy

Attachments

cc: Commission Secretary
Registered Parties (e-mail only)



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1 **1. Reference: Exhibit B-1, Appendix C, p. 67, lines 18-19; Exhibit B-4, CEC 1.44.1,**
2 **lines 11-12 and lines 27-28**

3 Similar programs [to CoV, Surrey, and Richmond] can be found in most of the
4 municipalities that have signed the Climate Action Charter.

5 Target 1: Derive 100% of the energy used in Vancouver from renewable sources before
6 2050.

7 As forecast for 2016, customers within the CoV represent approximately 27 PJ of load
8 on FEI's system, which amounts to approximately 13% of FEI's total forecast load for
9 2016 [sic].

10 1.1 Please explain whether municipal targets set for 2050 are relevant to investors
11 today? If such targets are relevant, please provide the horizon of the analysis of
12 Mr. Coyne of the U.S. and Canadian proxy group companies?
13

14 **Response:**

15 Yes. The long-term targets set by the municipal and provincial government policies such as
16 those set in City of Vancouver's 2050 Renewable City Strategy are relevant information to a
17 utility investor today. There are a variety of emission targets and timelines in the City's strategy,
18 including but not limited to 2020, 2030 and 2050. As such, in order to meet the longer term
19 (2050) targets, different levels of government are already taking steps to hit each milestone
20 target year (2020 and 2030) as not hitting the target will make it more difficult to meet the next
21 target year.

22 The utility industry is capital-intensive and the invested capital is recovered through depreciation
23 of rate base over a long period of time. For instance, the depreciation rate for FEI's distribution
24 mains is 1.55 percent, meaning that the capital invested in distribution mains today is not fully
25 recovered until the year 2080. Therefore, the long-term viability of a utility's business is
26 important to investors' decisions today.

27 The time horizon used in Mr. Coyne's evidence reflects the long-term nature of utility
28 investments. For example, Mr. Coyne's DCF analysis uses the long-term expected growth
29 rates, and his risk analysis considers both short term and long term risks (Please refer to Exhibit
30 B-1 Appendix B, pp. 57-58, and 61).

31 Furthermore, the noted risk does not solely get addressed through the allowed ROE, but also
32 through equity thickness, which supports FEI's requested increase in equity. The long-term
33 viability of FEI's business is equally important to FEI's debt investors as the majority of debt
34 issued by FEI is long-term in nature with a maturity period of 30 years.

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1.2 Please confirm that in all cases where local governments have adopted mandatory connection requirements the mandatory connection requirements are in support of a neighbourhood energy system of a municipal or non-municipal owned utility?

Response:

FEI confirms that the mandatory connection requirements it is discussing require connection to neighbourhood energy systems. In all but one of the cases where municipal governments in BC have adopted connection to neighbourhood energy systems, they are in support of a municipal owned utility. FEI is aware of only one municipality (CoV) that proposes mandatory connection to a non-municipal owned utility (Creative Energy). The Surrey City Energy, Lonsdale Energy Corp. (owned by the City of North Vancouver), and SEFC Neighbourhood Energy Utility (owned by the CoV) that employ mandatory connection are all examples of municipally-owned utilities.

1.3 If not confirmed, please identify any local government that has adopted mandatory connection requirements that are not in support of such a neighbourhood energy system?

Response:

Please refer to the response to ICG IR 2.1.2.

1.4 Please comment on whether population density is a critical characteristic relevant to the viability of a neighbourhood energy system and whether all neighbourhood energy systems being proposed or implemented are in high density neighbourhoods such as NEFC, SEFC and Chinatown, and such as can be found within the City of Surrey, and the City of Richmond?

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1 **Response:**

2 Population density is an important characteristic that a neighbourhood energy provider would
3 consider in the construction of its energy system. Other considerations that would be important
4 include annual energy load, peaking load, system efficiency, location to energy source such as
5 sewer heat recovery.

6 It is too general to say that “all neighbourhood energy systems” are in high density
7 neighbourhoods. NEFC, SEFC and the area currently covered by the City of North Vancouver
8 district energy systems all have (or, in the case of NEFC, will have) a fairly high population
9 density as compared to other municipalities in the province of BC. FEI faces more risk in areas
10 of high density. As housing densification, in response to increased population, continues to rise
11 and often replaces single family dwellings, this trend affects FEI’s business risk, as FEI has a
12 greater capture rate for single family dwellings relative to multi-family dwellings.

13 High density is not a pre-requisite for a neighbourhood energy system, and the risk of load loss
14 to mandatory connection exists in other areas. There are existing district energy systems that
15 have been installed in areas that do not have as high a density of housing. Revelstoke and
16 River District in south Vancouver are examples. Municipalities such as Surrey and Richmond
17 are also expanding the neighbourhood areas in which developments must either connect or
18 install equipment that is district energy compatible to the incumbent DES system. These areas
19 are not as densely populated, and include mixed use residential/small commercial.

20 In 2015 the City of Richmond announced an expansion of its city owned DES, the Alexandra
21 District Energy Utility (ADEU). ADEU had been approved by Richmond City Council. The ADEU
22 primarily heats and cools condominiums in the West Cambie neighbourhood and will triple in
23 size by 2018, servicing a total of 10 developments, the largest of which will be a portion of the
24 SmartCentres commercial real estate, home of a planned Walmart. Smart Centres is an urban
25 shopping centre and not a multi-family dwelling or a condominium tower and therefore would not
26 be characterized as a high density housing development. This shopping centre is anchored by a
27 Walmart Supercentre. Therefore, to make the broad generalization that all neighbourhood
28 energy systems are located only in high population density and comprised only of multi-family
29 dwellings is incorrect.

