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September 26, 2017

British Columbia Utilities Commission Suite 410, 900 Howe Street Vancouver, B.C. V6Z 2N3

Attention: Mr. Patrick Wruck, Commission Secretary and Manager, Regulatory Support

Dear Mr. Wruck:

Re: FortisBC Energy Inc. (FEI)

Project No. 1598919

Multi-Year Performance Based Ratemaking Plan for 2014 through 2019 approved by the British Columbia Utilities Commission (BCUC or the Commission) Order G-138-14 – Annual Review for 2018 Rates (the Application)

Response to BCUC Information Request (IR) No. 1

On August 4, 2017, FEI filed the Application referenced above. In accordance with Commission Order G-115-17 setting out the Regulatory Timetable for the review of the Application, FEI respectfully submits the attached response to BCUC IR No. 1.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Diane Roy

Attachments

cc (email only): Registered Parties



FortisBC Energy Inc. (FEI or the Company) Submission Date Multi-Year Performance Based Ratemaking Plan for 2014 through 2019 Submission Date Annual Review for 2018 Rates September 26, 20		
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FortisBC Energy Inc. (FEI or the Company) Multi-Year Performance Based Ratemaking Plan for 2014 through 2019 Annual Review for 2018 Rates

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1 A. EVALUATION OF THE PERFORMANCE BASED RATEMAKING (PBR) PLAN

1.0 Reference: EVALUATION OF THE PBR PLAN

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Exhibit B-2, Application, Section 1.4.1, Table 1-2, pp. 4-6

Overview of operating and maintenance (O&M) savings

5 On page 4 of the Application, FortisBC Energy Inc. (FEI) states the following:

6 Table 1-2 below shows the formula O&M savings for each year of the 7 PBR Plan and the cumulative to date. The table also shows the 8 embedded Productivity Improvement Factor (PIF) savings for the same 9 years. The table shows that in addition to the cumulative formula O&M 10 savings of approximately \$37.4 million to the end of 2017 which are 11 shared with customers, the cumulative PIF savings to the benefit of 12 customers total approximately \$10.0 million.

13 On page 5 of the Application, FEI states: "Major initiatives involving processes that may 14 span across departments are described in Section 1.4.3 below and comprise a 15 significant portion of the productivity savings, accounting for approximately \$5.0 million 16 of the accumulated O&M savings."

17 1.1 Given the cumulative savings amount provided in Table 1-2 of \$37.4 million,
 18 please confirm, or explain otherwise, that the major initiatives account for
 19 approximately 13.4 percent of the O&M savings.

21 Response:

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FEI clarifies that the reference to "approximately \$5.0 million of the accumulated O&M savings" on page 5 of the Application is in relation to the projected O&M savings of \$7.5 million for 2017, and not the \$37.4 million Formula O&M Savings from 2014 to 2017 as outlined in Table 1-2. The approximately \$5.0 million O&M savings related to Major Initiatives represents two-thirds, or a significant portion, of the 2017 projected O&M savings.

The cumulative O&M savings related to Major Initiatives for the period 2014 to 2017 total to approximately \$15 million as shown in the table below¹, representing approximately 40% of the \$37.4 million of Formula O&M Savings achieved from 2014 to 2017.

¹ Appendix C2 Report on Initiatives during the PBR Term.



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Major Initiatives O&M Savings \$ millions						
<u>Major Initiative</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>Total</u>	
Regionalization Phase 1 Regionalization Phase 2 Project Blue Pencil	1.00 - -	1.00 - 1.00	1.00 1.10 1.00	1.00 1.10 1.00	4.00 2.20 3.00	
Infrastructure Support Provider Online Service Application	-	1.80 -	2.00 -	2.00 0.05	5.80 0.05	
Total	1.00	3.80	5.10	5.15	15.05	

1.1.1 If confirmed, please clarify FEI's statement that the major initiatives account for a "significant" portion of the savings.

8 <u>Response:</u>

9	Please refer to the response to BCUC IR 1.1.1.
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14	As provided in Table 1-2 of the Application, the actual O&M savings for 2014, 2015 and
15	2016 were \$7.5 million, \$10.2 million and \$12.1 million, respectively.
16	1.2 Please confirm that the O&M savings in 2014 do not represent a full year of
17	savings under PBR due to the fact that FEI's PBR Plan was not approved by the
18	Commission until September 15, 2014.
19	
20	Response:
21	Confirmed: FEI's achieved O&M savings in 2014 represent a full year of savings, but FEI was

- 22 not under PBR for the whole year as FEI was operating under interim rates while it awaited the
- 23 PBR Decision. FEI's achieved O&M savings in 2014 were affected by the regulatory uncertainty



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as a result of not having its PBR Plan approved by the Commission until September 15, 2014.
During the time it waited for the Commission's decision on its PBR Plan, the Company adopted
a broad based, company-wide effort to redeploy resources and broaden roles and
responsibilities which contributed to the O&M savings achieved in 2014.

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9 FEI states on page 5 of the Application that it is "faced with the increasingly difficult 10 challenge of finding new productivity opportunities to meet the annual savings 11 embedded in the formula, and to sustain the level of incremental O&M savings achieved 12 in recent years."

131.3Please explain why FEI is finding it increasingly difficult to sustain the level of14incremental O&M savings achieved in recent years. As part of this response,15please specifically identify the types of O&M savings achieved during the PBR16term which FEI does not consider sustainable going forward and why these17savings are not sustainable.

19 **Response:**

For clarity, FEI's reference to incremental O&M savings quoted in the preamble is to the Formula O&M savings (i.e. O&M as allowed under the formula compared to the actual O&M expenditures incurred).

The reference in the preamble is not referring to challenges in sustaining O&M savings from past initiatives. FEI has successfully undertaken a number of Major Initiatives to-date to improve customer service and productivity (refer to Appendix C2 of the Application). As indicated in response to BCUC IR 1.1.1, the O&M savings related to the Major Initiatives themselves continue to be sustained with annual savings in 2017 estimated to be approximately \$5 million and similar to the 2016 O&M savings for Major Initiatives.

29 The reference in the preamble is referring to the fact that FEI is finding it increasingly difficult to 30 continue to achieve the same level of Formula O&M savings that FEI has achieved in past years 31 (the average of 2015 and 2016 O&M savings is approximately \$11 million). This is due to 32 several factors. First, each year the PIF imposes an annual challenge of approximately \$2.6 33 million of required incremental savings each year. This means that FEI needs to increase the 34 incremental O&M savings each year if it is to maintain the same level of O&M savings 35 compared to the formula. Second, as discussed in the Application, FEI is experiencing new 36 costs pressures, such as for Integrity Digs, which are offsetting savings achieved. Third, while 37 the Company continues to investigate additional initiatives and opportunities, it is an



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increasingly difficult challenge to find new initiatives with significant incremental savings to offset
 both the new cost pressures and the productivity challenge embedded in the formula.

- FEI provides information on a number of cost pressures expected to be experienced in
 2018 (i.e. integrity digs and cyber security) which are expected to increase O&M by \$2.2
 million in 2018.
- 101.4Other than the aforementioned cost pressures, please explain why FEI expects11the 2018 O&M savings to be \$4.6 million lower than 2016 actual O&M savings12and \$2.7 million lower than 2015 O&M savings.
- 1314 <u>Response:</u>

As FEI has not provided a forecast total O&M savings for 2018, FEI assumes the question is referring to 2017 O&M savings rather than 2018 O&M savings.

17 FEI expects the 2017 O&M savings to be \$4.6 million lower than 2016 actual O&M savings and \$2.7 million lower than 2015 O&M savings. As mentioned in the Application, approximately \$1.5 18 19 million of the average annual difference of approximately \$3.5 million is related to the increase 20 Additionally, starting in 2017, FEI is expecting to increase in costs for integrity digs. 21 expenditures by approximately \$1 million for activities to service its aging asset infrastructure 22 (i.e., line heater maintenance, station work, and asset inspections.). Other contributing factors 23 to the difference include one-time savings in prior years (i.e. delay in filling vacancies, and 24 reduced staffing related to lower call volumes) which are not expected to reoccur in 2017. As 25 described on pages 6 and 7 of the Application, staffing levels are expected to increase in 2017 26 to meet the Company's operational requirements.

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FEI states on page 5 of the Application that it is "experiencing incremental cost pressures related to integrity digs as the Company continues to improve its Integrity Management Program to manage aging infrastructure and meet the CSA Z662-15 standard and adopt industry practices deemed appropriate to FEI's system."



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- 1.5 Please explain more fully the CSA Z662-15 standard and how this standard is expected to impact FEI from a resource and a cost perspective.
- 4 Response:

5 The BC Pipeline Regulation (BC Reg. 147/2014) mandates that the design, construction, 6 operation and maintenance of pipelines be in accordance with the Canadian Standards 7 Association (CSA) Z662 standard. This consensus-based standard is regularly reviewed and 8 updated by a committee of industry experts which includes operators, suppliers and regulators. 9 It is typically republished every 4 years, with the most recent version being released in June 10 2015 and referred to as CSA Z662-15. Clause 1.4 of Z662-15 states: "This Standard is 11 intended to establish essential requirements and minimum standards for the design, 12 construction, operation, and maintenance of oil and gas industry pipeline systems. This 13 Standard is not a design handbook, and competent engineering judgment should be employed 14 with its use."

FEI applies the BC Pipeline Regulation and CSA Z662 and considers a number of factors, as it
 continues to improve its Integrity Management Program (IMP) with respect to integrity digs
 through:

- FEI's assessment of prudent management of time-dependent threats for an aging pipeline system;
- FEI's understanding of industry practice;
- Evolving industry standards;
- Evolving technology availability for assessing pipeline condition;

Review of technical references related to pipeline integrity management and pipeline
 failure mechanisms, as may become available through research and/or incident
 learnings; and

• Regulatory and public expectations for proactive failure prevention.

FEI expects that continuous improvement of its IMP will be prudent and necessary as a result of all of the above-listed considerations, including future iterations of the CSA Z662 standard. It is likely that future iterations of CSA Z662 will impact FEI and result in resource and cost pressures; however, it is difficult to predict with certainty until such time as the changes are established and FEI's responses are defined.

32 One particular revision in the published CSA Z662-15 standard that remains under assessment 33 by FEI and may result in future cost pressures is a requirement to consider sharp dents with a



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length to depth ratio less than 20 as defects unless their measured curvature strain is less than
 6 percent, or unless determined by an engineering assessment to be acceptable.

1.6 Please clarify whether the CSA Z662-15 standard is a new standard. If not, please explain why the standard is only now resulting in increased cost pressures.

10 **Response:**

11 As stated in the response to BCUC IR 1.1.5, the CSA Z662-15 standard was published in June 12 2015.

13 FEI's in-line inspection and integrity dig activity is typically conducted on a five to seven year 14 cycle. Technical changes implemented within FEI's in-line inspections and/or integrity dig 15 program can be expected to impact FEI financially for a duration in the order of 10 years. This 16 provides the necessary time to assess and to determine and implement responses to 17 information obtained from successive ILI runs and subsequent integrity digs. The in-line 18 inspections and/or integrity digs will be impacted to different extents in any given year, 19 depending on which pipelines are inspected and where the pipelines fall in their respective 20 inspection-dig cycles.

21 Continuous improvements to FEI's Integrity Management Program and integrity digs in 22 response to industry and regulatory changes are expected on an ongoing basis, and have been 23 occurring since the time that FEI developed its application for the PBR Plan in 2012 and early 24 2013. The extent of the evolution has progressed over time, and has resulted in cost pressures.

25 26 27 28 29 FEI further states the following on page 5 of the Application: 30 A new defect assessment criterion for dents has resulted in incremental 31 digs required to repair and manage these features. Additionally, increases 32 to the number of integrity digs have resulted from running circumferential 33 magnetic flux leakage in-line inspection (ILI) technology which has 34 required excavations of imperfections and defects that were either not previously identified or were not previously identified as significant. 35



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- 1.7 Of all the defects repaired, what percentage of the repairs were results of the new CSA Z662 defect criterion?
- 4 **Response:**
- 5 FEI clarifies that the strain based criteria for dents, which are discussed below, have been 6 applied by FEI since 2013.

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- 7 Dents reported through in-line inspection or as found during integrity digs and other activities are generally considered acceptable by FEI unless they meet the strain-based criteria for dents 8 9 listed in CSA Z662-15 Clause 10.10.4.2 a) through f), or the following additional criteria 10 developed by FEI based on the factors listed in the response to BCUC IR 1.1.5:
- 11 Estimated curvature strain greater than or equal to 4 percent for dents interacting with a • 12 mill or field weld; or
- 13 Estimated curvature strain greater than or equal to 6 percent for dents on the pipe body; • 14 or
- 15 Depth exceeding 6 mm in pipe 323.9 mm outside diameter (OD) or smaller for dents 16 interacting with a mill or field weld, regardless of the estimated curvature strain; or
- 17 Depth exceeding 2 percent of the OD in pipe larger than 323.9 mm OD for dents • interacting with a mill or field weld, regardless of the estimated curvature strain; or 18
- 19 Depth exceeding 6 mm in pipe 101.6 mm OD or smaller for dents on the pipe body, 20 regardless of the estimated curvature strain; or
- 21 Depth exceeding 6 percent of the OD in pipe larger than 101.6 mm OD for dents on the • 22 pipe body, regardless of the estimated curvature strain.
- 23

24 FEI does not track the percentage of repairs explicitly based on the strain-based dent criteria, as 25 integrity dig selection is based on engineering consideration of multiple factors of which dent 26 strain may be a component.

27 A 2010-2016 history and a 2017-2018 forecast of integrity dig numbers is provided below to 28 illustrate increases to integrity dig numbers, along with reasons for the digs.

	Number of Digs per Year								
Reason for Digs	2010	2011	2012	2012	2014	2015	2016	2017	2018
	2010	2011	2012	2013	2014	2015	2010	YEF	Forecast



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	Number of Digs per Year									
Reason for Digs	2010	2011	2012	2013	2014	2015	2016	2017 YEF	2018 Forecast	
Dent digs (includes dig selections that were influenced by the strain-based criteria)	3	0	6	27	12	10	32	15	under development (u/d)	
Circumferential magnetic flux leakage in-line inspection digs	0	0	0	0	27	20	11	45	u/d	
Other ILI digs	32	45	24	21	19	32	33	28	u/d	
Non-ILI digs	13	9	8	4	4	2	0	9	u/d	
Total Integrity Digs	48	54	36	52	62	64	76	97	≈ 110 +/- 10%	

2 The 2010-2016 history of structural repairs at integrity dig sites is provided in the following table.

Reason for	Number of Structural Repairs per Year								
Structural Repairs	2010	2011	2012	2013	2014	2015	2016		
Dent repairs due to CSA Z662 criteria	0	1	1	0	1	1	1		
Dent repairs due to FEI determination	0	0	3	2	3	1	12		
Metal loss repairs due to CSA Z662 criteria	3	4	0	1	2	2	1		
Metal loss repairs due to FEI determination	2	0	2	0	2	3	2		
Other repairs (e.g. weld-related issues, material testing cut- outs)	1	5	1	2	2	2	0		
Total Structural Repairs	6	10	7	5	10	9	16		

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4 The percent of repairs associated with dents are as follows. Included in these numbers are the

5 dent repairs resulting from the strain-based dent criteria.

2010	2011	2012	2013	2014	2015	2016	



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% of Repairs Associated with Dents (includes repairs resulting from the strain- based criteria)	0%	10%	57%	40%	30%	20%	81%

2 FEI notes that fluctuations in repair rates will vary year-to-year based on factors such as in-line 3 inspection tool reporting bias, the adoption of new repair criteria, and other possible factors.

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1.8 Please explain why the new defect assessment criterion has resulted in incremental digs.

10 Response:

11 The strain-based criteria for dents described in response to BCUC IR 1.1.7 are incremental and 12 more rigorous criteria versus what had been previously applied by FEI in its in-line inspection 13 analysis and integrity digs. In addition, in-line inspection technology has been evolving. ILI 14 reports obtained from vendors are enabling FEI to understand pipeline imperfections to a 15 greater level of detail than was possible in the past. When applied to FEI's transmission 16 pipeline assets, this incremental and more rigorous criteria, combined with improved inspection 17 technology, results in incremental digs.

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- 21 1.9 Please explain why FEI chose circumferential magnetic flux leakage as opposed 22 to another potentially lower cost alternative ILI method.
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- 24 **Response:**

25 FEI is not aware of potentially lower cost alternative ILI methods that would deliver information 26 provided by circumferential magnetic flux leakage (CMFL) technology. Consistent with other 27 pipeline operators, FEI adopted CMFL technology because it provides a material improvement 28 to its integrity management capabilities for all in-line inspected pipelines.

29 CMFL technology was first applied at FEI to a selected pipeline in late 2013 to assess the 30 effectiveness of the technology in detecting and sizing longitudinally-oriented features. The



1 2013 and subsequent inspections have identified imperfections and defects that were either not

2 previously identified or were not previously identified as significant. The CMFL technology also

3 enables FEI to detect long-seam weld orientation and assess the potential interaction of

4 corrosion features with these welds.

5 FEI's experience is that its use of CMFL technology within its Integrity Management Program is 6 preventing failure incidents on its transmission pipelines. In accordance with Section 37 (1) (a) 7 of the BC Oil and Gas Activities Act (OGAA), FEI is required to "prevent spillage"² associated 8 with the operation of its gas system assets. CSA Z662-15 also requires FEI to develop and 9 implement an Integrity Management Program that includes procedures to monitor for conditions 10 that can lead to failures and to eliminate or mitigate such conditions.