30 FEI also observes that the achievement of CoV’s Target 1, as referenced in the preamble to the
31 question, contemplates alternative solutions that extend to all of the neighbourhoods within the
32 City, i.e. beyond high density (multi-family) dwelling areas.

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1 1.5 Please identify all municipalities in BC where FEI believes that there is a long-
2 term loss of load risk due to mandatory connection requirements adopted to
3 support neighbourhood energy systems?
4

5 **Response:**

6 In theory, there is risk of load loss to district energy systems associated with all BC
7 municipalities, since BC municipalities face pressure to reduce greenhouse gas emissions.
8 However, the primary risk to FEI of load loss over time to district energy arises in the more
9 developed areas, in part because they would tend to represent a greater proportion of FEI's
10 total load and also because of the greater economic feasibility of district energy systems in more
11 developed areas.

12 To the extent that municipalities own a DES, mandatory connection is an option for them that
13 will reduce FEI's capture rates for space heating load (FEI's core business). The CoV has
14 recently pursued mandatory connection for non-municipal utilities to similar effect.

15 Certain municipalities have already established or have seen the development of
16 neighbourhood energy systems, and those known to FEI are listed below. Note that these are
17 the energy systems that FEI is currently aware of and therefore may not be representative of an
18 all-inclusive list.

- 19 • City of North Vancouver – Lonsdale Energy Corp
- 20 • City of Surrey - Surrey City Energy
- 21 • City of Vancouver – SEFC and Creative Energy (a non-municipal owned utility)
- 22 • City of Richmond – Alexandra District Energy Utility, Oval Village and City Centre
- 23 • Prince George - Downtown Biomass System
- 24 • Resort Municipality of Whistler - District Energy System servicing Cheakamus Crossing
- 25 • City of Langford- serving Westhills development
- 26 • New Westminster - proceeding with plans for a municipally-owned district energy system
27 to serve Sapperton Green development, the Brewery District, and Braid industrial zone.

28
29 These neighbourhood energy systems are in various stages of their evolution, including
30 development or expansion and thereby present varying degrees of risks to the Company. For
31 instance, the risk of load loss grows, other thing being equal, as the systems are initiated, then
32 approved, constructed and expanded.
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1 1.6 Please identify all neighbourhood energy systems that have been implemented in
2 or is being proposed for a neighbourhood that is not a high density
3 neighbourhood.

4
5 **Response:**

6 Please refer to the response to ICG IR 2.1.4.

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10 1.7 Please identify the source of and quantify any actual loss of load since 2012 due
11 to the establishment of a neighbourhood energy system or mandatory connection
12 requirements; the calculation of the actual loss of load should account for
13 purchases of natural gas by the neighbourhood energy system?

14
15 **Response:**

16 As the risk related to neighbourhood energy systems and associated mandatory connection
17 requirements is relatively recent, the vast majority of projects of this nature are still in the
18 development stage and have not yet converted to an alternate energy source. As a result, FEI
19 estimates there has been a very small loss of load in the 2012 to 2015 period from projects such
20 as the SEFC development which is utilizing an alternate energy source. It is not possible to
21 quantify the loss of load for this or any other project, because the developments to be served by
22 the neighbourhood energy system(s) are not equivalent to what was in place prior to any
23 development occurring.

24 The risk that has been identified by FEI is related to the future loss of load or loss of potential
25 load that has not yet manifested itself, rather than being focussed on the quantum of any loss in
26 load during the 2012 to 2015 time period.

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1 **2. Reference: Exhibit B-1, Appendix A, p.76, lines 14-17**

2 Major municipalities and local governments have also instituted their own initiatives by
3 pledging their commitment to slow climate change and setting out plans to reduce
4 greenhouse gas emissions by modifying municipal building codes and by providing
5 incentives for alternative energy use and conservation. The carbon tax in BC serves as
6 a deterrent to natural gas emissions by modifying building codes and by providing
7 incentives for alternative energy use and conservation.

8 2.1 Please confirm that FEI identified the risk of local governments mandating non-
9 natural gas energy solutions as a business risk in 2012?

10

11 **Response:**

12 Local government initiatives did not figure prominently in FEI's 2012 GCOC evidence or the
13 evidence in that proceeding generally. FEI assumes that the question is referring to the
14 following statement from the GCOC Stage 1 business risk appendix:

15 *"FEI is now starting to see local governments mandate certain renewable energy*
16 *solutions in new developments".*

17 The above statement was referring to the City of Surrey's Bylaw 17667 which required new
18 buildings (or major renovations) in the City's district energy system (DES) to be built with
19 hydronic heating systems so those customers located in the core (which the city defines as
20 Service Area A) must connect to the municipally-owned DES prior to occupancy and those in
21 the surrounding area (Service Area B) would connect at a later time. (This requirement is
22 applicable to buildings with a floor area ratio greater than or equal to one, excluding the
23 individual units in buildings with a floor area ratio between one and 2.5). Compatibility
24 requirements for new developments in the surrounding areas beyond the core of the DES can
25 increase costs for the builder/developer such that the builder/developer may not be able to
26 justify additional gas appliances in the building or the installation of the gas pipeline to the
27 building.