Given the potential consequences of failure associated with FEI's transmission pipeline system,
 the continued application of proven, commercialized in-line inspection technologies in FEI's
 system is warranted.

As an update to FEI's response to BCUC IR 1.9.11 in the FEI Annual Review for 2017 Rates
 proceeding, notable initiatives related to in-line inspection and integrity management currently
 being undertaken by FEI include:

- Provision of in-line inspection capability to NPS 6 outside diameter and larger transmission pipelines operating at hoop stresses of 30% or more of the specified minimum yield strength of the pipe;
- Assessment of the need for and feasibility of adopting crack-detection capabilities within
 FEI's in-line inspection program; and
- Development of enhanced risk assessment capabilities to enable FEI's vision of
 managing the integrity of its transmission pipeline assets through a quantitative risk based approach by 2020.
- 25 Each of the above initiatives would be expected to result in resource and cost pressures to FEI.
- 26

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- 30 FEI states the following on page 6 of the Application regarding cyber security:

² "Spillage", as defined in the OGAA, means "petroleum, natural gas, oil, solids or other substances escaping, leaking or spilling from (a) a pipeline, well, shot hole, flow line, or facility, or (b) any source apparently associated with any of those substances."



While causing only a moderate pressure in 2017, O&M costs for cyber
 security are expected to increase in 2018 by approximately \$0.7 million,
 along with additional and related capital expenditures. The incremental
 O&M funding is for third party services and additional headcount required
 to protect the Company's systems.

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- 1.10 Please explain the nature of the third party services being provided and whether the third party costs are expected to be limited to 2018 or are expected to continue into the future.
- 10 **Response:**

The third party services provide 24/7 active monitoring of FEI systems and infrastructure. Monitoring includes reactive monitoring of attacks, as well as proactive monitoring of potential new attacks through the service providers' broad security capabilities. Third party security services are generally provided by large organizations with locations worldwide that can actively monitor for, as well as predict, threats based on technical and political trends. Use of third party cyber security services is cost effective and reliable, and is considered good cyber security practice. Incremental third party services will be required on an ongoing basis into the future.

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 21 1.11 Please indicate how many additional headcount are being added for the cyber
 22 security activities and provide a description of the job activities. Please also
 23 indicate the number of FTEs expected to be added and/or whether these
 24 positions are permanent or contractor positions.
- 26 **Response:**

27 FEI requires two FTEs to support cyber security. The two roles will be permanent employees 28 (not contractors). The roles are needed to provide supervision and technical skills in cyber 29 security for FEI operational technology. FEI operational technology includes the Supervisory 30 Control & Data Acquisition (SCADA) system and related technology that operates the system, 31 such as automated valves. The areas of operational technology that require additional cyber 32 security support are networking infrastructure, end point devices and control system software. 33 The additional support for cyber security is now required due to the broader use of technology 34 for automation and the increased threat to control technologies worldwide.

35 Job descriptions:



1 <u>Supervisor, Operations Technology & Cyber Security</u>

2 Job Summary:

3 Reporting to the Manager, Cyber Security the position is responsible to provide functional and

4 technical leadership for operational technologies, the sustainment of enterprise and corporate

5 and cyber security to support the organization's overall business strategy, priorities, goals and

6 objectives.

7 Key Accountabilities:

8 Provide supervision in the support of operational technologies and corporate and cyber security. 9 including planning. Provides supervision and input into the development and execution of 10 operational technologies, corporate and cyber security strategy (including Mandatory Reliability 11 Standards compliance), cyber security architecture and corporate and cyber security principles. 12 Also provide supervision in the maintenance of related security policies, guidelines, standards 13 and procedures. Provide expertise in the development and implementation of related projects 14 and act as project manager for capital projects to increase organizational capacity and 15 capability.

16 Develop and drive priorities for operational technologies improvements that align with business 17 priorities, cyber security and corporate objectives. Monitor future development of operational 18 technologies to identify opportunities to create value by introducing new technologies and tools. 19 Identify and resolve complex operational technology issues related to design, project and other 20 matters involving financial and operational impacts. Identify and implement good practise 21 processes within the department and provide guidance and knowledge transfer to direct reports.

Establish key performance indicators and service level agreements for driving performance of operational technologies. Provide leadership in operational technologies planning activities; apply knowledge/future vision of operational technology, including cyber security, based on current and emerging technologies. Work on multiple programs as a subject matter expert.

Provide leadership and evaluate performance of staff. Provide oversight to multiple overlapping projects including maintenance activities that involve the development and the implementation of plans that enable the most effective use of resources and limit financial impacts from a project and business perspectives. Manage budgets and recommendations; controls costs.

30 Technical Analyst – Operational Technology & Cyber Security

31 Job Summary:

Reporting to the Supervisor, Operational Technology & Cyber Security the position is
 responsible to provide technical support and delivery of operational technologies and cyber
 security infrastructure and systems.



1 Key Accountabilities:

- Develop and maintain a high level of technical competency with respect to the current
 FortisBC operational technology & cyber security;
- Demonstrate professional competence;
- Maintains an awareness of changes in operational technology and cyber security;
- Provide technical support to end users of operational technology and cyber security;
- Implement and support operation technology and cyber security infrastructure and systems.

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1.12 Please provide a detailed breakdown of the specific security changes and their
 associated costs that are causing the O&M costs for cyber security to increase
 by \$0.7 million in 2018.

16 **Response:**

17 The increase of \$0.7 million is due to approximately \$0.5 million for third-party managed security

18 services and technology and \$0.2 million for the internal labour that is allocated to O&M. The

19 internal labour is described in response to BCUC IR 1.1.11. The third-party security services

20 are described below.

21 The additional services required to continue to provide an adequate level of cyber security are:

- Increased active monitoring that improves response times to threats, reducing the risk of new threats referred to as "zero day attacks". Zero day attack threats are increasing and additional third party security services are required to control the risk of new threats at a reasonable level based on good cybersecurity practices.
- 26
 2. Increased use of mobile devices to access systems and data by employees requires additional tools and monitoring to provide adequate cybersecurity.
- 28 3. Increased access for customers to information requires more cybersecurity infrastructure29 and systems.
- Additional internal and third party assessments are required to ensure the adequacy of
 cybersecurity for an increasing number of access points for mobile users and external
 access to systems, such as customer portals.





- Please also refer to the response to CEC IR 1.2.3 for discussion of the considerations in making
- 2 choices between cost and effective protection.



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1	2.0 I	Reference:	EVALUATION OF THE PBR PLAN
2 3 4			Exhibit B-2: Section 1.4.2, Table 1-3, pp. 6-7; Appendix C3, Tables C3-1, C3-2, pp. 1-2; FEI Annual Review for 2017 Delivery Rates: Exhibit B-2, p. 5; Exhibit B-3, BCUC IR 3.8
5			Staffing levels
6 7	-	Table C3-1 o changes in ar	n page 1 of Appendix C3-1 of the Application provides information on the inual headcount, including the following information for 2016 (Actual):
8		• Inc	rease of 6 headcount outside of Base O&M
9		• Inc	rease of 23 headcount inside of Base O&M
10 11 12 13 14	2	• Elir 2.1 Please related Tilbury	nination of 19 positions related to the Regionalization Initiative. e explain what the 6 new positions outside of Base O&M added in 2016 are d to. For instance, are these 6 new positions all related to the start-up of the / LNG Expansion Facility? Please explain.
15	Respon	ise:	
16	The res	ponse below	also addresses BCUC IRs 1.2.2 and 1.2.5.

17 FEI's responses addressing headcount/FTEs changes are approximations only, due to the 18 difficulty in reporting by headcount and FTEs. This was discussed on page 2 of Appendix C3 of 19 the 2018 Annual Review Application:

20 Reporting on the classifications requested by headcount and FTE is inherently 21 difficult. The headcount information provided in Table C3-1 has been completed 22 in a similar manner to that reported on an FTE basis in Table C3-2 (i.e. one FTE 23 equals one headcount). Where there are differences between the headcount and 24 FTE information (which are typically caused by vacancies within a given period 25 and the use of part-time and temporary employees), for the purpose of the 26 information requested, the differences are reported as part of the Inside Base 27 O&M classification, recognizing that the Inside Base O&M classification accounts 28 for the majority of headcount and FTE at FEI.

29 As the FTE and headcount numbers are the same for the outside of Base O&M headcount 30 increase, the response will refer to FTE.

31 The 6 headcount Outside of Base O&M increase in 2016 includes approximately 2 FTEs in 32 support of the Tilbury Expansion Facility. The remaining net increase of approximately 4 FTEs 33 is primarily due to resources that are allocated and charged to FEI's affiliates, offset by a

34 decrease for capital activities.



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1 2 3 4	The increase Table C3-2 i (EH&S) depa primarily relat	a of 23 headcount for Inside of Base O&M (equivalent to the 21 FTE reported in in Appendix C3) includes 6 positions in the Environmental, Health and Safety artment in support of the Target Safety Program. The rest of the increase was ted to filling of vacancies in Operations.
5 6		
7 8 9 10 11	2.2 <u>Response:</u>	Please explain which departments the 23 increased headcount inside of Base O&M were added to.
12	Please refer t	to the response to BCUC IR 1.2.1.
13 14		
15 16 17 18 19	FEI si "chan effecti	tates on page 8 of the Application regarding the Regionalization Initiative that the ges have enabled optimal decision making, and have been found to be more cost- ive and to serve customers better."
20 21 22 23	2.3	Please confirm, or explain otherwise, that in total 40 positions (headcount) have been eliminated as a result of the Regionalization Initiative (i.e. 31 positions added and 71 positions eliminated).
24	<u>Response:</u>	
25 26	Confirmed, a Initiative (Pha	approximately 40 positions were eliminated as the result of the Regionalization ase 1 and 2).
27 28		
29 30 31 32	2.4	Please explain the quantitative and qualitative measures that FEI is using to assess the success of the Regionalization Initiative.



1 Response:

- 2 The primary quantitative and qualitative measures that FEI is using to assess the success of the
- 3 Regionalization Initiative are as follows:

Quantitative/Qualitative Measure	Description
Customer experience	FEI's customer satisfaction ratings continues to be very high and maintained at a lower cost. FEI regularly receives comments from customers such as " <i>He</i> <i>came when he said he would be here. He was very courteous and did not</i> <i>waste our time. He checked carefully to make sure all appliances were turned</i> <i>back on</i> ", " <i>He was open to explaining why he recommended it there and what</i> <i>other options there were.</i> " and " <i>I had some specific concerns and questions,</i> <i>he addressed those right off the bat. One question he couldn't answer he said</i> <i>he'd get back to me. Darned, if he didn't phone me back 10, or 20 minutes</i> <i>later with an answer.</i> "
O&M cost reduction	FEI reduced its costs for dispatching, planning, work order processing and daytime standby by \$2.1 million and has sustained the reductions. Teams working closely together, quicker decision making with few people involved, and local knowledge has helped improve the customer experience and sustain the O&M cost reductions.
Reduced process hand- offs	New service/meter, alteration, abandonment, emergency, and meter exchange work orders now flow from the Contact Centre directly to the Regional Office accountable for providing the service. The Regional Office is responsible to manage and prepare the work order for completion, dispatch the work, complete the work order, initiate the billing process as required, and create the appropriate service record. Previously, work orders required at least four hand-offs.
	In addition, hazard and leak survey orders are now processed exclusively by the Regional Office. Previously they were initiated and closed in FEI's Surrey office, requiring multiple hand-offs.
Increased electronic order processing	New service/meter orders, alteration orders, abandonment orders, hazard orders and associated support materials are handled completely electronically and printed on an exception basis. Prior to the Regionalization Initiative, these order types were handled using a paper based process.
Work Order transit days	Electronic work orders do not require mail handling and can be easily moved between crews and contractors. Previously, the movement of work orders relied on an interoffice mail delivery service to move the work from the FEI Surrey office to the various regional offices and back. The interoffice mail service could have work orders in transit for up to 10 days over their lifecycle.
Reduced Work Order processing time	Fewer hand-offs and local knowledge of the Regions enables more efficient processing of work orders. Issues relating to permitting, BC One Call, location, scheduling, dispatching, and work order completion can be easily dealt with by regular interactions of the regional team responsible for the work. Prior to the Regionalization Initiative, multiple teams at various locations would be involved in processing work orders and issues would need to be dealt with through telephone and email communications.



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Quantitative/Qualitative Measure	Description
Data integrity improvement	Documentation was improved and duplicate data fields required for new service and meter installation were eliminated resulting in more reliable information being collected and less checking of work orders. When there are problems, issues can be easily resolved. Prior to the Regionalization Initiative, issues would need to be dealt with through telephone and email. In many cases, work orders would be returned to the field crew via the interoffice mail for correction.

2 Streamlined processes, improved team collaboration, quicker decision making with fewer 3 people involved, and local knowledge have helped improve the customer experience and sustain the O&M cost reductions. 4

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2.4.1 As part of the above response, please specifically explain what information/data FEI has gathered to support the statement in the above preamble regarding optimal decision-making, cost effectiveness and improved customer service.

12

13 Response:

14 The information/data FEI has gathered to support the statement regarding optimal decision 15 making, cost effectiveness, and improved customer service is explained in the response to 16 BCUC IR 1.2.4.

17 18 19 20 21 FEI states the following on page 6 of the Application: 22 Staffing levels are expected to increase in 2017. The projected increase 23 of 57 headcount or 69 FTEs from 2016 to 2017 is comprised primarily of 24 higher staffing for the following areas: approximately 50 FTEs in 25 Operations and Engineering to meet operational and capital work 26 requirements including approximately 5 FTEs for the start-up of the 27 Tilbury LNG Expansion Facility; and approximately 10 FTEs in the



- 1 Customer Service department to fill vacancies to meet call volume 2 expectations. [Emphasis added] 3 On page 5 of the FEI Annual Review for 2017 Delivery Rates Application (2017 4 Application), FEI states the following: 5 The projected increase in headcount of 65 from the end of 2015 to the 6 end of 2016 is comprised of new positions and the filling of existing 7 vacancies, primarily in the following areas: 7 headcount for the start-up of 8 the Tilbury LNG Expansion Facility; 6 headcount in Engineering for capital 9 work: 6 headcount in EH&S in support of the Target Zero safety program; 10 16 headcount in the Contact Centre staffing to fill vacancies and to handle 11 higher call volumes expected in the winter season; and the remainder 12 consisting mostly of vacancies filled across other departments. [Emphasis 13 added] 14 Table 1-3 on page 7 of the Application shows that the actual increase in headcount from 15 2015 to 2016 was 11. 16 2.5 With specific reference to the positions described in the 2017 Application (and 17 provided in the above preamble for ease of reference), please indicate which 18 departments the 23 additional headcount inside of Base O&M were added to in 19 2016. 20 21 **Response:** 22 Please refer to the response to BCUC IR 1.2.1. 23 24 25 26 2.6 Of the projected additions to departments specifically described in the 2017 27 Application, please indicate which positions were not filled and why. 28 29 **Response:** 30 The lower-than-projected net headcount increase from the end of 2015 to the end of 2016 31 (projected increase of 65 versus actual increase of 11) was due to factors including the 32 following:
- Contact Centre staffing to fill vacancies did not materialize. Recruitment difficulties were
 experienced in the late summer and early fall of 2016 that resulted in approximately 15
 positions for Temporary Customer Service Representatives left unfilled in 2016.



- Additionally, approximately 15 fewer Contact Centre headcount were on staff on
 December 31, 2016 than forecast (see paragraph below for further discussion on the
 headcount projection for the Customer Service department).
- Positions (approximately 15) in the Market Development and External Relations
 department not filled by the end of 2016.
- Various changes in other departments account for the remaining variance.

The projected 19 new positions (7 for the Tilbury LNG Expansion Facility; 6 in Engineering and
6 in EH&S) specifically described in the 2017 Annual Review were filled.

9 The lower-than-projected headcount increase from the end of 2015 to the end of 2016 highlights 10 the challenges in preparing headcount and FTE related forecasts. In preparing the 11 headcount/FTE year end forecasts, departments review their current staffing levels (i.e. year-to-12 date) and forecast anticipated changes in staffing levels by year end. Factors such as 13 unanticipated staff turnover, timing of recruitment activities (i.e. being able to successfully recruit 14 staff), changing business priorities (i.e. position no longer required) and substituting internal 15 labour with consultants on a short term basis may affect staffing levels previously forecasted. In 16 some areas like the Customer Service department, forecasting headcount is particularly 17 challenging given the prevalence of part-time and temporary employees. For the Customer 18 Service department, the average FTE measure is more relevant and meaningful than the 19 headcount measure as headcount is measured at a specific point in time (i.e. December 31, 20 2016), making it difficult to forecast when part-time and temporary employees are involved.

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- 242.7Please explain why FEI is projecting an increase of 50 FTEs in Operations and25Engineering for 2017 when it had forecast an increase of only 6 FTEs in26Engineering in 2016.
- 27

28 **Response:**

FEI provides the following to clarify the question and previous information provided in the 2017Annual Review.

FEI notes that the increase of 6 FTEs referred to in the question above should actually be to "headcount", as was stated in the 2017 Annual Review. Additionally, the reference to the increase of 6 headcount in Engineering in 2016 in the 2017 Annual Review did not include



1 headcount related changes to the Operations group.³ The increase in headcount for 2016 for

2 both the Operations and Engineering groups and the startup of the Tilbury LNG plant was

3 forecast to be 30 in total.

For 2017, the referenced approximate 50 FTEs increase includes both the Operations and Engineering groups, including 10 FTEs related to an internal transfer of Measurement staff. Excluding the 10 FTEs related to internal transfers, the revised projected increase in 2017 for Operations and Engineering is 40 FTEs, including approximately 5 FTEs for the startup of the Tilbury LNG Plant. In comparison, for 2016, the projected increase in FTEs for Operations and Engineering, including approximately 4 FTEs related to the startup of the Tilbury LNG Plant, was 19 FTEs.

11 In summary, the projected increase for 2016 for Operations and Engineering including the 12 startup of the Tilbury LNG Plant was approximately 19 FTEs compared to the projected 13 increase of approximately 40 FTEs for 2017. This projected increase in FTEs is the result of 14 higher capital growth and investing in assets that need to be maintained. Each year, FEI adds 15 new gas mains and services, pressure control stations, monitoring and controls, NGT stations, 16 Bio-gas facilities, and LNG facilities. All of these additions include pipe, mechanical devices and 17 complex system components that require maintenance to keep them operating safely and 18 reliably. In addition, assets are aging and requiring additional maintenance and corrective work. Emergency calls, BC One Call tickets and activities around our pipelines that require permits 19 20 are all increasing. Municipal agreements, codes, regulations, public expectation, and industry 21 practices continue to evolve and drive the requirement for additional FTEs.

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2.8 Please separately provide the number of projected increases in FTEs (i.e. 69 total increase) which are related to new positions versus filling of vacancies.

28 **Response:**

In responding to this IR, FEI considers new positions as positions added to a department thatwere not previously there and are incremental to the Company.

On a FTE basis, for the total projected increase in FTEs of 69, approximately 25 FTEs are related to new positions and 44 FTEs are related to filling of vacancies, and seasonal and temporary staffing. For the approximate 25 FTES related to new positions, 3 FTEs are for the Tilbury LNG Plant Expansion, 4 FTEs are in the Project Management Office department, 2

³ Operations related forecasted headcount increase was referenced in the 2017 Annual Review, page 5 *"… and the remainder consisting mostly of vacancies filled across other departments."*



1 FTEs are in the Conservation Energy Management department, 6 FTEs are in Operations, 3

2 FTEs are in Market Development and External Relations, and the remaining 7 FTEs are in 3 various other departments.

On a headcount basis, for the total projected increase in headcount of 57, approximately 37 headcount are related to new positions and 20 headcount are related to filling of vacancies, and seasonal and temporary staffing. For the approximate 37 headcount related to new positions, 5 headcount are for the Tilbury LNG Plant Expansion, 8 headcount are in the Project Management Office department, 3 headcount are in the Conservation Energy Management department, 9 headcount are in Operations, 4 headcount are in Market Development and External Relations, and the remaining 8 headcount are in various other departments.

The projected increase of approximately 44 FTEs or 20 headcount related to the filling of vacancies and seasonal staffing are primarily in the Operations and Engineering, Market Development and External Relations and Customer Service departments.

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172.9Of the total projected 57 increase to headcount in 2017, please explain what the1828 positions outside of Base O&M relate to and what the 28 positions inside of19Base O&M relate to.

21 Response:

- The projected 28 positions (i.e. headcount) added to Outside of Base O&M relate to the following:
- 5 positions for the Tilbury LNG Plant Expansion;
- 3 positions for Conservation and Energy Management activities;
- 4 positions for Construction Supervisors charged to capital; and
- The remainder consists of various positions primarily in support of capital activities.

The projected 28 positions (i.e. headcount) added to Inside of Base O&M relate to new positions
and filling of vacancies primarily in Operations and Engineering, Market Development and
External Relations and Customer Service.

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In response to BCUC IR 3.8 in the FEI Annual Review for 2017 Delivery Rates proceeding (2017 Annual Review), FEI provided a comparison of the forecast employee affiliation composition for 2015 and 2016 as follows:

		<u>Headcount</u>	Average <u>FTEs</u>
2015 Projected	MoveUp	(96)	(82)
	IBEW	(24)	(18)
	M&E	42	19
	Total	(78)	(81)
2016 Projected	MoveUp	(96)	(96)
	IBEW	7	(4)
	M&E	46	34
	Total	(43)	(66)

6

7 2.10 Please provide a similar breakdown as above for Actual years' 2014 through
8 2016 and Projected 2017.

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10 Response:

11 The following is a table of the actual headcount and FTEs for the years 2014 through 2016, the

12 Projected 2017 Headcount and FTE and the year over year changes.



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				Headcount	Average FTEs
			Average	change year	change year
Year	Affilation	Headcount	FTEs	over year	over year
2013 Actual	MoveUp	764	702		
	IBEW	528	520		
	M&E	472	457		
	Total	1,764	1,679		
2014 Actual	MoveUp	711	656	(53)	(46)
	IBEW	499	502	(29)	(18)
	M&E	494	492	22	36
	Total	1,704	1,650	(60)	(28)
2015 Astural	Manualla	C74	64.6	(27)	(40)
2015 Actual	MoveUp	674	616	(37)	(40)
	IBEW	497	488	(2)	(14)
	M&E	485	469	(9)	(24)
	Total	1,656	1,573	(48)	(77)
2016 Actual	MoveUp	626	588	(48)	(28)
	IBEW	529	511	32	23
	M&E	512	482	27	13
	Total	1,667	1,581	11	8
2017 Projected	Movelln	633	591	7	3
2017 Hojeeteu	IRFW	5 <u>4</u> 1	522	, 12	5 22
	M&F	550	505	28	15
	Total	1 724	1 650	58 57	69 69
		1,727	1,000	57	



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1	3.0	Refer	ence:	MAJOR INITIATIVES UNDERTAKEN
2 3				Exhibit B-2, Section 1.4.3, pp. 8-9; FEI 2017 Annual Review, Exhibit B-3, BCUC IR 5.1
4				Review of technical and infrastructure support provider
5 6		On pa identify	ge 9 of y efficie	the Application, FEI states that it is "continuing to work with Compugen to ncies and expects the 2017 savings to be comparable to 2016."
7 8 9		In resp saving the Co	oonse to s in 20 ompuger	BCUC IR 5.1 in the 2017 Annual Review, FEI confirmed that the identified 15 and 2016 were "attributable to the switch from the TELUS contract to a contract and not due to other efficiencies."
10 11 12 13		3.1	Please attribut not due	confirm, or explain otherwise, that the savings expected in 2017 are also able to the switch from the TELUS contract to the Compugen contract and to other efficiencies.
14	Respo	onse:		
15 16	Confin due to	med, th other e	e saving fficienci	gs in 2017 are attributable to the switch from Telus to Compugen and not es.
17 18				
19 20 21 22 23		3.2	Please any ef costs.	confirm, or explain otherwise, that Compugen has thus far not identified ficiencies which have resulted in a permanent reduction to Compugen's
24	Respo	onse:		
25	Confir	med.		
26 27				
28 29 30		3.3	When	does FEI's existing contract with Compugen end?
31	<u>Respo</u>	onse:		
32	The e	xisting	contrac	t with Compugen ends December 31, 2019, with the option, at the

discretion of FEI, to extend for two years. 33



FEI 2017 Annual Review: Exhibit B-2, p. 7; Exhibit B-3, BCUC IR 6.1,

4.0 1 **Reference: MAJOR INITIATIVES UNDERTAKEN**

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Training and development initiative

On page 7 of the 2017 Application, FEI describes the Training and Development Initiative and in response to BCUC IR 6.2, FEI stated that it has incurred \$0.188 million in O&M to date for the initiative.

8 9 4.1 Please explain why FEI has not included a discussion of the Training and Development Initiative in the current Application.

10

11 Response:

12 The Training and Development initiative was initially viewed as a Major Initiative as it was a 13 company-wide process. However, now that it is complete and has been implemented since 14 2015, it did not represent a "major" initiative in terms of costs and benefits and has therefore 15 been removed from the list of Major Initiatives.

16 The Training and Development Initiative developed a company-wide process that improved the 17 planning and tracking of required training activities. Managers are now able to utilize this 18 process in their departments to identify mandatory and technical training requirements for their 19 employees. Department managers work with the Training department which is responsible for 20 overseeing scheduling of all technical and mandatory training activities across the company.

21 Total O&M expenditures spent to date on the Training and Development initiative remain at 22 approximately \$0.188 million with 75 percent of the costs allocated to FEI and 25 percent to 23 FBC. No additional expenditures are expected.

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- 27 4.2 What is the total amount of O&M spent on the Training and Development 28 Initiative?
- 29
- 30 Response:

31 Please refer to the response to BCUC IR 1.4.1.



1	5.0	Refere	ce: MAJOR INITIATIVES UNDERTAKEN			
2			Exhibit B-2, Section 1.4.3, pp. 9-10			
3			SAP integration			
4 5 6 7	<u>Resp</u>	5.1 onse:	Please separately estimate the expected reduction in licensing costs and annual contractor costs (for FEI) resulting from the SAP integration.			
8 9 10 11 12	The annual forecasted O&M savings related to licensing and contractor costs expected from the SAP Integration project for FEI is approximately \$150 thousand in reduced licensing costs and \$300 thousand in reduced contracted support costs. Such reductions in costs are estimates only and are subject to change pending completion of the various build, test and implementation phases.					
13 14						
15 16 17 18 19	Boon	5.2	s the planned common SAP platform currently being utilized by either FEI or FBC, or are both companies moving to a new common SAP platform? Please explain.			
20	Resp	onse:				
21 22 23 24 25 26 27	Although FBC also utilizes SAP for many of the same functions as FEI does, the planned common SAP platform is the one currently being used by FEI. The FEI platform was recently upgraded to new infrastructure and the most current version of SAP as part of scheduled sustaining work. Configuration changes and improvements will be made to the existing up to date FEI SAP platform to align business processes, adopt best practices, allow for upcoming and potential future projects that provide efficiencies, and the implementation of paperless expense management and single sign-on module.					

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- If both companies are moving to a new common SAP platform, please 5.2.1 explain why neither of the existing platforms were deemed appropriate for integration.



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1 Response:

- 2 Please refer to the response to BCUC IR 1.5.2.
- 3 4
 - 5.3 Please provide a breakdown and description of the estimated \$4.5 million project cost including how much of the total cost is capital and how much is O&M.
- 7 8

5 6

9 Response:

- 10 Capital costs are estimated to be approximately \$4.2 million, of which 75 percent will be
- 11 allocated to FEI and 25 percent to FBC. The capital costs are categorized as follows:

Phase	Internal Labour (millions)	External Labour (millions)	Total (millions)
Build/Design	\$1.2	\$1.1	\$2.3
Test	\$0.2	\$0.4	\$0.6
Cutover/Deployment	\$0.2	\$0.4	\$0.6
Project Management		\$0.2	\$0.2
Contingency			\$0.5
Total	\$1.4	\$2.1	\$4.2

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The remaining \$0.3 million relates to O&M costs, of which approximately \$0.2 million and \$0.1 million will be allocated to FEI and FBC respectively. The O&M costs are primarily for training.

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- 18 5.4 Please clarify if the \$4.5 million estimated project cost includes costs for training.
 19 If training costs are not included, please provide the estimated costs for training.
- 20
- 21 Response:
- 22 Confirmed. Please refer to the response to BCUC IR 1.5.3.



Page 30

1 6.0 Reference: OVERVIEW OF CAPITAL EXPENDITURES

 2
 Exhibit B-2: Section 1.4.4.1, Table 1-4, pp. 10-12; Appendix C4; FEI

 3
 2017 Annual Review: Exhibit B-2, Table 1-3, p. 8; Exhibit B-3, BCUC

 4
 IR 9.6, 9.9.1

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Capital spending results

- 6 In Table 1-3 of the 2017 Application, the projected 2016 variance between formula and 7 actual growth capital was \$7.933 million and between formula and actual 8 sustainment/other capital was \$5.834 million.
- 9 In Table 1-4 of the current Application, the actual 2016 variance for growth capital was
 10 \$14.238 million and the actual 2016 variance for sustainment/other capital was \$2.588
 11 million.
- 6.1 Please explain in detail the causes/factors which resulted in the actual variance
 in growth capital being \$6.305 million higher than was projected in the 2017
 Application.
- 15

16 **Response:**

The two main factors that resulted in the variance between the 2017 growth capital forecast inthe Annual Review for 2017 Rates and the actual amount presented in this Application are:

- 19 1. There has been a continuing robust housing market both for new housing developments 20 and renovation which has increased demand for natural gas infrastructure including 21 mains and service lines. At the time the 2017 Application was filed, FEI did not anticipate 22 its service line additions trending would continue to remain as strong and exceed the 23 customer attachment activity levels that were experienced in 2015; and
- 24
 2. There has been an increase in demand for natural gas service largely due to the
 25 ongoing competitive advantage of natural gas rates, which have remained stable or, in
 26 the case of Vancouver Island customers, decreased. There has been an increase in SLA
 27 activity on Vancouver Island and other parts of FEI's service territory over the latter part
 28 of the year.

The customer growth trend experienced in 2016 has continued into 2017, and FEI has considered this trending in its 2018 projection for growth capital. Please also refer to the response to BCUC IR 1.6.7 for an explanation of the factors with the largest impact on the cost per SLA.

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Page 31

6.2 Please explain the causes/factors which resulted in the actual variance in sustainment/other capital being \$3.246 million lower than was projected in the 2017 Application.

6 **Response:**

7 The main factors which resulted in the actual variance in sustainment/other capital being \$3.246 million lower than was projected in the 2017 Application were: 8

9 The meter set alteration costs were lower than projected by approximately \$2 million. • Meter alterations are primarily a third-party driven activity and are forecast based on 10 previous years' actuals. A significant impact to this activity on 2016 actuals that was 11 12 driven by FEI was a change in the regulator evergreen process. Regulator 13 replacements were combined with meter exchange activity to improve efficiency and 14 reduce customer disruptions. This change contributed in part to the lower meter 15 alteration costs. 2017 forecasts for this activity have been adjusted accordingly.

16 Transmission capital was less than projected primarily due to a project delay on the 17 Whistler IP Pipeline (approximately \$1.9 million) due to challenges in obtaining 18 stakeholder agreement on a running line. This project is still pending and is now 19 scheduled for completion in 2018.

20 A portion of these specific variances were offset by expenditures on other smaller sustainment 21 capital projects.

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- As provided in Table 1-4 of the Application, the projected cumulative variance at the end 26 27 of 2017 for growth capital is \$48.834 million, which indicates that the actual/projected 28 cumulative growth capital is 41.8 percent over the cumulative PBR formula amount.
- 29 FEI states on page 2 of Appendix C4 of the Application that growth capital variances are 30 attributable to two main factors: (i) an increase in the volume of service and main 31 installations; and (ii) a higher per installation cost than was utilized in calculating the approved formula growth capital amounts. 32
- FEI further states on page 2 of Appendix C4 that its "Base Capital costs for the PBR 33 34 period were based on the 2013 Approved (for FEI) and 2014 Approved (for Vancouver



Island and Whistler) growth capital costs, which were in turn based on 2010 actual costs 1 2 for FEI and 2012 actual costs for Vancouver Island and Whistler." 3 6.3 Please confirm, or explain otherwise, that there is little likelihood that the volume 4 and cost assumptions utilized in developing the PBR Base Capital costs for 5 growth capital will be reflective of actual results during the remainder of the PBR 6 term. 7 8 **Response:** 9 Confirmed. 10 11 12 13 6.4 Given the consistent and substantial over-spending in growth capital, please 14 explain why re-basing of the growth capital portion of the capital spending 15 envelope is not the most appropriate option. 16 17 **Response:** 18 Please refer to the response to BCUC IR 1.10.8. 19 20 21 22 23 Table C4-1 on page 3 of Appendix C4 shows that the approved cumulative growth 24 capital amount for Service Line Additions (SLAs) as of the end of 2017 is \$71.38 million 25 and the total approved cumulative growth capital amount is \$116.697 million. 26 Table C4-2 on page 3 of Appendix C4 shows that the actual/projected cumulative capital 27 cost of SLAs as of the end of 2017 is \$109.143 million, which is \$37.762 million greater than the formula amount. 28 29 6.5 Under a hypothetical scenario where FEI was directed to propose a rebased amount for SLA-related growth capital, please provide a detailed calculation of 30 31 the proposed rebased SLA growth capital cost, including the revised calculation 32 of annual SLAs and the revised calculation of dollars per SLA (\$ per SLA). 33



1 Response:

2 FEI has not had sufficient time within the time allotted for IR responses in this Annual Review to 3 create a fully considered proposal for changes to the growth capital formula as requested in 4 BCUC IR 1.6.5 and 1.6.8. Because of the interconnected and complex nature of the 5 components of the PBR Plan, FEI requires time to ensure it has thought through all the details 6 of any proposal. PBR Plans last for many years and can have a significant impact on the utility 7 and the ratepayers. Given that any proposal could have significant potential impacts, FEI 8 requires time to ensure its proposals are well thought out and the consequences fully 9 considered.

Speculating now on what might be proposed in the future if the Commission were to conclude a change to the formula is desired could serve to complicate and confuse matters, given that the speculative proposals may turn out to have unintended consequences, and will likely need to revised and reconsidered. FEI would prefer to make any proposals as part of its application for a new PBR Plan, when the whole plan can be considered together and as part of a process designed for that purpose.

For the reasons set out in the response to BCUC IR 1.10.8, FEI does not recommend that any adjustment be made to the growth capital formula at this time. In that response, FEI has discussed the types of considerations that will go into developing a new growth capital formula. FEI will propose a new capital base and a revised capital formula, or alternative approach to the treatment of capital, in the next PBR Plan where a fulsome review of the formula in the context of all of the other components will take place.