28 FEI had assessed that the energy policies and legislation risk factor (for both provincial and
29 local governments) in 2012 was similar to 2009 levels (e.g. even before the Surrey bylaw
30 existed) as the potential impact of these policies was not completely clear in 2012. Given the
31 extent of the progress and expansion in local government policies and initiatives, the risk posed
32 is greater today than it was in 2009 and in 2012. For instance:

- 33 • First, in 2012 many of these DES projects were at the initial stages of development and
34 providing little or no service (including the Surrey City Centre project). Compared to
35 2012, the load and the area served by municipally-owned DES has expanded. For
36 example, municipal-owned utilities, such as the Alexandra District Energy Utility (ADEU)
37 which is owned and operated by the City of Richmond, and the City of Surrey DES, have

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1 been expanding their district energy service area. In August 2015 the City of Richmond
2 announced a \$12.3 million expansion of ADEU had been approved by Richmond City
3 Council. The ADEU primarily heats and cools condominiums in the West Cambie
4 neighbourhood and will triple in size by 2018, servicing a total of 10 developments, the
5 largest of which will be a portion of the SmartCentres commercial real estate, home of a
6 planned Walmart.

- 7 • Second, the CoV's level of commitment to DES has become clearer since 2012. The
8 relatively recent amendment to City of Vancouver zoning bylaw and its subsequent
9 interpretation guide to promote DES (for instance please refer to June 14th amendment¹
10 and the Neighborhood Energy Interpretation Guide for Rezoning² published in January
11 2015) are additional developments. The CoV draft Neighbourhood Energy Bylaw
12 expresses the CoV's intent to expand into large areas of the City in a manner similar to
13 what is being done in Northeast False Creek.
- 14 • Third, the scope of mandatory connection in 2012 was limited to city-owned utilities. The
15 recent Creative Energy proceeding has highlighted that the CoV is intending to use non-
16 municipal utilities to develop district energy in large portions of the City, and to support
17 them with mandatory connection. This is an additional development because investor
18 owned utilities will provide municipalities with flexibility in financing, resources and
19 expertise that may not be possible through municipal utilities.

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24 2.2 Please provide references in the evidence filed by Mr. Coyne to concerns related
25 to loss of market share due to mandatory connection policies of local
26 governments?

27

28 **Response:**

29 The loss of natural gas market share in space heating and water heating applications to
30 electricity is discussed on pages 69 and 70 of Mr.Coyne's evidence. Although Mr.Coyne has not
31 specifically commented on the loss of market share due to mandatory connection policies, Mr.
32 Coyne was familiar with the FEI Business Risk Appendix regarding local government policies.
33 Mr. Coyne has referred the readers to the relevant sections in FEI's business risk for more
34 detailed information on local government policies. The information regarding the potential loss of
35 load related to the Creative Energy district energy system can be found on pages 67 to 69 of
36 FEI's business risk Appendix (Appendix C).

¹ http://vancouver.ca/files/cov/green_building_policy_for_rezoning.pdf

² <http://vancouver.ca/files/cov/neighbourhood-energy-interpretation-guide-for-rezonings.pdf>

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1 **3. References: Exhibit B-1, Appendix A, p. 78, lines 21-23**

2 FEI continues to operate in a political environment where climate change initiatives are
3 at the forefront and the use of fossil fuels for water heating and space heating is
4 discouraged...

5 3.1 Please comment on whether any or all of the U.S. proxy group companies
6 operate in a political environment where climate change initiatives are at the
7 forefront and the use of fossil fuels for water heating and space heating is
8 discouraged?
9

10 **Response:**

11 FEI has asked Mr. Coyne to address this question. As shown on Table 20 of Mr. Coyne's Direct
12 Testimony, the U.S. proxy group consists of 7 companies operating in 18 states. According to
13 several rankings of the most climate friendly states in the U.S., the following states appear in the
14 top 5 as far as implementing climate friendly programs: Oregon, Vermont, California,
15 Massachusetts, and Hawaii.³ Though none of these states experience competition between
16 gas and electricity to the extent that occurs in BC, Mr. Coyne would consider companies falling
17 within these states as subject to a similar level of aggressive clean energy initiatives. Though in
18 the U.S. natural gas generally falls on the side of a clean fuel, relative to coal or oil. According
19 to the American Gas Association:

20 *Natural gas remains a fuel of choice for consumers because of its low cost, efficient end*
21 *uses, and environmental attributes. This domestically produced energy source is poised*
22 *to serve as a foundation fuel for the US economy for years to come.*

23 *This potential has focused public attention on how the increased use of natural gas can*
24 *reduce the environmental footprint of our energy usage. The use of natural gas results in*
25 *far less carbon dioxide than coal or oil for the same amount of beneficial energy derived,*
26 *and natural gas technologies serve as an affordable complement to renewable energy.*
27 *Better understanding of natural gas emissions released from production and delivery*
28 *systems will further clarify how greater use of natural gas achieves all desired*
29 *environmental benefits.*⁴

30
31 As indicated previously, it is the general rule in the U.S. that clean energy policies encourage
32 the use of natural gas as a bridge fuel for electricity generation and heating.

³ 2015's Most & Least Eco-Friendly States by John S Kiernan <https://wallethub.com/edu/most-least-eco-friendly-states/11987/> and www.dsireusa.org.

⁴ Updating the Facts: Emissions from Natural Gas Systems (April 2014) <https://www.aga.org/updating-facts-emissions-natural-gas-systems-april-20node4>.