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- 266.6Please discuss whether, given the large discrepancy between the actual \$ per27SLA and the formula \$ per SLA it would be more appropriate to rebase growth28capital to increase the \$ per SLA for the remainder of the PBR term.
- 30 Response:
- 31 Please refer to the response to BCUC IR 1.10.8.
- 32
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- On page 4 of Appendix C4, FEI identifies four primary factors that have changed since
 the base capital per SLA amounts were developed and that are contributing to the cost
 per SLA variances.
- 6.7 Of the four factors identified, please explain which factor(s) has had the largest
 impact on the cost per SLA variances.
- 6

7 Response:

- 8 Of the four factors identified as contributing to the growth capital cost variance for SLAs, an
- 9 increase in the number of customer attachments per service line addition and an increase in
- 10 SLA activity on Vancouver Island have had the largest impact on the cost per SLA variance.
- 11 1. Increase in Customer Attachments per Service Line

FEI is seeing an increase in the number of customer attachments per SLA due to changing housing market trends from single detached homes to multi-family developments. This factor has increased from approximately 1.2 customers per SLA in 2012 to approximately 1.4 customers per SLA in 2016. The costs associated with servicing multi-family developments is higher than that of single detached homes as larger pipe, additional fittings and a larger riser are typically required.

18 2. <u>SLA Activity on Vancouver Island</u>

19 The increase in activity on Vancouver Island, where cost per SLA is one of the highest in BC 20 due to its geographical location and corresponding municipal, pavement and traffic control 21 requirements, is one of the primary drivers contributing to the cost per SLA variance.

The increase in service line activities is largely a result of the transition to common delivery rates. At the time that the FEI base capital was adjusted to include FEVI, the Vancouver Island SLAs were 2,167, which represented 21 percent of the total SLAs of 10,156. Since amalgamation, and in years 2015, 2016 and 2017, FEI has been experiencing an increased volume of SLAs on Vancouver Island compared to the proportion accounted for in the base capital assumption: 26 percent for 2015, 29 percent for 2016 and 29 percent of total SLAs is projected for 2017.

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- 32 El states the following on page 6 of Appendix C4:
- 33The average cost per metre of main in FEI's 2013 Base was \$62 per34metre. The actual cost per metre of main was \$87 in 2014, \$121 in 2015



1 and \$121 in 2016, with 2017 expected to be similar to 2016. The 2014 2 through 2017 costs have been influenced upward by a number of larger 3 cost mains...

4 ...In 2010, the year that was used to develop the 2013 Base for the PBR 5 formula, there was one new main with a cost greater than \$100 thousand. 6 This compares to 15 and 11 new mains greater than \$100 thousand in 7 2015 and 2016, respectively.

- 8 6.8 Please explain in detail the factors which are contributing to the increased 9 number of new mains costing greater than \$100 thousand.
- 10

11 Response:

12 The primary factors contributing to the increased number of main extensions over \$100 13 thousand are the economic growth in the province and the competitive advantage of natural gas 14 rates, which have increased demand. Examples include requests for large main extensions 15 required to serve the natural gas load for new subdivisions in a community plan build-out, 16 industrial customers switching from propane to natural gas and natural gas mains to service 17 customers' CNG stations. While larger (wider diameter pipe) mains may be required to serve 18 the natural gas load of these customers, additional cost pressures have also been experienced. 19 These cost pressures include:

- 20 As discussed in section 2.1.2.4 of Appendix C4, local governments have implemented 21 regulations that have increased requirements on utilities. Within the bounds of new or 22 existing bylaws, local government are placing more restrictions and limitations on FEI 23 than it has experienced in the past. Examples of this include work hour restrictions and 24 paving requirements (discussed further below). FEI must comply with these 25 requirements in order to obtain the necessary utility permits to undertake the work.
- 26 USD Exchange Rates – FEI has seen an increase in the cost of equipment and supplies 27 purchased from the United States due to the unfavorable exchange rate. FEI's base 28 capital was set based on an expectation that the exchange rate would be close to par. 29 whereas capital expenditures during the PBR term have been incurred at an exchange rate close to 0.811 (described in section 2.1.2.3 of Appendix C4 of the Application). 30
- 31 In recent years, FEI has seen a significant increase in municipally driven paving costs for 32 new customer mains and services compared to 2010, the year that was used to develop 33 the 2013 base for the PBR formula. This is primarily driven by more extensive paving 34 requirements where FEI is required to undertake full road paving as compared to paving only portions of the roadway impacted by FEI. Paving costs as a percentage of total 35 36 new customer mains and services costs over the 2010-2016 period have increased due


to local government requirements. A summary of paving costs incurred for new mains and services for the 2010-2016 period is provided below.

3

New Customer Mains and Services – Paving Costs 2010-2016 (000's)

	New Cus	tomer Mains	New Customer Services		
	Paving Costs as a %		Paving	Costs as a	
Yr	Costs	of total	Costs	% of total	
	(000's)	Mains \$	(000's)	Services \$	
2010	203	3.1%	1,280	6.6%	
2011	234	3.2%	1,486	7.7%	
2012	315	4.4%	1,892	8.2%	
2013	392	5.0%	2,331	10.0%	
2014	581	6.8%	2,519	10.2%	
2015	817	6.0%	2,978	9.8%	
2016	873	6.7%	2,889	9.1%	

4

5 Main extensions over \$100 thousand, along with all other main extensions the Company 6 undertakes, are assessed by way of the approved economic test. Mains-related costs are 7 subject to each customer passing the approved mains extension test. As such, the approved 8 mains extension test provides a means of assessing the economics of these costs as new 9 customers are added to FEI's distribution system. While the quantity of these mains may be 10 higher than previous years, their costs are offset by higher revenue.

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13 14 6.9 Please discuss the likelihood that actual growth capital costs for mains will be within the approved/formula amount during the remainder of the PBR term.

16 **Response:**

While there is no approved formula amount specifically for mains capital (the formula is applied to total growth capital which includes New Customer Mains, Services and Meters), based on current activity levels it is FEI's expectation that actual total growth capital expenditures will exceed the approved/formula amount during the remainder of the PBR term.

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- 246.10Under a hypothetical scenario where FEI was directed to propose a rebased25amount for mains-related growth capital, please provide a detailed calculation of26the proposed rebased mains growth capital cost.



2 Response:

- 3 Please refer to the response to BCUC IR 1.6.5.
- 4

1

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- 6 7
- 8 In Table C4-4 on page 8 of Appendix C4, FEI provides the annual cumulative variances 9 related to "PBR Decision reduction to base sustainment capital for Vancouver Island 10 pressure."
- 11 6.11 Please confirm, or explain otherwise, that this line item (and amounts) does not 12 represent actual dollars spent in excess of the approved/formula amount.
- 13

14 Response:

15 Confirmed. The actual variance in total Vancouver Island sustainment capital spending is set 16 out in the response to BCUC IR 1.6.12.

FEI reproduces below its response to BCUC IR 1.8.1 from the Annual Review for 2017 Rateswhich explains the referenced line from Table C4-4 in Appendix C4 of this Application.

19 8.1 With specific reference to the amounts provided in Table 1-3, please clarify

20 FEI's statements regarding the impact of the reduction in sustainment capital for

- 21 the Vancouver Island region on the capital expenditure results.
- 22 <u>Response:</u>

23 The discussion in lines 6 through 16 on page 8 of the Application was describing 24 the factors that caused the approved formula capital spending to be lower than 25 the requested formula capital spending. Had the reduction in sustainment capital 26 for the Vancouver Island region not occurred, the "Formula" columns in Table 1-3 27 would have been greater, and the "Variance" columns would have been 28 correspondingly smaller. The "Formula" columns would have been higher by \$6.351⁴ million in 2015 and \$6.417⁵ million in 2016, for a cumulative total of 29 30 \$12.769 million. These amounts are calculated by escalating the \$6.3 million

⁴ \$6.3 million x (1 + 0.201%) x (1 + 0.614%).

⁵ \$6.351 million x (1 + 0.469%) x (1 + 0.567%).



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reduction in the 2014 base capital that resulted from Order G-106-15⁶ at the approved formula factors for 2015 and 2016, respectively.

- 7 6.12 Please provide the actual annual sustainment/other capital spending for Vancouver Island for 2015 through 2017 and compare this amount to the 8 9 approved Base sustainment/other capital included in the PBR Plan formula for 10 Vancouver Island.
- 12 Response:

13 On page 11 of the Application, FEI stated that the reduction in sustainment capital on 14 Vancouver Island resulted in an impact of \$6.5 million for 2017 and \$19.3 million cumulative.

15 Below, FEI provides a comparison of the actual sustainment/other capital for Vancouver Island 16 compared to the 2014 base inflated by the PBR formula. The table includes the 2017 year end 17 projection; the August 31, 2017 year-to-date actual results are approximately \$12 million. When 18 including the 2017 projected results, the capital spending in excess of the formula for Vancouver 19 Island is \$9.2 million for 2017 and \$21.4 million cumulative. This is slightly higher than the 20 figures FEI quoted on page 11 of the Application, and continues to support FEI's conclusion that 21 the PBR Decision reduction to base sustainment capital for Vancouver Island is causing a 22 significant capital pressure.

23

Vancouver Island Sustainment/Other Capital Spending (000's)

	Actual/	PBR	
	Projection	Formula	Variance
2015	16,400	11,612	4,788
2016	19,130	11,733	7,397
2017	21,019	11,850	9,169
Total	56,550	35,195	21,355

⁶ In Order G-106-15, the Commission approved a 2014 Sustainment Capital Base for FEVI of \$9.385 million on page 23 of the Decision, which was \$6.258 million less than the requested Sustainment Capital Base of \$15.643 million.



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6.13 Please provide the actual spending information specific to Vancouver Island sustainment/other capital that FEI has used to conclude that the approved Base Capital spending specifically for Vancouver Island has contributed to FEI's overall sustainment/other capital cost pressures during the PBR term.

7 <u>Response:</u>

- 8 Please refer to the response to BCUC IR 1.6.12.
- 9
- 10
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FEI provided the following table regarding the capital costs incurred for Jomar valves in
 response to BCUC IR 9.6 in the 2017 Annual Review:

Year	Capital Cost (\$ millions)
2015	1.1
2016 Projection	2.6
TOTAL	3.7

15

In Table C4-4 of Appendix C4 in the Application, FEI shows the 2015 actual capital cost
 for Jomar valves to be \$0.050 million.

- 186.14Please explain the cost discrepancy between FEI's response to BCUC IR 9.6 in19the 2017 Annual Review and the 2015 capital cost provided in Appendix C4 of20the Application.
- 21

22 **Response:**

The capital costs incurred for bypass (Jomar) valves provided in the response to BCUC IR 1.9.6 in the Annual Review for 2017 Rates represented all capital costs (i.e. including the costs for bypass valve installations both on new services and retrofits) while the capital cost provided in Appendix C4 Table C4-4 of this Application excludes growth capital (i.e. includes costs for bypass valve retrofits only).

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- 29



FortisBC Energy Inc. (FEI or the Company)	Outoria di a Datas
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4

FEI provided the following table regarding the forecast capital costs for Jomar Valves for the remainder of the PBR term in response to BCUC IR 9.7 in the 2017 Annual Review:

Year	Capital Cost (\$ millions)
2017 Forecast	2.7
2018 Forecast	2.9
2019 Forecast	3.0
TOTAL	8.6

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6.15 Please discuss whether FEI continues to consider the 2018 and 2019 forecasts provided in the above table to be reasonable.

8

9 Response:

10 Yes, FEI considers the 2018 and 2019 forecasts provided in the above table to be reasonable.

11 These expenditures are required to allow FEI to install bypass valves on all new meter 12 installations and to retrofit approximately half of the meter sets that are scheduled for meter 13 recall in the respective year.

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18 In response to BCUC IR 9.9.1 in the 2017 Annual Review, FEI provided the following 19 table:

In-Line Inspection Activity

(\$000)	2014	2015	2016	2017	2018	2019	Total
Capital Formula	1,350	1,361	1,375	1,389	1,389	1,389	8,253
Actual/Forecast	3,294	2,656	7,051	5,225	4,469	9,393	32,088
Difference	1,944	1,295	5,676	3,836	3,080	8,004	23,835

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6.16 Please confirm, or explain otherwise, that the amounts provided for In-line inspection (ILI) activities in Table C4-4 of Appendix C4 of the Application



3

represent the variance between formula and actual/projected ILI activity capital expenditures.

4 Response:

In the course of responding to this information request, FEI noted two errors in Table C4-4 of
Appendix C4 of the Application. The \$1.730 million in 2014 and the \$1.200 million in 2015 listed
in Line 5 ("Increased in-line inspection activity") should be \$1.944 and \$1.295 million,
respectively, in accordance with FEI's response to BCUC IR 1.9.9.1 in the 2017 Annual Review.
A corrected version of Table C4-4 is provided below.

Although the capital formula does not provide expenditure levels for specific activities within the capital plan, FEI confirms that the amounts provided for In-line inspection (ILI) activities in the corrected version of Table C4-4 of Appendix C4 of the Application, as noted above, represent the variance between the amount included in FEI's Base Capital for in-line inspection activity escalated by the PBR capital formula over the current PBR term, and actual/projected ILI activity capital expenditures.

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Table C4-4 Corrected: Annual Sustainment/Other Capital Variances (\$ millions)

Line						
No.	Description	2014	2015	2016	2017	Cumulative
	PBR Decision reduction to base sustainment capital for					
1	Vancouver Island pressure	-	6.351	6.417	6.484	19.253
	PBR Decision growth factor for net customer additions					
2	pressure	0.259	0.939	1.586	2.250	5.035
3	Regionalization Initiative	1.300	0.100	0.600	-	2.000
4	Installation of bypass (Jomar) valves	-	0.050	2.070	2.600	4.720
5	Increased in-line inspection activity	1.944	1.295	3.287	3.000	9.526
6	Unanticipated system improvements and new stations					
	to supply gas to large new customers	0.600	2.700	1.764	2.498	7.562
7	Burns Bog stress relief	0.300	1.800	1.000	2.900	6.000
8	Other contributing factors:	1.000	2.330	-	2.275	5.605
	PBR formula pressures resulting from increase in PIF					
9	(1.1% vs. 0.5%)	0.597	0.664	0.669	0.676	2.606
10	Prince George #1 lateral erosion	0.150	0.030	0.040	0.670	0.890
	Ministry of Transportation and Infrastructure IP					
12	relocation		0.050	0.700		0.750
13	Mission IP seismic upgrade		1.200			1.200
14	Cyber security				0.375	0.375
15	TOTAL Sustainment / Other Pressures	6.150	17.510	18.134	23.728	65.522
	Actual annual and cumulative Sustainment / Other					
16	capital expenditures variance compared to formula	1.825	(3.098)	2.587	26.671	27.985

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FORTIS BC ^{**}		FortisBC Energy Inc. (FEI or the Company) Multi-Year Performance Based Ratemaking Plan for 2014 through 2019 Annual Review for 2018 Rates	Submission Date: September 26, 2017			
		Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 42			
1 2 3 4 5	<u>Response:</u>	6.16.1 If confirmed, please explain why the 2014 and 2015 activities in Table C4-4 of Appendix C4 do not equate shown in the above table.	amounts for ILI to the amounts			
6	Please refer	to the response to BCUC IR 1.6.16.				
7 8						
9 10 11 12 13	6.17	Please discuss whether FEI's 2018 and 2019 forecasts for II spending remain relatively consistent with the forecasts provid table.	₋I activity capital led in the above			
14	<u>Response:</u>					
15 16	FEI's 2018 and 2019 forecasts for ILI activity capital spending remain relatively consistent with the forecasts provided in the above table.					
17 18 19 20 21 22	The primary running crac As described feasibility of FEI continue activity could	driver for the higher 2019 forecast than in the other years is Flek-detection in-line inspection technology in selected pipelines begind in the response to BCUC IR 1.1.9, FEI is currently assessing the adopting crack-detection capabilities within its in-line inspection provides to develop its strategy on this issue, the capital spending foread change.	El's projection of ginning that year. the need for and ogram. Because cast for FEI's ILI			
23 24						
25 26 27 28 29	<u>Response:</u>	6.17.1 If the forecasts are not expected to be consistent, revised forecasts and explain why the forecasts have cl	please provide hanged.			
30	Please refer	to the response to BCUC IR 1.6.17.				
31 32						
33						

FORTIS BC [*]		Mult	FortisBC Energy Inc. (FEI or the Company) i-Year Performance Based Ratemaking Plan for 2014 through 2019 Annual Review for 2018 Rates	Submission Date: September 26, 2017
		Respon	se to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 43
1 2 3 4 5	Response:	6.17.2	If the forecasts are expected to be consistent, please 2019 forecast is expected to be significantly higher the years' actual/forecast amounts.	explain why the han the previous
6	Please refer	to the resp	ponse to BCUC IR 1.6.17.	
7 8				
9				
10	6.18	Please	discuss whether, given that the forecast capital spending	g for ILI activities
11 12		are exp	ected to be significantly higher than what was appro	wed in the PBR
12		to rebas	se the capital formula spending related to II I activities i	in order to better
14		reflect th	ne expected future spending.	
15				
16	<u>Response:</u>			
17	Please refer	to the resp	ponse to BCUC IR 1.10.8.	
18				
19				
20				
21	FEI	provided t	he following table regarding the capital costs incurred	d for Burns Bog
22	pipel	ine stress i	relief in response to BCUC IR 9.17 in the 2017 Annual R	eview:

Year	Capital Cost (\$ millions)
2014	0.3
2015	1.8
2016 Projection	1.3
TOTAL	3.4

- In Table C4-4 of Appendix C4 in the Application, FEI shows the 2014 and 2015 actual
 capital cost for Burns Bog Stress Relief to be \$1 million and \$1.4 million, respectively.
- 266.19Please explain the cost discrepancy between FEI's response to BCUC IR 9.17 in27the 2017 Annual Review and the 2015 and 2016 capital costs provided in28Appendix C4 of the Application.