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1 In Mr. Coyne's proxy sample, two companies reside in states that are very active in establishing
2 climate change related policies and legislation: Northwest Natural Gas Company in Oregon and
3 Southwest Gas Company in California. To the extent that such policies were addressed in
4 Company credit reports, 10-K's, Annual Reports, Investor Presentations and other sources of
5 research Mr. Coyne relied upon to develop his risk appendix, such information would have been
6 noted in his risk appendix, i.e. see page A-12, which mentions Southwest Gas treatment of
7 climate change costs in California. Such policies would be listed in the Regulatory and
8 Legislated Initiatives section of the risk templates in Appendix A to Mr. Coyne's Direct
9 Testimony.

10 Mr. Coyne's review of the proxy companies suggests that FEI has a greater risk than the U.S.
11 proxy group on these matters as only 2 companies, of 22 utility operating companies in the U.S.
12 proxy group operate in states with similar levels of policy activity targeting greenhouse gas
13 emissions. But even in these cases, where significant climate change policy activity exists, the
14 focus of such policies is primarily on the power sector.

15 In the U.S., according to the Energy Information Association, approximately 39% of electricity
16 generation is provided by coal, 27% is provided by natural gas, 19% nuclear, and only 13%
17 provided by hydro and other renewables.⁵ This is distinctly different from BC where over 90%
18 generation is from hydro and other clean energy sources.⁶ Substantial reductions in U.S.
19 emissions can be achieved by eliminating coal and oil from the electricity generation resource
20 mix; but in BC, emissions reductions must come from home heating and transportation.
21 Electricity in BC is not only price competitive with natural gas, but also provides a clean energy
22 alternative to natural gas. This is not the case in any of the proxy group jurisdictions in the U.S.
23 In California, fossil fuels comprise over 50% of electricity generation,⁷ and similarly in Oregon,
24 fossil fuel generation comprises 45% of the electricity generation resource mix. Emissions
25 reductions in the U.S. are focused on the power and industrial sectors and the impact on gas
26 distribution utilities will most likely be to increase loads as these policies are enacted.

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⁵ <https://www.eia.gov/tools/faqs/faq.cfm?id=427&t=3>.

⁶ <http://www.empr.gov.bc.ca/EPD/Electricity/supply/Pages/default.aspx>.

⁷ http://energyalmanac.ca.gov/naturalgas/Electricity_Generation.html.

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1 **4. References: Exhibit B-1, Appendix A, p. 88, lines 17-19**

2 ...allowed returns for electric distributors and gas distributors are not distinguishably
3 different, except in cases where large portions of rate base are dedicated to electric
4 generation...

5 4.1 Please confirm that the reference to “allowed returns” in the above quote of Mr.
6 Coyne includes both the return on equity and the capital structure?
7

8 **Response:**

9 Though Mr. Coyne’s statement related solely to equity returns, he notes that though there are a
10 handful of exceptions, the statement is generally true for the combination of equity returns and
11 capital structure. Notable exceptions would include crown corporations, and very small gas and
12 electric distributors.

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16 4.2 Assuming the political risks identified in the Application related to climate change
17 initiatives in BC do not apply to electric distributors in BC, please comment on
18 whether the business risks of electric and gas distributors are now
19 distinguishably different such that allow returns should become distinguishably
20 different?
21

22 **Response:**

23 The risk categories identified in the Application apply to FEI as well as electric utilities in BC,
24 although the degree and nature of the risks may be different. The quoted statement was a
25 general one, rather than being specifically related to FBC. Historically, the business risks of
26 FBC have been different from FEI which is demonstrated by the risk premium other utilities are
27 granted relative to FEI. FBC outlined in the GCOC Stage 2 Application (page one) that it is
28 subject to higher business risk than FEI due to: (i) the greater risk faced by FBC as a vertically
29 integrated electric utility (as stated in the preamble, electric utilities with power generation
30 facilities are considered higher risk) (ii) a smaller service area (iii) a less diverse customer and
31 economic base (iv) a small wholesale and Industrial customer class responsible for a large
32 proportion of FBC’s total load, with the ability to leave FBC’s service; (v) higher electricity rates
33 than those of BC Hydro (BCH); and (vi) somewhat higher supply risk.

34 FBC also identified the existence of political related risks. With respect to the specific issue of
35 political risk and the assumption made in the above question, FEI would comment that the
36 political risk identified in FEI’s business risk can also affect electric utilities’ risk as well (although
37 in a different way), and that an increase in a risk factor to the natural gas utility does not



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1 necessarily mean a similar opposite impact to an electric utility. For example, at a high level,
2 the increased electric load requirements that replace natural gas load could negatively impact
3 electric rates and therefore competitiveness due to increased energy supply costs as well as the
4 impact of significant system upgrades.

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8 4.3 Please comment on whether the business risks of gas distributors have
9 increased relative to the business risks of electric distributors since 2012?

10

11 **Response:**

12 As this application is for FEI's cost of capital, and FEI is deemed to be the benchmark utility for
13 purposes of setting the allowed ROE of other utilities, FEI has not performed, nor would it be
14 appropriate for it to perform, a relative risk analysis of how FEI's risk compares to or has
15 changed relative to other BC utilities. The relative risk profile comparison suggested by the
16 question would be more appropriately prepared by the utilities who have their allowed ROEs set
17 relative to FEI's allowed ROE.

18 FEI retained Mr. Coyne to assess, among other things, FEI's current risk relative to a proxy
19 group of utilities in determining his cost of capital recommendations. FEI considers that his
20 analysis provided an appropriate level of information for the assessment of FEI's allowed return.

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1 **5. Reference: Exhibit B-9, BCUC 1.4.2**

2 The main rationale for FEI's request to increase its equity thickness relates to the
3 upward trend in business risk led by the increase in the political risk category and its
4 week financial metrics.