FortisBC Energy Inc. (FEI or the Company) Multi-Year Performance Based Ratemaking Plan for 2014 through 2019 Annual Review for 2018 Rates	Submission Date: September 26, 2017
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 44

2 <u>Response:</u>

- 3 The 2014 and 2015 actual capital costs for Burns Bog Stress Relief stated in Table C4-4 of
- 4 Appendix C4 in the Application are incorrect. FEI has provided an updated Table C4-4 in
- 5 response to BCUC IR 1.6.16 above. The updated Table C4-4 now corresponds to the table
- 6 below.

2014 0.3	
2015 1.8	
2016 1.0	
2017 Projection 2.9	
TOTAL 6.0	



FortisBC Energy Inc. (FEI or the Company) Submission Date: Multi-Year Performance Based Ratemaking Plan for 2014 through 2019 Submission Date: Annual Review for 2018 Rates September 26, 2017

Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1

1 7.0 Reference: OVERVIEW OF CAPITAL EXPENDITURES

2 3

Exhibit B-2, Appendix C4, Section 4.2, pp. 15-17

Planned improvements to capital prioritization process

- 4 FEI states on page 15 of Appendix C4 that in 2017 it is implementing the first phase of 5 an "Asset Investment Planning (AIP) tool."
- 6 7

8

7.1 Please explain what the AIP tool is, including whether it is an information technology tool and if it is an add-on to the SAP technology platform.

9 <u>Response:</u>

The Asset Investment Planning (AIP) project includes the implementation of a new information technology tool, as well as process changes for the associated capital planning related functions. The product selected for implementation is Copperleaf Technologies' C55 platform. C55 is not an add-on to the SAP technology platform; however, it does interface with SAP by updating project financial actual and forecast costs to facilitate capital plan management.

15 C55 allows projects to be evaluated against a common set of measures that reflect FEI's 16 strategic objectives and core values, as described in Appendix C4 of the Application. Once 17 projects are evaluated using the value framework, the tool will provide the ability to conduct an 18 automated optimization of the capital planning portfolio for a given period of time to achieve the 19 greatest benefit within a set of user-defined financial and/or resource constraints.

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7.2 Please provide the total capital and operating cost associated with Phase 1 of the AIP tool.

26 **Response**:

Phase 1 of the AIP implementation is scheduled to be complete by 2017 year end. The actualsto date and the year end forecast for the Phase 1 implementation are provided below.

	Capital (\$million)	Operating (\$thousand)
Actuals to date (July 31, 2017)	\$1.5	\$11
Total YEF	\$2.0	\$105



FortisBC Energy Inc. (FEI or the Company) Multi-Year Performance Based Ratemaking Plan for 2014 through 2019 Annual Review for 2018 Rates

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1 8.0 Reference: OVERVIEW OF CAPITAL EXPENDITURES

2 3

Exhibit B-2: Section 1.4.4.1, Table 1-4, pp. 10-12; Appendix C4, Section 4.1, pp. 13-15

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Capital spending prioritization

FEI states on page 11 of the Application: "In addition to the formula-related pressures noted above, FEI has continued to experience other capital cost pressures in 2017 due to work that had been re-prioritized from previous years of the PBR term into 2017 and to manage unforeseen urgent and higher priority activities in 2017."

- 98.1Please provide a table showing a list of the capital work in 2017 which has been10classified as "urgent", "high priority" and "re-prioritized from previous years of the11PBR term" in order of significance.
- 13 **Response:**

FEI does not formally classify its capital work as "urgent", "high priority" or "re-prioritized from previous years". The referenced statement on page 11 of the Application was referring to unforeseen work that materializes during a plan year and has to be managed for execution immediately, rather than being incorporated into a future plan year. As described in Appendix C4 of the Application, FEI currently categorizes each capital project as Mandatory, Essential or Flexible.

Although FEI's asset management system does not currently provide the ability to produce an exhaustive list of re-prioritized projects with their previous scheduled dates and classifications, some of the more significant 2017 work that had been re-prioritized from previous years includes:

- km of 168 mm main renewal on Lougheed Highway in Burnaby (Essential): The renewal was planned due to a history of leaks on this main and the impact on vehicle traffic and Skytrain operation. The project was broken into multiple phases due to capital cost pressures. The 2017 forecast cost is \$1 million to complete phase 3 of 3.
- 18 smaller main renewals throughout the province (Essential): These main segments were all identified for renewal through the Long Term Sustainment Plan (LTSP). These projects were deferred due to capital cost pressures. The 2017 forecast cost is \$3.6 million.
- Midway Compressor, replace unit control PLC (Essential): The existing control panel system has become obsolete and cannot be fully serviced, causing reliability issues.
 This project was deferred from 2016 to 2017 due to capital cost pressures. The 2017 forecast cost is \$384 thousand.



- Mt. Hayes, install second run for fuel gas system (Essential): Existing pressure control for supply of fuel gas to the LNG plant has a single pressure control run. FEI standard pressure control station design includes parallel regulator runs to ensure 100% standby capacity. This project was deferred from 2016 to 2017 due to capital cost pressures. The 2017 forecast cost is \$150 thousand.
- Mt. Hayes, install second run for process gas system (Essential): Existing pressure control for supply of process gas to the LNG plant has a single pressure control run. FEI standard pressure control station design includes parallel regulator runs to ensure 100% standby capacity. This project was deferred from 2015 to 2017 due to capital cost pressures. The 2017 forecast cost is \$310 thousand.
- Mt. Hayes, Amine system upgrade (Essential): This project involves the addition of two filters to the amine system to protect against potential pre-treatment upsets as a result of foaming and to allow for the reuse of condensed water in the amine system. This project was deferred from 2016 to 2017 due to capital cost pressures. The 2017 forecast cost is \$700 thousand.
- Joyce Avenue station, district station upgrade (Essential): This project involves the replacement of the station due to space constraints and safety concerns. This project was deferred from 2016 to 2017 due to capital cost pressures. The 2017 forecast cost is \$560 thousand.
- System Improvement 720m of 114 mm DP PE along Townline Rd (Essential): The area shows significant growth and experiences low pressures. This project was deferred to 2017 due to capital cost pressures. The 2017 forecast cost is \$243 thousand.
- FortisBC.com website upgrade and re-design (Essential): The existing platform is nearing the end of support and an upgrade to the base platform is required. This project was deferred from 2015 to 2017/2018 due to capital cost pressures. The 2017 forecast cost is \$75 thousand.
- Workforce Management Software Replacement (Essential): This system is one of a group of complementing workforce management tools nearing end of support. This project was deferred from 2014 to 2017 to allow for it to be grouped with several other workforce management technologies. The 2017 forecast is \$890 thousand.
- SAP Integration (Flexible): This project involves the Integration of the FBC SAP system
 with the FEI SAP system. This project was deferred from 2015 to 2017 as technical
 resources were committed to other projects. The 2017 Forecast is \$1.8 million.
- SAP Version Upgrade (Mandatory): This project was required to bring the SAP 35 application and database to a current supported version. Delayed due to upgrade of



underlying SAP server and storage infrastructure, as well as the operating systems for
 that infrastructure. The upgrades were a prerequisite to deploying the upgrade. \$1.9
 million of this project was deferred from 2016 to 2017.

4 After plan approval in June 2016, a number of unforeseen events necessitated the addition of 5 other urgent work to the capital plan. FEI categorized the following urgent work as either 6 Mandatory or Essential:

- Vernon-Penticton 323 Pipeline, KP 176.2: The pipeline was exposed in the creek bed during high spring runoff. The forecast cost of this project is \$500 thousand.
- Ashcroft Lateral 88 Pipeline, KP 24.4: The pipeline was exposed in the creek bed during
 high spring runoff. The forecast cost is \$210 thousand.
- Tilbury LNG, replace compressor cooling water piping: The existing piping had 3 failures
 in 2017 and required replacement to prevent further failures. The forecast cost is \$70
 thousand.
- Okanagan Lake IP 219, stabilize west bank: There was extensive erosion due to high spring water levels. The project involves the installation of shoreline rock structures to prevent further erosion. The forecast cost is \$60 thousand.
- Kitchener A Compressor: The Unit 1 and 2 Exhaust Stacks were experiencing repetitive cracking and require replacement. The forecast cost is \$300 thousand.
- Kamloops IP Pipeline near Hefley Creek (Ramage Road): The movement of the steep slope perpendicular to the pipeline resulted in a requirement to move the affected portion of the pipeline to a more stable location to prevent pipeline failure. The forecast cost is \$480 thousand.
- Vernon-Penticton 323 Pipeline, Appaloosa Road: Transmission pipe corrosion was detected via ILI data analysis resulting in a requirement to replace a portion of the pipeline and casing. The forecast cost is \$125 thousand.
- Grand Forks-Trail 273 Pipeline, KP 175.5: Identification of corrosion from analysis of ILI data and identification of slope movement from pipeline survey has resulted in a requirement for the replacement of 115 metres of the pipeline. The forecast cost is \$380 thousand.



1	9.0 F	Reference:	OVERVIEW OF CAPITAL EXPENDITURES
2			Exhibit B-2, Appendix C4, Section 4.3, Table C4-5, pp. 17-18
3			Projects planned to be undertaken outside of PBR term
4	ç	9.1 For	each of the projects listed in Table C4-5 of Appendix C4, please provide the
5		estin	nated capital cost.
6			
-			

7 Response:

8 The requested information has been provided in the table below.

Description	Estimated Timing	Estimated Cost (\$millions)	Current Status
Class Location Upgrade: 765m (9 segments) of 1975 vintage 323mm OD East Kootenay Link Mainline, Salmo and Creston	2016	\$1.9	Planned for 2022
Class Location Upgrade: 1319m (1 segment) of 2000 vintage 610mm OD Southern Crossing Pipeline, West of Moyie River at Yahk	2017	\$2.0	Planned for 2022
Class Location Upgrade: 2782m (1 segment) of 2000 vintage 610mm OD Southern Crossing Pipeline, Grand Forks	2018	\$3.5	Planned for 2022
Tilbury LNG Plant Buildings	2018	\$1.4	Planned for 2020. Delayed to assess business requirements.
Distribution Main, Service Renewals and Alterations: Penticton Second Supply – Penticton	2015	\$2.4	Planned for 2020. Reprioritized due to capital constraints and to allow routing and siting review with the City of Penticton.
The addition of pipe storage to the Burnaby Operations building	2014	\$1.9	Delayed due to further review of requirements for space strategy and capital constraints.



FortisBC Energy Inc. (FEI or the Company) Multi-Year Performance Based Ratemaking Plan for 2014 through 2019 Annual Review for 2018 Rates

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1	10.0	Refer	ence:	OVERVIEW OF CAPITAL EXPENDITURES
2 3				Exhibit B-2, Section 1.4.4.2, pp. 13-14; FEI 2017 Annual Review, Exhibit B-2, pp. 10-12
4				Treatment of capital spending outside of the dead-band
5 6		FEI pr Reasc	ovides	the following Commission discussion from Order G-182-16, page 16 of the Decision on pages 13-14 of the Application:
7 8 9 10 11 12 13 14 15			The F detaile in the instan projec 10 pe band. dead-l enoug	Panel does not consider it necessary at this time to undertake a ed evaluation of FEI's approved formula capital spending envelope form of a re-basing hearing. The Panel notes that 2016 is the first ce of FEI exceeding the capital dead-band, and based on FEI's ted 2016 capital expenditures FEI expects to be within the annual rcent dead-band but in excess of the cumulative 15 percent dead- Further, the capital amount projected to exceed the cumulative band is \$6.118 million, which in the Panel's view is not significant h to warrant the regulatory cost of a re-basing hearing.
16 17		FEI sta \$9.176	ates on 6 millior	page 14 of the Application that the actual 2016 dead-band adjustment was
18 19 20 21 22	Respo	10.1	Please expen FEI wa	e confirm, or explain otherwise, that based on the actual 2016 capital ditures (as opposed to what was projected in the 2017 Annual Review), as not actually within the one-year 10 percent capital dead-band for 2016.
23 24 25	Confir 11.26	med. <i>A</i> percent	As show t.	n in Table 1-4, the capital expenditure variance percentage for 2016 was
26 27 28 29 30		FEI st formul calcula	ates on la by 21 ating the	page 14 of the Application that it is projecting to exceed the 2017 capital 7.62 percent and that the cumulative amount over the capital formula for e two-year dead-band adjustment is 32.74 percent.
31 32 33 34		10.2	Please cumul "signif	e explain whether FEI considers the projected 27.62 percent and ative 32.74 percent amounts in excess of the capital dead-band to be icant".



1 Response:

2 FEI considers the 2017 capital formula variance to be significant in the context of the PBR Plan

3 because the variance is materially over the dead band. As explained in the Application, the

4 large 2017 variance is partly due to projects that were re-prioritized from earlier years in the

5 PBR term.

6 FEI expects that, excluding any variances resulting from growth capital, 2017 will be the year 7 with the largest sustainment/other capital variance in the six year PBR term. Overall on a 8 cumulative basis, the sustainment/other capital spending variance (in isolation from the growth 9 capital variance) over the entire PBR term is expected to average to just over 10 percent of the 10 formula, which is very close to being within the dead band. FEI does not consider that level of 11 variance to be significant in the context of the PBR Plan.

FEI discusses both the sustainment/other and growth capital variances further in response toBCUC IR 1.10.8.

- 14
- 15
- 16
- 17 10.3 Please explain whether FEI expects that it will exceed the capital dead-band in
 18 each of the remaining years of the PBR term.
- 19

20 Response:

- 21 Confirmed. Please refer also to the response to BCUC IR 1.10.2.
- 22
- 23
- 24 25 F
- FEI states on page 14 of the Application: "By not adjusting the capital formula amount, the incentive properties of the PBR Plan remain intact and will remain consistent throughout the remainder of the PBR term."
- 2810.4Please clarify how the incentive properties of the PBR Plan are expected to29remain intact given that under FEI's proposed course of action any capital30spending that exceeds the capital dead-band will automatically be added into the31following year's opening plant in service.
- 32

33 Response:

The incentive properties remain intact because the PBR Plan remains as originally approved, with incentives for savings within the dead band but not outside the dead band. The incentive



1 consistently applies to the amount of capital spending within the dead band, for which there is a 2 sharing of savings or costs with customers, and amounts outside of the dead band consistently 3 have no sharing and are instead added to or deducted from rate base the following year. The 4 capital dead band was put in place specifically to address the situation where capital spending 5 varied beyond a set amount from the capital formula, such that the PBR Plan would be able to 6 carry on even with unexpected capital expenditure variances. The dead band was symmetrical 7 in design to ensure that large variances beyond the formula amount did not disproportionately 8 impact either customers or the Company.

9 Consistent with the PBR Plan, there is no PBR-specific incentive once the dead band is 10 exceeded. However, as detailed in Appendix C4, FEI relies on prudent capital management 11 practices, and adheres to consistent policies and procedures to execute on the required capital 12 expenditures both to support growth in customers and to maintain the safety and integrity of the 13 gas system, regardless of whether capital expenditures fall within the dead band or outside of 14 the dead band.

- 15
- 16
- 171810.4.11910.4.119incentive mechanisms of the PBR Plan impact amounts already in
excess of the capital dead-band, such as with the 2016 capital
expenditures, where FEI had projected exceeding the capital dead-
band by \$6.118 million but ultimately ended up exceeding the dead-
band by \$9.176 million.
- 24
- 25 **Response:**
- 26 Please refer to the response to BCUC IR 1.10.4.
- 27
- 28
- 29
- 3010.5If the Commission was to determine that re-basing was required, please discuss31the reasonableness of undertaking a more limited re-basing approach, such as32limiting the re-basing to growth capital, which represents the majority of the33capital over-spend thus far in the PBR Plan term.
- 34



1 Response:

- 2 Please refer to the response to BCUC IR 1.10.8.
- 3 4

5 6

7

- In the FEI-FBC Capital Exclusion Criteria under PBR Reasons for Decision attached to Order G-120-15, the Commission stated the following on page 17:
- 8 The Panel accepts there are a number of reasons why a capital 9 expenditure level may be higher or lower than the threshold. Some of 10 these may support and justify raising or lowering base capital while others 11 may demonstrate a particular result to be an anomaly, not necessarily 12 requiring rebasing.
- 1310.6Based on the actual versus formula results shown in Table 1-4 of the Application14for growth capital, please confirm, or explain otherwise, that the annual over-15spend of growth capital would best be characterized as a continuing trend and16not an anomaly.

1718 **Response:**

In the short term and over the remainder of the PBR term, the level of growth capital
expenditures would best be characterized as a continuing trend, as current growth levels are
expected to continue.

- 22 Please also refer to the response to BCUC IR 1.11.1.
- 23
- 24
- 25
- 26 On page 13 of the Application, FEI summarizes the capital dead-band "regulatory 27 history" and states the following:
- If the capital dead band is exceeded, the opening plant in service for
 ratemaking purposes in the following year will be adjusted up or down by
 the amount that actual capital expenditures vary outside of the dead band
 from the formula-based amount, and the capital expenditure level utilized
 in calculating the earnings sharing is adjusted up or down by the same
 amount.
- 3410.7Please provide the specific wording in either the FEI 2014-2018 PBR Decision35issued on September 15, 2014 or the FEI-FBC Capital Exclusion Criteria



1Reasons for Decision accompanying Order G-120-15 where the Commission2approved the treatment of capital spending in excess of the dead-band in the3manner described in the above preamble.

5 **Response:**

4

6 PBR Decision:

FEI provided the regulatory history regarding the capital dead band in its Annual Review for
2017 Rates at pages 10 through 13. These pages are reproduced as Attachment 10.7 to this
response. This treatment was also explored in information requests in that proceeding and was
again described in the presentation material for FEI's workshop in that proceeding.

- FEI also references the Commission's approval of this treatment in Order G-182-16 after review
 of all of the material discussed above, which was set out on page 13 of this Application:
- 13 The Panel approved FEI's proposal to remove the amount of formula capital 14 which has exceeded the cumulative dead-band from the earnings sharing 15 calculation, and to add the amount of capital in excess of the dead-band to FEI's 16 opening 2017 plant additions balance.

17 Capital Exclusion Criteria Decision:

18 The Capital Exclusion Criteria Reasons for Decision accompanying Order G-120-15 did not 19 address how the earnings sharing or opening rate base are adjusted; these were items that 20 were determined in the PBR Decision. What the Capital Exclusion Criteria decision did discuss 21 at page 17 was whether or not rebasing of the capital under the formula should occur when the 22 dead band is exceeded.

- Where the dead band is exceeded for any year, FEI and FBC are directed in the
 next Annual Review filing to include recommendations as to any adjustment to
 base capital other than those driven by the I-X mechanism.
- 26
 27
 28
 29 10.8 Does FEI consider the second seco
 - 10.8 Does FEI consider there to be any other options for treating the capital expenditures in excess of the dead-band other than rebasing or adding the excess capital expenditures to opening plant in service in the following year?
- 33 **Response**:



1 The discussion below is provided to respond to BCUC IRs 1.6.4, 1.6.6, 1.6.18, 1.10.5 and 2 1.10.8.1 which all relate to FEI's proposal to carry on with the approved PBR mechanism as 3 compared to options around re-basing of capital, and more specifically, growth capital.

First, FEI is nearing the end of its fourth year of the PBR Plan, with only 2018 and 2019 left in the PBR term. Given the re-basing proceeding that would be required to properly set a new base capital level for the PBR term, it is likely that any change to the PBR Plan would not be implemented until 2019. Given the short time span remaining in the term, any re-basing will not have a material impact on cost recovery or rates in general.

9 Second, FEI does not believe it is appropriate to change one element of the PBR Plan in 10 isolation of the others; the PBR Plan is a package of interdependent components. Although 11 there is a provision in the Capital Exclusion Criteria Decision that allows for re-basing of capital, 12 a change to the capital formula itself was not contemplated; the formula is a fundamental 13 component of the PBR Plan. The best time to look at the capital formula and the level of 14 rebasing is the next time PBR comes up for review. FEI will propose a new capital base and a 15 revised capital formula, or alternative approach to the treatment of capital, in the next PBR Plan 16 where a fulsome review of the formula in the context of all of the other components will take 17 place.

Third, as FEI demonstrated at its Annual Review for 2017 Rates Workshop (Exhibit B-10, Slide 19) and at pages 16 to 21 of the Workshop Transcript, rebasing the capital formula does not result in a better outcome for customers. The end result of maintaining the current treatment as compared to re-basing the capital formula is that, in both cases, the amount outside of the deadband gets added to rate base. But if the capital formula is re-based to a higher level, then the earnings sharing and the dead-band itself are impacted for future years (because the formula amount is now larger).

25 Given that background, FEI addresses the specific questions asked by the Commission.

26 Sustainment/Other Capital

Although sustainment/other capital is expected to be over the dead-band for the last three years of the PBR term, in total the formula is working fairly well, with spending expected to be close to the dead-band on average over the entire PBR term. There is no need to isolate specific components of sustainment/other capital (such as ILI) for separate treatment. The existing Zfactor mechanism was put in place to address situations where large unforeseen capital was required, and FEI will put forward any projects that qualify for that treatment. FEI will manage the levels of sustainment/other capital spending over the remainder of the PBR term.



1 Growth Capital

FEI acknowledges that the growth capital formula is not providing adequate funding for the level of customer growth that FEI is experiencing. FEI has considered whether re-basing of growth capital or an alteration to the growth capital formula (such as a change to the \$/SLA) should be pursued. FEI's conclusion is that the outcome would not be significantly different than the current approved treatment, as discussed above. The time to consider changes to the formula is in future PBRs. At that time, some of the concerns that FEI will seek to address include:

- FEI is required to add customers to the system if they request to be added.⁷ Every time
 FEI adds a customer (service line), costs are incurred. Because of this, there is no basis
 to reduce the allowed activities (number of service lines) by one-half. The productivity
 improvement factor is already embedded in the formula to incent the utility to find
 efficiencies and control costs and a reduction in the activity driver by one-half serves to
 introduce a further productivity improvement factor.
- A more comprehensive activity driver than "number of service line additions" should be developed. There were certain assumptions embedded in the Base for growth capital, such as number of meters per service line and the mix of Vancouver Island compared to Mainland service lines, which did not stay constant through the PBR term and which needed to be reflected in the activity driver.
- There is significant variability in the cost of large customer mains that needs to be considered.
- FEI has existing system extension tests (main extension test and service line cost allowance) that already ensure that FEI is adding growth capital where it is beneficial to do so, and receiving contributions where required.
- 24 <u>50/50 Sharing of Capital Spending Above the Dead-Band:</u>

25 The Commission has asked about other alternatives, including 50/50 sharing of the difference in 26 capital spending above dead-band. FEI understands this to mean that the capital above the 27 dead-band is not added to rate base the following year, but that customers pay for one-half of 28 the return through the earnings sharing mechanism for the remaining years of the PBR term. 29 FEI understands this to be the same as removing the dead-band mechanism on capital 30 spending altogether, which would not be appropriate. As discussed above, because the PBR 31 Plan is a package of interdependent components, it is not appropriate to change one element of 32 the PBR Plan in isolation of the others. The formula is a fundamental component of the PBR 33 Plan, and removing the dead band on the capital formula would change the balance struck by

⁷ Section 28 (1) of the Utilities Commission Act: On being requested by the owner or occupier of the premises to do so, a public utility must supply its service to premises that are located within 200 metres of its supply line or any lesser distance that the commission prescribes suitable for that purpose



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the Commission in its PBR Decision. For example, a symmetrical dead band was approved by 1 2 the Commission to protect ratepayers and the utility from the risk of capital requirements being 3 significantly lower or higher than the formula, respectively. FEI does not believe it would be fair 4 to remove the protection of a symmetrical dead band now that the risk of higher capital 5 requirements has materialized for the utility. FEI suspects that intervener groups would similarly 6 oppose removal of the dead band on capital expenditures if FEI's expenditures were below the 7 dead band, as was the case in FEI's 2004- 2009 PBR Plan. As FEI has indicated above, the 8 best time to look at the capital formula and the level of rebasing is the next time PBR comes up 9 for review.

10 11

12

- 1310.8.1As part of the above response, please discuss whether an alternative14option would be to share the impact of the capital expenditures in15excess of the dead-band 50/50 with ratepayers in the same manner that16capital expenditures within the dead-band are treated.
- 1718 <u>Response:</u>
- 19 Please refer to the response to BCUC IR 1.10.8.



11.0

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GROWTH FACTOR CALCULATION

1 B. FORMULA DRIVERS

Reference:

- 3 Exhibit B-2, Section 2.3, Table 2-3, p. 22; FEI 2017 Annual Review, Exhibit B-2, Table 2-3 4 5 Average SLA growth factor 6 Table 2-3 on page 22 of the Application shows an increase in average SLAs for July 7 2016 through June 2017 compared to July 2015 through June 2016 of 22.6 percent 8 (11.302 percent @ 50 percent growth factor); whereas the previous years' increase 9 provided in Table 2-3 of the 2017 Application was only 0.648 percent (0.324 percent @ 10 50 percent growth factor). 11 What factors does FEI attribute to the significantly higher growth rate in service 11.1 12 line additions in the most recent 12-month period ending June 2017 compared to 13 the previous year? Please discuss. 14 15 Response: 16 The higher growth rate can be attributed to a strong housing construction market over this 17 period along with sales and marketing efforts. The strong housing market has been stimulated 18 by factors such as low interest rates and a high demand particularly from first-time buyers.
- Along with the new construction activity, FEI has also seen an increase in conversions on
- 20 Vancouver Island with customers converting from oil or propane to natural gas for their heating
- 21 needs.



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1	C.	DEMA	ND FO	RECAST AND REVENUE AT EXISTING RATES
2	12.0	Refere	ence:	DEMAND FOREAST AND REVENUE AT EXISTING RATES
3 4				Exhibit B-2, Section 3.3, pp. 26-29; FEI 2017 Annual Review, Exhibit B-2, Appendix A4, Section 7, p. 30
5				Use per customer (UPC) forecast
6		FEI sta	ates on	page 26 of the Application:
7 8 9 10 11 12 13 14			FEI no 4.2 P indica norma reason contin Scheo period	otes that the 2016 normalized Rate Schedule 1 consumption was Js higher than forecast. As the previous years' history did not te that UPC would increase in 2016, FEI has re-confirmed all of its dization routines and billing data, and continues to investigate the ns for the increase. At this time, FEI believes it is prudent to ue to use the existing forecast method. As a result, the Rate hule 1 normalized UPC is forecast to increase over the forecast
15 16 17		Figure a decl UPC b	s 3-1, 3 ine in 1 etweer	3-2, and 3-3 on pages 27 to 29 of the Application show that FEI forecasted JPC from 2015 to 2016; however the actual results show an increase in 2015 and 2016 for Rate Schedules (RS) 1, 2 and 3.
18		The fo	llowing	information is provided on pages 27-29 of the Application:
19 20			Figure sir	e 3-2 shows a UPC of 345.2 in 2018F for RS 2. The highest actual UPC nce 2007 is 339.1 in 2016.
21 22			Figure sir	e 3-3 shows a UPC of 3,842 in 2018F for RS 3. The highest actual UPC nce 2007 is 3,721 in 2016.
23 24			Figure	e 3-4 shows a UPC of 5,399 in 2018F for RS 23. The highest actual UPC acce 2007 is 5 279 in 2016
25 26 27		12.1	Please RS 3 i	e confirm, or explain otherwise, that the UPC presented for RS 1, RS 2 and referenced above are weather normalized.
28	Respo	onse:		
29	Confir	med.		
30	Please	e see lin	ies 15-'	16 on page 26, Section 3.3 of the Application.
31 32				
33				



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12.2 Please explain the factors that FEI believes resulted in an increase in UPC from

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2015 to 2016, contrary to the decrease that FEI forecasted for RS 1, RS 2 and RS 3.

5 **Response:**

6 This response also addresses BCUC IR 12.2.1 and BCUC IR 12.2.2.

7 FEI continues to investigate the potential factors that resulted in the increase in the UPC for this 8 period, but has not yet come to any conclusions. FEI is reviewing changes in consumption 9 behaviour due to weather patterns such as additional cloud cover versus hours of sunlight. 10 possible increases in the number of gas burner tips, and changes in the gas supply 11 composition. FEI has also reviewed and confirmed that its normalization routines, SAP billing 12 data and calculations are correct. While FEI is still investigating the cause of the increase in the 13 UPC, FEI has not found any error in its processes, and believes it is reasonable to continue to 14 use the existing forecast method consistent with past practice.

15 As documented in the example in Section 6 of Appendix A3, FEI used data from 2013 through 16 2016 to develop the UPC forecast. After the impacts of weather have been removed through 17 the weather normalization process, all remaining factors affecting UPC are embedded in the historical data and the effect of a single remaining factor cannot be isolated for analysis. The 18 19 UPC forecast method assumes that factors present in the historical data used to develop the 20 forecast will continue for the duration of the test period. By using the forecast methods 21 documented in Appendix A3, all factors affecting the historical data have been properly and 22 consistently accounted for in the 2018 UPC forecast.

23 24			
25 26 27 28 29	<u>Response:</u>	12.2.1	Please discuss the likelihood that these factors (or similar factors) will re-occur during the 2018 test period.
30	Please refer t	o the resp	conse to BCUC IR 1.12.2.
31 32			
33 34		12.2.2	If FEI considers that these factors may reoccur, please explain how FEI



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2 Response:

- 3 Please refer to the response to BCUC IR 1.12.2.
- 4

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- 6 7

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12.3 Please explain the likelihood that the UPC in 2018F will exceed the highest UPC experienced in the past 10 years for RS 2, RS 3, and RS 23.

10 **Response**:

- 11 The existing UPC forecast method does not assign a likelihood or probability to the forecast
- 12 result. At this time, FEI does not have any basis to estimate the likelihood of any particular value
- 13 being exceeded.
- 1
 - 14
 - 15
 - 16
 - 17

FEI states on page 30 of Appendix A4 of the 2017 Application: "At this time, FEI is recommending that it continue to use the Existing Method and that further testing be completed on the ETS method over the remaining term of the PBR."

- FEI includes six reasons to support its recommendation, including that "the transition of the Vancouver Island and Whistler service areas to common rates will not be complete until 2018. Due to the changes to available rate schedules in those service areas, FEI will be unable to utilize the ETS method to provide forecasts for those areas until a number of years of comparable data is available."
- 2612.4Please explain whether it is possible for FEI to use the Holt's Linear Exponential27Smoothing (ETS) method to produce its load forecast for the Annual Review for282019 Rates application.
- 29



1 Response:

Using Holt's Linear Exponential Smoothing (ETS) method to produce FEI's load forecast for the
 Annual Review for 2019 Rates application is possible for the Mainland region only⁸, and is not

- 4 recommended for the following reasons:
- As shown in Section 3.18.1 of Appendix A2, the ETS method is performing almost identically to the existing method for the residential UPC. FEI would not recommend changing methods unless there is a clear reason to do so.
- 8 2. As shown in Section 3.18.2 of Appendix A2, the commercial UPC forecast results from
 9 the ETS method are better over the span of five forecasts. While these results are
 10 promising, FEI intends to continue applying a consistent method to all rate schedules
 11 and regions and would therefore not recommend changing just the commercial UPC
 12 forecast at this time.
- As shown in Section 3.18.3 of Appendix A2, the ETS method commercial customer
 additions forecast has not performed as well as the existing method.
- Both the existing residential and commercial UPC forecasts continue to out-perform the
 industry averages for demand variance of 4 percent established in Appendix A4 of the
 Annual Review for 2017 Rates application.
- 18 5. In Section 7 of Appendix A4 of the Annual Review for 2017 Rates application FEI
 19 recommended further testing for the remaining term of the PBR and this was agreed to
 20 in Order G-182-16:
- The Panel agrees with FEI that the addition of more years of data points in the analysis of the ETS method will provide more solid evidence of the efficacy of this method as a possible alternative going into the future.
- 24Therefore, the Panel accepts FEI's proposal to continue using its existing25forecasting method at this time while also continuing to test the ETS26method and directs FEI to report the Holt's Exponential Smoothing27(ETS) test forecasts and the aggregate MAPE results as part of its28Annual Review for 2018 Delivery Rates Application and in all29remaining annual review applications.
- 30 FEI continues to believe this is the best approach.
- 31
- 32

⁸ Refer to BCUC IR 1.13 series where FEI explains why it cannot produce an ETS forecast for Vancouver Island and Whistler at this time.



- 1 2 12.5 Please elaborate on why FEI recommends continuing to use the existing forecast 3 method, including a discussion of: 4 The appropriateness of the existing method and its forecasts; i. 5 ii. Any proposed refinement to the existing method to improve forecast 6 accuracy; 7 iii. The pros and cons of changing the forecast method (such as changing to the 8 ETS method) for the Annual Review for 2019 Rates application; and 9 iv. Whether, and if so how, the PBR period impacts the desirable timing to 10 change the forecast methodology going forward. 11 12 Response: 13 The reasons FEI recommends continuing to use the existing method for the remainder of the 14 PBR term were discussed in Appendix A4 in the Annual Review for 2017 Rates, reproduced 15 below. These reasons are still valid. 16 At this time, FEI is recommending that it continue to use the Existing Method and
- 16 At this time, FEI is recommending that it continue to use the Existing Method and 17 that further testing be completed on the ETS method over the remaining term of 18 the PBR. FEI's recommendation is based on the following:
- FEI's Existing Method has performed well over many years, consistently outperforming the average of the survey sample group in forecasting residential and commercial demand. Based on the data available at this time, FEI's Existing Method remains a reliable and reasonable demand forecasting method for FEI's revenue requirement purposes.
- FEI's testing of ETS results in four data points. While four data points are sufficient to identify potential replacements, they are an insufficient basis on which to recommend the replacement of FEI's Existing Method, which has a proven performance record over more than 10 years.
- The Boreas study did not find evidence of any other utility using ETS.
 This reinforces the need for further testing to confirm the suitability of the ETS method.
- While the implementation of the method in Excel 2016 makes the method attractive, it is also new and time is required to ensure that the feature will provide a stable basis for FEI's demand forecast.



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- FEI believes it is important to apply a consistent method of forecasting to 1 2 all of its service areas. However, the transition of the Vancouver Island 3 and Whistler service areas to common rates will not be complete until 4 2018. Due to the changes to available rate schedules in those service 5 areas, FEI will be unable to utilize the ETS method to provide forecasts 6 for those areas until a number of years of comparable data is available. 7 Since the alternate tests cannot be performed for those service areas, the 8 ETS method cannot be applied to all of FEI.
- The remaining term of the PBR provides a good opportunity to continue
 testing ETS as any variances in the demand forecast are captured in the
 Flow-through deferral account.