5 5.1 Please confirm that it is FEI's view that business risks led by the increase in the
6 political risk and its week financial metrics are more relevant to debt equity ratios
7 than to the return on equity?
8

9 **Response:**

10 The business risk and FEI's weak financial metrics are relevant to the cost of capital
11 determination in general. The ROE recommended by Mr.Coyne in his written testimony is based
12 on a range of ROE estimates calculated by CAPM and DCF methodologies (with various
13 alternatives and inputs) along with an assessment of FEI's risk profile in comparison to other
14 proxy companies. Similarly, allowed ROE is relevant to FEI's financial metrics as it impacts
15 FEI's earnings and therefore any decrease in allowed ROE will further deteriorate FEI's financial
16 metrics. However, as mentioned in the preamble, FEI's long-term business risk and weak
17 financial metrics are the two primary reasons for FEI's request to increase its equity thickness.
18 Additionally, as explained in Section 6.3 of FEI's Application, any reduction in FEI's allowed
19 ROE or equity thickness can potentially constrain the debt issuance capacity.

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1 **6. Reference: Exhibit B-9, BCUC 1.4.3 and Exhibit B-7 AMPC 1.3.1**

2 The BC provincial government's environmental and climate change polices are similar to
3 the ones that existed during the GCOC proceeding...

4 Therefore FEI agrees that some aspects of the political risk category such as mandatory
5 connections policies promoted by certain municipalities will eventually manifest
6 themselves in terms of FEI's ability to compete with other fuel options.

7 6.1 Please confirm that it is FEI view that that increased political risks since 2012
8 relevant to its ability to compete with other fuel options arises from local
9 government policies, and not provincial government policies?

10

11 **Response:**

12 As indicated in Table C-2 of FEI's business risk (Appendix C), the provincial government
13 policies and regulation risk factor was assessed to be similar to the 2012 risk levels. However,
14 as explained in response to BCUC IR 1.4.3, since the filing of this Application, the Climate
15 Leadership Team published a series of recommendations to the government that, if accepted,
16 would affect the long-term ability for FEI to compete with other fuel options. According to the BC
17 government January 14th, 2016 News Release, the government has established a 60 day
18 consultation process and will release its final Climate Leadership Plan in the spring of 2016.
19 These new developments create new uncertainties that were not considered in the initial risk
20 assessment and represent an incremental upward trend in the provincial government policies
21 and regulation risk factor. Therefore, although the local government policies' impact on political
22 risk is more known at this time, both the local and provincial government policies are now
23 considered to be relevant to the increased political risk since 2012. The actual implementation
24 of initiatives currently under consideration could increase the risk facing FEI, and potentially
25 affect cost of capital, beyond what is being advanced in this Application.

26

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1 **7. Reference: Exhibit B-9, BCUC 1.2.2**

2 The crux of the question posed is whether or not the amalgamation has had such a
3 significant impact (increase) on FEI's business risk since 2012 that it would alone
4 necessitate the Commission revisiting the risk faced behind by other BC utilities relative
5 to FEI following the decision in this Application.

6 FEI's view is that amalgamation does not necessitate review of other utilities' risk
7 premiums.

8 7.1 Please identify any other factors that in FEI's view would necessitate a review of
9 other utilities' risk premiums?

10

11 **Response:**

12 FEI's evidence is that the mere fact of amalgamation *would not* trigger the need for review on its
13 own, which is the opposite of what appears to be reflected in the question.

14 FEI can state that, in a general sense, similar risk categories to those identified for FEI apply to
15 all utilities. A change in the utility risk within one or more of those categories might potentially
16 be a basis to consider a review of a utility's risk premium if the change has the effect of
17 changing the overall risk facing the utility relative to the benchmark utility. Changes in different
18 risk factors could cancel each other out or be additive depending on the circumstances. FEI
19 cannot comment on whether the risk facing other BC utilities is changing relative to FEI. FEI
20 can only confirm that the amalgamation would not trigger the need for review on its own, as in
21 the view of FEI, amalgamation in and of itself has not materially changed the risk profile of FEI
22 and therefore, has not changed the relative risk profile of other utilities to FEI.

23

1 **8. Reference: Exhibit B-1, Appendix C p. 59, lines 11-12; Exhibit B-9, BCUC**
 2 **1.24.1.2, and Attachment 25.1**

3 ..local governments have intensified their efforts to promote “green” initiatives that
 4 hinder the use of natural gas in space and water heating sectors.

5 If a potential FEI customer cannot choose natural gas due to a government policy or a
 6 local government green initiative, then the price competitiveness of natural gas with
 7 electricity becomes irrelevant.

8 8.1 Please provide a comparison analysis, including levelized cost analysis, of
 9 options to natural gas for space and water heating with a comparison among the
 10 options, including natural gas with and without RNG, in terms of cost and carbon
 11 emissions. The use of 100% natural gas for space and water heating should
 12 include the use of carbon offset purchases, and the analysis should compare the
 13 cost and carbon emissions of such options in 2012 and 2016.

14 **Response:**

15 This response also addresses ICG IRs 2.8.2 and 2.8.3.

16 The preamble to the question refers to electricity and the question itself refers to RNG, and as
 17 such FEI has prepared the response below for a comparison between natural gas and these
 18 two alternatives. A comparison such as this is situation specific, and therefore the example
 19 shown below is consistent with the assumptions used in pg. 34, of Exhibit B-1, Appendix C.,
 20 which is predicated on a 3,000 square feet single family dwelling located in the FEI Mainland
 21 service territory (analysis of multifamily, commercial or industrial buildings may result in different
 22 outcomes). A further comparison to other energy sources (such as DES) is problematic as such
 23 a comparison relies on specific information such as the types of dwelling, load profile, system
 24 efficiency, fuel source etc.
 25

26 The table below provides a levelized cost comparison between 100% natural gas, 100% RNG,
 27 and 100% electricity for space and water heating for a single family home built in 2012 and one
 28 built in 2016.

| | | 2012 | | | 2016 | | |
|---|-----------|------------------|------------------|----------|------------------|------------------|----------|
| | | 100% Natural Gas | 100% Electricity | 100% RNG | 100% Natural Gas | 100% Electricity | 100% RNG |
| Levelized Cost – 18 yrs (\$/GJ) | TOTAL | \$37/GJ | \$41/GJ | \$48/GJ | \$42/GJ | \$46/GJ | \$53/GJ |
| | Capital | \$21/GJ | \$9/GJ | \$21/GJ | \$24/GJ | \$11/GJ | \$24/GJ |
| | Operating | \$16/GJ | \$32/GJ | \$27/GJ | \$18/GJ | \$35/GJ | \$29/GJ |
| Cumulative Carbon Emission – 18 yrs (tonneCO ₂) | | 61 | 2.9 | 0 | 53 | 2.5 | 0 |

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1 This specific levelized cost analysis shows that when comparing total costs from 2012 to 2016,
2 the cost competitiveness of natural gas to electricity is relatively stable, with only a small decline
3 of natural gas versus electricity, with a differential of 10% in 2012 and 9% in 2016. Since such a
4 cost analysis is situation specific and is affected by many variables such as annual natural gas
5 consumption, efficiency of the equipment (as regulated by provincial building codes), this
6 costing analysis lends only to a general indication for comparison purposes.

7 Assumptions used in the calculation provided in the table:

- 8 • Single family dwelling, medium size, 3,000 square feet as per Exhibit B-1, Appendix C,
9 pg. 34, footnote 35
- 10 • Natural gas consumption:
 - 11 ○ 2016 New Home: 60 GJ/yr as per Exhibit B-1, Appendix C, Table C-7, pg. 34
 - 12 ○ 2012 New Home: 68 GJ/yr as per Exhibit B-1, Appendix C, pg. 46, ll. 13 to 14
- 13 • Efficiency – Gas furnace: 92%, gas tank water heater: 62%, electric baseboard: 99%,
14 electric tank water heater: 90%
- 15 • Capital & Maintenance Cost – See Exhibit B-1, Appendix C, Table C-6, pg. 33
- 16 • Discounted period of 18 years based on the gas furnace equipment life as per Exhibit B-
17 1, Appendix C, pg. 34, footnote 36
- 18 • Discount rate: 6% as per Exhibit B-1, Appendix C, pg. 34, footnote 36
- 19 • Annual inflation: 2%
- 20 • Cost of Gas (Natural Gas) – GLJ Jan 1, 2016 at BC Westcoast Station 2 and AECO
21 Spot
- 22 • Cost of Gas (RNG) – For 2016 and beyond, the RNG rate is based on the 2015
23 approved rate, which may change pending the outcome of FEI's Biomethane Energy
24 Recovery Charge Application, currently before the Commission
- 25 • Carbon tax of \$1.50/GJ (equivalent to \$30/tonne)

26

27

28

29

30 8.2 Please comment on the likely cost competitiveness of natural gas as compared
31 to alternative energy sources in 2012 and 2016? If necessary, identify the cost
32 competitiveness of natural gas as compared to alternative energy sources in
33 2012 and 2016 in a variety of situation specific scenarios.

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1

2 **Response:**

3 Please refer to the response to ICG IR 2.8.1.

4

5

6

7 8.3 Please comment on whether the natural gas price advantage over alternative
8 energy solutions has in most scenarios been growing since 2012?

9

10 **Response:**

11 Please refer to the response to ICG IR 2.8.1.

12

13

14

15 8.4 Please comment on whether the political risk related to local governments is that
16 local governments will develop policies based on considerations other than price
17 considerations? If so, please identify those non-price considerations?

18

19 **Response:**

20 The consideration extends beyond what is set out in the question to encompass any local
21 government policies and actions that (irrespective of intent, objective or focus) can affect FEI's
22 ability to attract customers and maintain load on its system.

23 Local governments develop policies and priorities within their jurisdiction for a variety of
24 reasons, many of which are unrelated to the provision and pricing of utility services within their
25 municipalities. Local governments are concerned with broader issues of living and working
26 within their municipalities such as clean air, waste collection and recycling, schools, parks,
27 community and recreational facilities, traffic, transit availability, hospitals, parking, election
28 strategy and others. While the pricing of utility services at residences and businesses within a
29 municipality is of concern in some policies it may not be a concern at all in the development of
30 other municipal policies, plans and bylaws. However, municipal policies can affect the costs and
31 relative competitiveness of providing utility service, whether or not that was a consideration in
32 the policy development process.

33 As stated in FEI's business risk Appendix and the above preamble, FEI's relative competitive
34 advantage in operating costs compared to other fuel options is muted by higher upfront capital
35 costs and provincial and local government policies that will have the effect of hindering FEI's

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1 ability to attract and retain customers and/or load, even though natural gas may be favourably
2 priced relative to other energy options.