As established in Section 4 of Appendix A4 of the 2017 Application, a seven-year demand variance MAPE (mean absolute percent error) of 4 percent is a reasonable target for both residential and commercial rate schedules. Based on data from Section 3.4 of Appendix A2, the current seven-year (2010-2016) MAPE of FEI's Existing Method for residential demand is 1.9 percent, while the seven-year MAPE for commercial demand is 2 percent. FEI's Existing Method therefore remains a reliable and reasonable demand forecasting method for FEI's revenue requirement purposes.



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1 13.0 **Reference:** DEMAND FOREAST AND REVENUE AT EXISTING RATES 2 Order G-182-16 dated December 7, 2016, Directive 8; Exhibit B-2, 3 Appendix A2, Section 3, pp. 9-10; FEI Annual Review for 2017 4 Delivery Rates proceeding, Exhibit B-2, Appendix A4, Section 6-7, 5 pp. 19, 30 6 Holt's ETS method 7 Directive 8 of Order G-182-16 states the following: 8 FEI is also directed, as part of its future annual review application 9 materials, to extend the applicable tables in Section 3 of Appendix A2 of 10 the Application to include variance information for the ETS method for the 11 residential and commercial use per customer, and the commercial 12 customer additions. 13 On pages 9 to 10 of Appendix A2 of the Application, FEI provides the variance 14 information for the ETS method for the residential and commercial use per customer, 15 and the commercial customer additions for FEI Mainland contained in sections 3.6 and 16 3.7 only. 17 FEI states in Appendix A4 on page 19 of the 2017 Application that "The Mainland region 18 was used for testing forecast performance of each alternate method... While Vancouver Island does account for nearly 9 percent of FEI demand, the data is difficult to use for 19 20 testing because of the pre- and post-amalgamation mix." 21 FEI further states on page 30 of Appendix A4 of the 2017 Application that "the transition 22 of the Vancouver Island and Whistler service areas to common rates will not be 23 complete until 2018. Due to the changes to available rate schedules in those service 24 areas, FEI will be unable to utilize the ETS method to provide forecasts for those areas 25 until a number of years of comparable data is available." 26 13.1 Please update the tables for Whistler, Vancouver Island, and FEI Amalgamated 27 UPC and customer addition contained in Section 3 of Appendix A2 with variance 28 information of the ETS method for 2016, if possible. 29 30 **Response:** 31 The requested update is not possible. 32 An ETS method forecast for 2016 demand would require actual weather normalized data points

33 for 2015 and prior years.



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1 As comparable data using consistent rate classes is available for Vancouver Island and Whistler 2 only from 2015 onward, the ETS forecast would need to be completed with a single data point, 3 which is not possible. As a result, the tables identified in the preamble cannot be updated to 4 include ETS results for Vancouver Island and Whistler, and therefore FEI Amalgamated also 5 cannot be updated. 6 7 8 9 If the variance information for other FEI service regions other than 13.1.1 10 Mainland cannot be provided, please explain FEI's challenges in 11 producing the analysis. 12 13 **Response:** 14 Please refer to the response to BCUC IR 1.13.1. 15 16 17 18 13.1.2 Please discuss whether the challenges mentioned above impact the 19 ability for the ETS method to produce a reliable forecast for FEI's amalgamated demand. In the discussion, please include whether and 20 21 when these challenges can be overcome. 22

23 **Response:**

The amalgamated demand forecast requires historical data from Vancouver Island and Whistler in addition to Mainland. Until such time as an adequate data set exists for Vancouver Island and Whistler, FEI will not be able to produce an amalgamated forecast using the ETS method.

FEI expects to be able to produce an ETS forecast for Vancouver Island and Whistler once five years of weather normalized actual data are available. In 2020, FEI would have 5 years of weather normalized actual data for Vancouver Island and Whistler on which it could forecast demand for 2021. In short, an FEI amalgamated ETS forecast would first be available for 2021.



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1 14.0 Reference: DEMAND FOREAST AND REVENUE AT EXISTING RATES

Exhibit B-2, Appendix A3, Section 9, p. 17

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Industrial load forecast

On page 17 of Appendix A3 of the Application, FEI states that "the industrial demand is forecast using a web-based survey system." The survey database includes all customers in rate schedules 4, 5, 7, 22, 25, 27.

- 7 14.1 Please provide industrial survey response data broken down into the relevant rate classes using the template below. The column titled "Number of Customers"
 9 represents the number of customers in the database at the time the survey was issued. The Microsoft Excel file is attached to this document.
 - Colume 1 Colume 2 Colume 3 Colume 4 Colume 5 Colume 6 Colume 7 Colume 8 2017 Industrial Survey Response (Actual) Row 1 Row 2 Completed Delivered but not completed Undeliverable Row 3 Number of customers % 2016 Demand % 2016 Demand % 2016 Demand % Customers % Customers % Customers Rate Schedule 4 Row 4 Row 5 Rate Schedule 5 Row 6 Rate Schedule 7 Rate Schedule 22 Row 7 Rate Schedule 25 Row 8 Rate Schedule 27 Row 9 Row 10 Total

11 12

13 **Response:**

14 The requested industrial survey response data is provided below, and in Excel format in 15 Attachment 14.1.

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Row 1				2017 Industria	l Survey Response	(Actual)		
Row 2			Comp	oleted	Delivered but	not completed	Undeli	verable
Row 3		Number of customers	% Customers	% 2016 Demand	% Customers	% 2016 Demand	% Customers	% 2016 Demand
Row 4	Rate Schedule 4	40	1.12%	0.06%	2.76%	0.17%	0.20%	0.00%
Row 5	Rate Schedule 5	236	5.41%	1.00%	13.48%	1.88%	5.21%	0.70%
Row 6	Rate Schedule 7	6	0.20%	0.16%	0.31%	0.13%	0.10%	0.04%
Row 7	Rate Schedule 22	52	5.31%	64.01%	0.00%	0.00%	0.00%	0.00%
Row 8	Rate Schedule 25	537	28.70%	14.11%	25.64%	7.09%	0.51%	0.04%
Row 9	Rate Schedule 27	108	8.68%	9.25%	2.25%	0.13%	0.10%	0.07%
Row 10	Total	979	49.44%	88.59%	44.43%	10.56%	6.13%	0.85%

16 17



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1 **15.0** Reference: DEMAND FOREAST AND REVENUE AT EXISTING RATES

Exhibit B-2, Appendix A2, Section 3.2, p. 5

2 3

Amalgamated net customer additions - industrial

- 4 On page 5 of Appendix A2 of the Application, FEI shows the amalgamated net customer 5 additions and the forecast error from 2007 to 2016 for RS 1, RS 2, R3 3, and RS 23.
- 6 7

15.1 Please replicate the tables referenced above for RS 4, RS 5, RS 7, RS 22, RS 25, RS 27.

8

9 Response:

10 FEI does not forecast specific new industrial customers as FEI cannot be sure that the customer

11 is attaching until they have made a final commitment. Prior to that, a customer may have an

12 intention of connecting, but the forecast attachments of this type of customer cannot be reliably

13 predicted because the customer must weigh several factors prior to committing.

As a result, the annual forecast of industrial additions in each rate schedule is always zero. The following table has been prepared using zero as the forecast for net additions in each year.



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Customer Additions	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Rate Schedule 4										
Forecast	0	0	0	0	0	0	0	0	0	0
Actual	(2)	6	(5)	5	(2)	6	(9)	0	0	(1)
Error = (ACT-FCST)	(2)	6	(5)	5	(2)	6	(9)	0	0	(1)
Percent Error = (Error/ACT)	100%	100%	100%	100%	100%	100%	100%	0%	0%	100%
Customer Additions	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Rate Schedule 5										
Forecast	0	0	0	0	0	0	0	0	0	0
Actual	(65)	(26)	(17)	(48)	(9)	(7)	0	1	(22)	(5)
Error = (ACT-FCST)	(65)	(26)	(17)	(48)	(9)	(7)	0	1	(22)	(5)
Percent Error = (Error/ACT)	100%	100%	100%	100%	100%	100%	0%	100%	100%	100%
Customer Additions	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Rate Schedule 7										
Forecast	0	0	0	0	0	0	0	0	0	0
Actual	(1)	0	1	(1)	(1)	1	0	0	3	0
Error = (ACT-FCST)	(1)	0	1	(1)	(1)	1	0	0	3	0
Percent Error = (Error/ACT)	100%	0%	100%	100%	100%	100%	0%	0%	100%	0%
Customer Additions	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Rate Schedule 22										
Forecast	0	0	0	0	0	0	0	0	0	0
Actual	(3)	0	(7)	(2)	0	3	(1)	(1)	3	2
Error = (ACT-FCST)	(3)	0	(7)	(2)	0	3	(1)	(1)	3	2
Percent Error = (Error/ACT)	100%	0%	100%	100%	0%	100%	100%	100%	100%	100%
Customer Additions	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Rate Schedule 25										
Forecast	0	0	0	0	0	0	0	0	0	0
Actual	(54)	(28)	1	(47)	(47)	4	36	(2)	7	(10)
Error = (ACT-FCST)	(54)	(28)	1	(47)	(47)	4	36	(2)	7	(10)
Percent Error = (Error/ACT)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Customer Additions	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Rate Schedule 27										
Forecast	0	0	0	0	0	0	0	0	0	0
Actual	0	1	(3)	2	(3)	0	5	(2)	7	(1)
Error = (ACT-FCST)	0	1	(3)	2	(3)	0	5	(2)	7	(1)
Percent Error = (Error/ACT)	0%	100%	100%	100%	100%	0%	100%	100%	100%	100%

1

2 The following figure shows the magnitude of annual industrial customer additions compared with

3 the total customer additions, and that variances in the demand forecast are not sensitive to

4 customer additions.









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1	16.0	Refere	nce: DEMAND FOREAST AND REVENUE AT EXISTING RATES
2			Exhibit B-2, Section 11, Schedules 16–18
3 4			Combined data for amalgamated demand forecast, revenue and margin
5 6 7 8 9		16.1	Please complete the worksheet titled "Demand, Revenue and Margin" in the attached Microsoft Excel file to provide a table that combines FEI's customer and energy demand forecasts as well as the corresponding total revenues and margins by rate class.
10	Respo	onse:	
11	Please	e refer to	Attachment 16.1 for the completed Excel file.


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1 D. O&M EXPENSE

2 17.0 Reference: O&M EXPENSE FORECAST OUTSIDE OF THE FORMULA

3 4 Exhibit B-2, 6.3.5, Table 6-6, p. 55; FEI 2017 Annual Review, Exhibit B-3, BCUC IR 23.1

5

Incremental O&M to support rate schedule 46 – labour

In Table 6-6 on page 55 of the Application, FEI forecasts labour for the Tilbury Plant in
2018 of \$2.540 million, which compares to a 2017 approved amount of \$1.480 million
and a 2017 projected amount of \$1.678 million.

FEI stated in response to BCUC IR 23.1 in the 2017 Annual Review that the 2017
forecast labour relates to three types of job functions at the Tilbury Plant: (i) LNG Plant
Operators; LNG Electrical and Instrumentation Technicians; and (iii) an LNG
Administrative Assistant.

- FEI further provided a table in response to BCUC IR 23.1 showing the job function/title, associated role/responsibility and number of FTEs for each job function, noting that while there are a total of 23 employees listed this equates to 16 FTEs based on the percentage of work performed for the Tilbury operations.
- 1717.1Please provide an updated number of employees by job function/title for the 201718projected and 2018 forecast Tilbury Plant labour cost of \$1.678 million and19\$2.540 million, respectively. If there have been additional job titles/functions20added from what was provided in response to BCUC IR 23.1, please provide a21description of the new job functions/titles and the roles/responsibilities.
- 22

23 Response:

24 FEI has included a revised Table 6-6 from the Application with this response and has included a 25 revised cost forecast for Rate Schedule 46 O&M in its Evidentiary Update dated September 26, 26 2017. The total O&M cost for 2017 has decreased by \$1,134 million and the total O&M cost for 27 2018 has increased by \$0.966 million as compared to what was filed in the Application. 28 Specifically, projected labour cost for 2017 has increased by \$0.210 million and cost for 29 materials has increased by \$30 thousand due to unplanned liquefaction at the Tilbury base 30 plant. Projected power costs have decreased by \$1.382 million for 2017 due to commissioning 31 delay. 2018 costs include \$0.300 million for the development of an operator competency 32 program per new BCOGC guidelines. Other cost increases for 2018 include contractor costs 33 (increase of \$0.331 million) and power (increase of \$0.564 million), both of which are due to the 34 start-up being delayed to 2018.



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Revised Table 6-6: Rate Schedule 46 O&M

	_	20	2018	
Line No.	Description	Approved	Projected	Forecast
1	Tilbury Plant:			
2	Labour	1.480	1.690	2.540
3	Materials	0.150	0.180	0.083
4	Contractor	0.335	0.380	0.719
5	Power	2.590	1.208	2.847
6	Fuel Gas	0.160	0.088	0.127
7	Fees & Administration	0.120	0.120	0.160
8	Sub-total	4.835	3.666	6.476
9	Mt Hayes Plant:			
10	Labour	0.048	0.024	0.056
11	Materials	0.006	0.008	0.008
12	Contractor	0.010	0.008	0.013
13	Power	0.070	0.039	0.089
14	Fuel Gas	0.006	0.001	0.008
15	Sub-total	0.140	0.080	0.174
16	Forecast O&M	4.975	3.746	6.650

2

3 FEI provides the following table which shows the 2017 and 2018 headcount for the Tilbury Plant

by job function. This employee information is based on the figures provided in revised Table 6-6
 above.

	2017 Headcount	2018 Headcount
LNG Plant Operators	20	28
LNG Electrical and Instrumentation Technicians	2	2
LNG Administrative Assistant	1	1
	23	31

6

7 To respond to this information request and also to BCUC IR 1.17.2, FEI provides the following

8 table which shows the 2017 and 2018 FTE for the Tilbury Plant. Note the FTE values provided

9 in the table below reflect the amount of the labour expense associated with total employee

10 headcount charged toward Rate Schedule 46 activities.

	2017 FTE	2018 FTE
Tilbury LNG FTEs	9	20



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17.2 Please provide the FTE amounts for the 2017 projected and 2018 forecast Tilbury Plant labour.

7 <u>Response:</u>

8 Please refer to the response to BCUC IR 1.17.1.



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1 E. RATE BASE

2	18.0	Reference:	DEFERRAL ACCOUNTS
3			Exhibit B-2, Section 11, Schedules 11, 11.1, 12
4			Unamortized deferred charges and amortization (rate base and non-
5			rate base)
6		18.1 In the	e same format as is provided in Schedules 11, 11.1 and 12 in Section 11 of
7		the A	Application, please provide the previous years' information on unamortized
8		defer	red charges by starting with the Actual 2016 ending deferral account
9		balar	nces and including the Projected 2017 deferral account additions and the
10		Proje	ected 2017 amortization.
11		-	
12	<u>Resp</u>	onse:	
13	Pleas	e refer to Atta	achment 18.1 which includes the requested information for Schedules 11,
14	11.1 a	and 12. The a	attached schedules reconcile with the opening balances in the equivalent
15	2018	schedules pro	ovided in the Evidentiary Update filed concurrently with these IR responses

16 on September 26, 2017.

17



1 19.0 **Reference: DEFERRAL ACCOUNTS**

Exhibit B-2, Section 7.5.2.1, Table 7-9, pp. 68-75

2 3

4

2016 Cost of Capital Application deferral account

- Table 7-9 on page 71 of the Application shows that the total cost for FEI's experts/consultants for the 2016 Cost of Capital proceeding was \$833,755 and the total
- 5 6 number of hours billed was 2,027.5.
- 7 Table 7-9 also shows that the total cost for experts/consultants for the 2012 GCOC Stage 1 proceeding (before allocation to other utilities) was \$1,095,879 and the total 8 9 number of hours billed was approximately 3,000.
- 10 Table 7-9 also shows that the number of FEI experts used in the 2016 Cost of Capital 11 proceeding was 1 and the number of experts used in the 2012 GCOC Stage 1 12 proceeding was 4.
- 13 FEI states on page 69 of the Application that as "previously noted, had the 2012 14 exchange rate been in place in 2016, the \$833,755 paid for Experts/Consultants would 15 have been \$638,999."
- 16 Please explain, with reference to the complexity and time period of the 2016 Cost 19.1 17 of Capital proceeding compared to the 2012 GCOC Stage 1 proceeding, why the 18 number of hours billed by FEI's experts/consultants in the 2016 Cost of Capital 19 proceeding is reasonable and appropriate.
- 20

21 **Response:**

22 The level of complexity of experts' evidence (both interveners and the utility) in the 2012 GCOC 23 Stage 1 proceeding and FEI's 2016 cost of capital proceeding is more or less comparable. The 24 experts' evidence in both proceedings consisted of a study of the capital markets including, but 25 not limited to: a review of the level of the market volatility and volumes; corporate spreads and 26 debt issuance; investor confidence measures and government bond yields; and the estimation 27 of the benchmark utility's return on equity (ROE) and common equity ratio, using financial ROE 28 estimation models such as risk premium (CAPM) and DCF models (such as single stage and 29 multi-stage DCF), with consideration of the benchmark utility's risk profile compared with that of 30 its peer companies used in the above mentioned financial models.