3 In one example, side wall venting for natural gas appliances is no longer allowed in Vancouver
4 for single family detached homes and it continues to be prohibited in new high rise
5 condominiums. For detached homes there is an increase in cost to pipe to the rear of the house
6 which may cause the home owner to select a different heating technology. In high rises it is not
7 practical to vent all units vertically as the cost is too great. This results in very little gas in new
8 high rises in Vancouver. In this case the builder or homeowner has increased building costs
9 incurred to meet the code requirements which can impact a decision to install gas appliances.

10 In another example as part of its wider strategy to curb GHG emissions and fossil fuel
11 consumption, the City of Vancouver's rezoning policy⁸ mandates the connection of new
12 buildings and major retrofit projects to low-carbon neighborhood energy utilities (DES), if
13 available. As explained in response to BCUC IR 1.25.2, these new energy systems are capital
14 intensive and in early start-up may not be able to compete with natural gas or electricity rates
15 supplied by mature utilities. As such, rates may be kept at an artificially lower level than the
16 actual cost of service for the utility or even lower than the rates of other energy sources to
17 promote the utility's growth and provide affordability (price factor) to initial ratepayers.

18 The following excerpt from City of Vancouver's "Renewable City Strategy" demonstrates how
19 both price and non-price factors are considered in developing a particular policy:

20 *"In many cases, carefully designed policies and actions can support the use of*
21 *renewable energy without customers even realizing it. The Southeast False Creek*
22 *Neighbourhood Energy Utility, having displaced natural gas use, provides low-carbon*
23 *heating at rates currently comparable to BC Hydro and with a long-run trend to be*
24 *cheaper. The Provincial renewable and low-carbon fuel requirement regulation currently*
25 *saves nearly one million tonnes of greenhouse gas emissions a year with few*
26 *consumers realizing, and the Provincial carbon tax has cut emissions without harming*
27 *economic activity.*⁹"

28
29 The implementation of the Renewable City Strategy over time may have material impacts on
30 FEI's business, given that a meaningful portion of FEI's load is associated with customers
31 located within Vancouver.

⁸ In June 2014, the rezoning policy was updated to promote connection to future low-carbon neighbourhood energy utilities. The updated policy will now also recognize energy efficiency programs, such as an EnerGuide 84 rating requirement for townhouses and residential buildings of up to four stories, and the rigorous Passive House standard. Currently, Vancouver's Rezoning Policy exceeds the Vancouver Building By-Law by 22%, meaning that new buildings have to be that much more efficient if they are built on rezoned land.

⁹ <http://vancouver.ca/files/cov/renewable-city-strategy-2015.pdf>.

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1

2

3

4 8.5 Please comment on whether FEI or any of its affiliates were aware in 2012 of the
5 intention of any local government to use mandatory connection requirements in
6 respect of a municipally owned neighbourhood energy system?

7

8 **Response:**

9 Yes, in 2012 FEI was aware of local governments, such as the City of Surrey and the City of
10 North Vancouver, using mandatory connection requirements in respect of a municipally owned
11 neighbourhood energy system.

12 Discussion about local government policies favouring mandatory connection to thermal energy
13 utilities did not figure prominently in FEI's business risk evidence in the GCOC proceeding. It
14 was expected that there would be some small municipal DES systems that required mandatory
15 connections in 2012 (along the lines of those systems referenced above), but municipal
16 strategies to expand mandatory connection are now more developed and better understood by
17 FEI. The scope and scale of the DES with associated mandatory requirements has increased
18 since 2012. Please also refer to the response to ICG IR 2.2.1 for the comparison of related risk
19 identified in 2012 and this Application.

20

21

22

23 8.6 Please comment on whether FEI or any of its affiliates were aware in 2012 of the
24 CoV intention to use mandatory connection requirements in respect of a non-
25 municipal utility?

26

27 **Response:**

28 In 2012, FEI was aware that the CoV was contemplating using mandatory connection policies to
29 an investor owned utility in the City of Vancouver.¹⁰ However, at that time, FEI was not aware of
30 any definitive agreements that had been executed between an investor owned utility and the
31 CoV that included mandatory connection to a district energy utility serving more than a single
32 development. It was not known at that time if COV would follow through with its idea of

¹⁰ Note that until December 2015, FEI was subject to a confidentiality obligation to the COV that precluded any further discussion of such matters, more than that contained in the Creative Energy CPCN proceeding. The COV had conveyed this information under terms of a confidentiality agreement, and hence it could not be discussed by FEI in the public record of the Creative Energy CPCN proceeding.

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1 mandatory connections (by way of zoning, bylaw or agreement) in respect to a investor owned
2 utility.

3 The development of the Creative Energy utility with the CoV's policy of using zoning or another
4 bylaw to advance connection to this non-municipal utility to the exclusion of FEI serving heating
5 load is new since 2012. (More to the point, these matters were not discussed in any material
6 way in the evidence in the GCOC and the Commission is now essentially considering them as
7 business risk considerations for the first time in this Application.) This is particularly true when
8 combined with the policies contemplated in CoV's recently released Strategy document. The
9 more restrictive policy goals of the CoV in the Strategy document have further increased the risk
10 to FEI relative to 2012. Please refer to the response to ICG IR 2.2.1 for further discussion.

11
12

13

14 8.7 Please identify local governments that have decided since 2012 to use
15 mandatory connection requirements to hinder the use of natural gas in space and
16 water heating systems? For each local government other than the CoV that has
17 decided since 2012 to use such mandatory connection requirements, please
18 provide a forecast of the foregone load of such mandatory connection
19 requirements based on a 20% capture rate?

20

21 **Response:**

22 Please refer to the response to ICG IR 2.1.5 for a list of local governments that have
23 municipally-owned neighbourhood energy systems. Information on when these energy systems
24 become operational or their respective annual load estimates is not readily available.
25 Furthermore, as most of these neighbourhood energy systems reflect sites without existing load
26 data to work from, FEI is unable to provide a forecast of foregone load at this time.

27

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1 **9. Reference: Exhibit B-1, Appendix C, p. 68, lines 3-6 and p. 69, lines 1-4**

2 FEI estimates that the Vancouver Neighbourhood Energy Strategy which includes
3 NEFCC, and other areas of Downtown, Central Broadway and Cambie Corridors
4 currently represents an annual natural gas load of 10.5 PJ, which is approximately 5% of
5 FEI's total annual load.

6 However, to provide a rough frame of reference, the delivery rate impact, other things
7 being equal, associated with foregone load of 10.5 PJ would be a loss of revenue of
8 approximately \$32 million which equates to an increase of approximately 4.5% on
9 natural gas delivery rates for the remaining FEI customers.

10 9.1 Please comment on whether the “foregone load of 10.5 PJ” is the current
11 natural gas load of the areas within the Vancouver Neighbourhood Energy
12 Strategy or is it the current forecast of the natural gas load of the areas within the
13 Vancouver Neighbourhood Energy Strategy?
14

15 **Response:**

16 This response also addresses ICG IRs 2.9.2.

17 The “foregone load of 10.5 PJ” is based on 2014 actual natural gas consumption in the areas
18 identified in the CoV's Neighbourhood Energy Strategy (which encompasses Central Broadway
19 and Cambie corridors along with the downtown core). The existing 10.5 PJs represents only a
20 portion of the potential load for these areas because the areas encompassed by the COV's
21 Neighbourhood Energy Strategy comprise areas in Vancouver along major transit and train
22 corridors that are expected to see increased development.

23 In the absence of any policies to prohibit the use of gas, it is possible that future growth
24 developments within the CoV may utilize natural gas for their space and water heating or they
25 may use multiple energy solutions. The full impact of the COV's broader “Renewable City
26 Strategy” is not reflected in the 10.5 PJ. If the CoV's 2050 goals are reached, which would likely
27 eliminate the use of natural gas in Vancouver, there would be a loss of existing gas load of 27
28 PJs which is 13% of FEI's existing load. In addition, any potential growth in heating load in the
29 City above today's heating requirements would also not be realized. This would have the
30 impact of increasing rates to all other customers in FEI's service territory, other things being
31 equal.

32

33

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1 9.2 Assuming the 10.5 PJ is the forecast of the natural gas load, what percentage
2 capture for natural gas does FEI assume when projecting the foregone load of
3 10.5 PJ?
4

5 **Response:**

6 Please refer to the response to ICG IR 2.9.1.
7
8

9
10 9.3 Please confirm that for planning purposes FEI typically assume 20% uptake for
11 new multifamily buildings in the Lower Mainland?
12

13 **Response:**

14 It is unclear what is meant by “for planning purposes” in the question, and as such FEI has
15 provided responses to two different interpretations of the phrase.

16 For the purposes of planning gas load for new individual developments, FEI works closely with
17 each developer to determine the timing, types of appliances and the expected load of a new
18 development. FEI then plans its system infrastructure accordingly.

19 For the purposes of forecasting the annual number of customer attachments for the Lower
20 Mainland area FEI has assumed a 20% customer attachment for multifamily buildings. This 20%
21 capture rate is based on a study completed in 2013.
22
23

24
25 9.4 Please comment on whether the percentage capture for natural gas is a
26 reasonable estimate, or whether it is reasonable to assume multiple energy
27 solutions would be used?
28

29 **Response:**

30 FEI can confirm that it is reasonable to assume multiple energy solutions may be used in a
31 development and that the energy solutions could include natural gas in the absence of any
32 policies that would preclude the use of natural gas. FEI has confirmed in its response to ICG IR
33 2.9.1 that its actual capture rate is reflected in the 10.5 PJ amount for those areas covered by
34 the Vancouver Neighbourhood Energy Strategy, and has confirmed in response to ICG IR 2.9.3
35 that its forecast capture rate for multi-family dwellings in the Lower Mainland has been 20%.

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1 **10. Reference: Exhibit B-1, Appendix C, p. 68, lines 7-8**

2 The framework being used with Creative Energy is applicable to new and significantly
3 renovated building only, so FEI is not suggesting that the full 10.5 PJ would be
4 immediately lost.

5 10.1 Please confirm that of the 10.5 PJ referenced above only 0.2 PJ can be
6 attributed to NEFC, and only if one assumes 100% capture for natural gas?

7
8 **Response:**

9 Not confirmed.

10 As noted in response to ICG IR 2.9.1, the 10.5 PJs represents the existing gas load of the areas
11 highlighted in the COV Neighbourhood Energy Strategy representing the Downtown area
12 (including NEFC), Central Broadway and Cambie corridors.

13 The amount of 0.2 PJ represents the additional potential load for the NEFC area at a 100%
14 capture rate. This load is distinguished from the 10.5 PJs in that it is in addition to the 10.5 PJs.
15 It represents the total annual load for heating and hot water that Creative Energy Platforms Inc.
16 is expecting in the NEFC area at full build-out. In the absence of CoV measures to restrict the
17 use of natural gas for space heating, FEI would compete for space heating load. Additional
18 CoV building code restrictions related to venting make it difficult for developers to incorporate
19 natural gas appliances for cooking, patio heating, fireplaces and dryers in their buildings.

20