31 The in-depth nature of expert evidence in the 2016 cost of capital proceeding regarding FEI's 32 and its peer group companies' risk profiles was acknowledged in the Commission's decision:

33 In his evidence, Mr. Coyne provides detailed information on the proxy companies he used in his ROE models ... The companies chosen are found by 34 35 the Panel to have business characteristics somewhat but not directly comparable



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to FEI. The Panel also found the detailed information provided by Mr. Coyne
 on each proxy company to be useful in its determinations. The Panel also
 finds that the eight US proxy companies chosen by Dr. Booth, although not
 chosen with the same rigour as employed by Mr. Coyne, includes six of the
 companies used by Mr. Coyne, and is also a reasonable sample.⁹ [emphasis
 added]

Researching, documenting and analyzing company profiles with this level of rigour is time
consuming and requires experience and utility knowledge which will be reflected in the overall
costs.

Additionally, compared with the GCOC Stage 1 proceeding, Mr. Coyne dedicated more time to review and understand the relevance and applicability of the pension reports prepared by third

12 party pension consultants as he conducted separate meetings with individuals responsible for

13 those reports.

On the other hand, the GCOC Stage 1 proceeding included a discussion of deemed debt and deemed interest rate issues, as well as a review of generic company-specific matters, that did not exist in FEI's 2016 cost of capital proceeding. However, these issues were only discussed in Ms. McShane's testimony as a small part of the experts' overall evidence (roughly 18 pages of her filed written testimony).

In terms of timing, FEI's 2016 cost of capital proceeding was on a tighter time schedule with fewer days available for items such as IR responses. Nevertheless, both proceedings had two rounds of IRs (many of which were responded to by experts), intervener evidence and subsequent IRs (which were prepared by FEI and experts separately), rebuttal evidence (which were prepared by FEI and experts separately), and an oral hearing. FEI's 2016 cost of capital proceeding also included an additional sur-rebuttal and FEI's response, which again was prepared with the help of its expert/consultant.

26 The oral hearing in the GCOC Stage 1 proceeding was conducted in seven days compared to 27 three days of oral hearing in FEI's 2016 cost of capital proceeding. However, for the GCOC 28 Stage 1 proceeding, of the four experts with filed evidence, only Ms. McShane was present on 29 all seven days. The other three experts were only present for one or two days depending on 30 their oral testimony schedule. In addition to FEI's expert panel, the oral testimony of the 31 Company panel, Corix's expert, and the interveners' second expert testimony all contributed to 32 the length of the oral hearing. Further, in FEI's 2016 cost of capital proceeding, during the three 33 days of oral hearing, in addition to Mr. Coyne who was the sole FEI witness on the stand, another of Concentric's experts, Ms. Julie Lieberman, was also present to provide support. She 34 35 prepared multiple responses to a number of undertakings during the hearing.

⁹ FEI's 2016 Cost of Capital Decision, p. 53.



In conclusion, FEI believes that the number of hours billed by FEI's expert/consultant in the 2016 cost of capital proceeding is fair and reasonable. The number of hours billed in the GCOC 3 Stage 1 proceeding is approximately 1,000 hours more than the 2016 cost of capital 4 proceeding, which reflects the higher number of IRs, expert evidence, additional oral hearing 5 days, and the additional topics covered in the 2012 proceeding.

6 Please also refer to the response to BCUC IR 1.19.2.

7		
1		
8		
9		
10	19.2	Please explain why, given that only one expert was used in the 2016 Cost of
11		Capital proceeding compared to 4 in the 2012 GCOC Stage 1 proceeding, the
12		cost and number of hours billed for experts/consultants in the 2016 Cost of
13		Capital proceeding was more than half of the total number of hours billed and
14		more than half of the cost of the 2012 GCOC Stage 1 proceeding.
15		

16 **Response:**

17 The number of experts used alone is not a reliable indicator to assess the reasonableness of 18 the number of hours billed and/or its corresponding cost. One should also look at each 19 consultant/expert scope of work, depth of evidence, expert/consultant contributions during the 20 proceeding and the history and level of familiarity of the consultant with the utility, the 21 jurisdiction, and its regulatory history. Consequently, comparing average hourly rates is a better 22 indicator of cost performance than looking into the total number of hours and/or total billed 23 amount in isolation. Each of these issues is further discussed below:

- 24 Number of consultants/expert used
- 25 The four experts retained by FEI in the GCOC Stage 1 proceeding were as follows:
- Mr. Aaron Engen for capital market conditions: His testimony was focused on equity and debt market conditions including, but not limited to, P/E ratios, spreads and debt issuance, market volatility and volumes, investor confidence and government bond yield analysis
- Ms. Kathy McShane as the principal cost of capital expert: Ms. McShane's evidence
 included rate of equity estimation models, estimation of the appropriate capital structure
 and business risk review. As mentioned in the response to BCUC IR 1.19.1, her
 evidence also included a discussion of deemed debt and interest rate issues as well as a
 review of generic company-specific matters. She also provided technical support to FEI's
 team and legal counsel for drafting IRs, rebuttal as well as final arguments. It should be
 noted that Ms. McShane had been FEI's principal cost of capital expert for many years



- and therefore required less time to review FEI's previous cost of capital regulatory
 history and understand FEI's business and financial profile compared with other
 consultants.
- Dr. James Vander Weide: His testimony was limited to ROE and equity ratio estimation
 and did not have any significant discussion of business risk.
- Mr. James Coyne: His scope of work was limited to the Automatic Adjustment
 Mechanism.

8 Concentric was FEI's sole expert/consultant in FEI's 2016 cost of capital proceeding and its
9 scope of work in that proceeding covered the majority of material provided by Mr. Engen, Dr.
10 Weide, Mr. Coyne and Ms. McShane's in the GCOC Stage 1 proceeding.

11 A review of Concentric's evidence, IR responses, rebuttal evidence and/or responses to 12 undertakings indicates that Concentric's contributions in the 2016 cost of capital proceeding 13 covered the following topics:

- equity and debt market conditions (similar to Mr. Engen's contributions),
- various models for estimation of return on equity, including CAPM, multi-stage and single DCF, as well as various iterations of these models as part of the undertakings during the oral hearing and IR responses and estimation of common equity ratio (similar to Ms. McShane and Dr. Vander Weide's evidence),
- a rigorous review of FEI's and its peer group of utilities risk profiles (similar to Ms.
 McShane's evidence), and
- discussion of a formulaic approach to ROE adjustments (similar to Mr. Coyne's work in the GCOC Stage 1 proceeding although in less detail).

23 Average hourly rates charged

Compared to the GCOC Stage 1 proceeding, the number of hours billed by Consultants decreased by more than 32 percent. The average hourly rate charged in the 2012 GCOC Stage is approximately \$365¹⁰ CAD, while the average hourly rate in FEI's 2016 cost of capital proceeding is estimated between \$315¹¹ CAD to \$411¹² CAD depending on the exchange rate assumption. This indicates that the average hourly rates in both proceedings are close and potentially lower if not for the impact of the change in exchange rates.

¹⁰ \$1,095,879 / 3000.

¹¹ 638,999/2027.

¹² 833,755/2027



1 In conclusion, based on Concentric's scope of work and contributions during the proceeding, its 2 thorough review of the business and financial risks of FEI and similar companies, its learning 3 curve regarding FEI's cost of capital regulatory history compared with Ms. McShane (Ms. 4 McShane was FEI's principal cost of capital expert for many years and provided oral and/or 5 written testimony in FEI's 2005 ROE and capital structure proceeding, FEI's 2009 ROE and 6 capital structure proceeding as well as GCOC Stage 1 and Stage 2 proceedings), and the 7 estimated average hourly rates in both proceedings, Concentric's billed hours and 8 corresponding cost are reasonable and appropriate.

- 9 Please also refer to the response to BCUC IR 1.19.1.
- 10
- 11

12 13

14 On page 74 of the Application, with reference to FEI's external legal counsel, FEI states 15 that the total number of hours billed in the 2016 Cost of Capital proceeding decreased by 16 more than 30 percent, which "highlights the efforts made by management to efficiently 17 use the available resources' expertise and minimize the total billed amount."

- 18 19.3 Please explain whether FEI considers that it utilized its expert/consultant as
 19 efficiently as possible in the 2016 Cost of Capital proceeding and, if so, how it attempted to minimize the total billed amount.
- 21

22 Response:

23 Section 7.1 of BCUC's PACA Funding Guidelines (Order G-143-16) guides all participants "to 24 use professional services in a cost-effective manner and to make efforts to avoid duplication of 25 services among legal counsel, consultants, specialists, expert witnesses and case managers". 26 Consistent with the Commission's guidelines, FEI develops an appropriate and comprehensive 27 scope of work to ensure that expert evidence is related to each expert's technical expertise and 28 to avoid duplication of services. Further, FEI uses experts in a cost-effective manner by 29 selecting consultant/experts with a proven track record whose hourly rates are comparable with 30 industry experts/consultants of similar calibre and experience. This may be done through a 31 competitive bidding process or through a careful review of experts' gualifications, experience 32 and familiarity with FEI's business profiles and processes, and their hourly rates.

After Ms. McShane's retirement, FEI reviewed the resumes of various qualified experts and chose Mr. Coyne due to his prior experience with FEI, his extensive knowledge of U.S. and Canadian regulatory environment, and his rates, which were comparable with Ms. McShane's. As indicated in the Application, the upper range of the hourly rate charged by FEI's experts in both the 2012 GCOC Stage 1 proceeding and FEI's 2016 Cost of Capital proceeding was \$500



1 USD. Furthermore, as explained in response to BCUC IR 1.19.2, the average hourly rate 2 charged by consultants in both proceedings was close and potentially lower in the 2016 Cost of 3 Capital proceeding if not for the impact of the unfavourable exchange rate.

- 4
- 5
- 6
- 7 8

9

19.4 How does FEI assess the reasonableness of the costs it incurs for experts/consultants in a proceeding? Please discuss.

10 **Response:**

11 FEI may assess the reasonableness of its expert/consultant costs in two ways: (i) before a 12 project is undertaken and (ii) once the project is underway.

13 (i) Review of Consultant/experts' proposed costs before a project is undertaken:

Depending on the project and the technical expertise required to fulfill the tasks defined in the scope of work, FEI may commence a competitive bidding process or ask a number of qualified experts with relevant experience to provide FEI with their proposed cost estimates absent a bidding process (the estimate of the total costs and/or the hourly rates for the type of expertise required). This will help FEI to assess the reasonableness of the proposed costs by comparing the qualifications and cost estimates of various consultants and select its expert/consultant in a cost-effective manner.

- 21 (ii) Review of Consultant/experts' proposed costs after a project is awarded:
- 22 Typically, when FEI is working with experts/consultants in a proceeding, FEI receives 23 regular invoices from the consultant/expert for each billing period. The invoice includes a 24 description of tasks performed, the associated number of hours billed, the name and/or 25 position of the person who performed that work, and his/her corresponding hourly rate. 26 FEI personnel who are involved in the proceeding and the task being performed by the 27 consultant/expert review each invoice, assessing the description of services, the hours 28 billed, and the total billed amount to evaluate the reasonableness, based on the work 29 that the consultant/expert was requested/required to perform.
- 30
- 31

32

3319.5What was FEI's original expectations (i.e. budget) for expert/consultant costs in34the 2016 Cost of Capital proceeding and how did this budget compare to actual35amounts? Please discuss.



2 Response:

3 In response to BCUC IR 1.24.1 in FEI's Annual Review of 2015 Rates proceeding (Exhibit B-2) 4 FEI originally provided an estimate of \$70,000 for FEI's expert/consultant costs related to the 5 cost of capital application for 2015. This estimate was prepared in January of 2015, before the 2016 Cost of Capital Application was filed (the application was filed approximately 10 months 6 7 later on October 2, 2015) and before any regulatory process was determined. At the time FEI 8 stated "...the cost could vary significantly depending on the regulatory process"¹³. Similarly, FEI 9 emphasized that "there are many uncertainties with respect to the regulatory costs that will be 10 incurred for the cost of capital filing directed by G-75-13". FEI listed a number of items that 11 could potentially increase the cost estimate, such as "the extent of the regulatory review process 12 the Commission intends", or "whether the Commission or interveners will engage consultants or 13 experts".

Despite the uncertainties at the time, FEI acknowledges that the original expert/consultant cost
estimate provided in BCUC IR 1.24.1 was too low and should have been estimated at a much
higher amount.

In summary, the original estimate of the expert/consultant costs was made at an early stage,
was heavily qualified, and was too low for a cost of capital proceeding with an oral hearing
component. Thus, the variance between the original estimate and the actual costs is due to the
original estimate being too low, rather than actual expenditures being too high.

21 As the Commission has previously acknowledged, FEI has a statutory right to recover its 22 prudently incurred costs.¹⁴ FEI's expert/consultant costs were reasonably incurred for the 23 purpose of the 2016 Cost of Capital proceeding, and are appropriately recoverable from customers. In a cost of capital proceeding, FEI must demonstrate its cost of capital to the 24 25 Commission, and expert/consultant costs were necessary to do this. Further, it must be 26 recognized that the quantum of FEI's expert/consultant costs are to a great degree outside of 27 FEI's control. FEI does not control the Commission procedure, the number and type of 28 questions that are asked, the nature of intervener evidence filed, or the complexity and breadth 29 of issues that need to be addressed in a proceeding. As indicated in responses to other 30 information requests, FEI has adopted practices for managing its expert/consultant costs, which 31 are reasonable and appropriate. As its costs were all prudently incurred, they are all 32 recoverable from customers.

¹³ FEI Annual Review for 2015 Rates, page 50.

¹⁴ See, for example, the August 16, 2006 Reasons for Decision on an Application by Pacific Northern Gas Ltd for Approval of 2006 Rates (Order G-99-06): "The Commission Panel considers, therefore, that it is required, by virtue of sections 59 and 60 of the Act to allow the utility to recover its reasonable and prudent cost of service..."



4

5

6

7

8

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1 F. ACCOUNTING MATTERS AND EXOGENOUS FACTORS

2 20.0 Reference: NON RATE BASE DEFERRAL ACCOUNTS

Exhibit B-2: Section 12.4.1.1, Table 12-3, pp. 135-136; Section 11, Schedule 12

2017-2018 Revenue Surplus deferral account

Table 12-3 on page 135 of the Application shows the 2017 revenue surplus approved in Order G-182-16 of \$32.012 million, the Tilbury Expansion 2017 equity return reduction of \$5.177 million and the 2018 forecast revenue surplus addition of \$3.824 million.

- 9 Schedule 12, Line 9 of the financial schedules in Section 11 of the Application shows the
 10 ending 2017 balance in the 2017-2018 Revenue Surplus deferral account to be \$20.637
 11 million with gross additions in 2018 of \$5.134 million.
- 20.1 Please explain why the amounts provided in Table 12-3 of the Application do not
 correspond to the amounts provided in Schedule 12, Line 9 of the financial
 schedules.
- 15

16 **Response:**

For this response, FEI has provided an updated Table 12-3 based on the Evidentiary Updatefiled concurrent with these IR responses on September 26, 2017.

19

20

Updated Table 12-3: 2017-2018 Revenue Surplus Account Additions

(\$ millions)	Ac	ditions
2017 forecast revenue surplus (G-182-16)	\$	32.012
2018 forecast revenue surplus (Sept. 26, 2017 Evidentiary Update)		7.960
Total Revenue Surplus to be returned in future years (excluding WACC Return)	\$	39.972

The differences between the 2017 & 2018 Revenue Surplus account shown on Line 9 of Schedule 12 of the Evidentiary Update and the amounts shown in the revised table above are due to AFUDC and taxes. Please see the reconciliation below between the revised Table 12-3 and Schedule 12, Line 9 of the financial schedules included in the Evidentiary Update.



Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1

Reconciliation between Updated Table 12-3 and Schedule 12, Line 9 of Evidentiary Update Financial Schedules

(\$ millions)	
2017 Opening Deferral Balance	\$ -
2017 forecast revenue surplus (G-182-16)	(32.012)
2017 Net-of-tax	8.323
2017 Projected AFUDC	(0.930)
2017 Ending / 2018 Opening Deferral Balance	\$(24.619) Evidentiary Update, Sch 12, Line 9, Column 2
2018 forecast revenue surplus	(7.960)
2018 forecast revenue surplus 2018 Net-of-tax	(7.960) 2.070
2018 forecast revenue surplus 2018 Net-of-tax 2018 Forecasted AFUDC	(7.960) 2.070 (1.661)

4 Please also refer to FEI's response to CEC IR 1.19 series for further discussion of the reasons

5 for the change to the account.

6

3



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1 21.0 **Reference:** NON RATE BASE DEFERRAL ACCOUNTS 2 Exhibit B-2, Section 12.4.1.2, Table 12-5, p. 139; FEI 2017 Annual 3 Review, Exhibit B-3, BCUC IR 33.1 4 Actual 2016 Flow-through deferral account additions 5 In response to BCUC IR 33.1 in the 2017 Annual Review, FEI provided a table similar to 6 Table 12-5 in the current Application which showed the approved and actual 2015 7 amounts recorded in the Flow-through deferral account. 8 21.1 Please provide the same table as was provided in response to BCUC IR 33.1 to 9 show the break- down of the Approved and Actual 2016 amounts recorded in the 10 flow-through deferral account. 11 12 Response:

13 FEI provides the requested table below.



FortisBC Energy Inc. (FEI or the Company) Multi-Year Performance Based Ratemaking Plan for 2014 through 2019 Annual Review for 2018 Rates	Submission Date: September 26, 2017
Response to British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1	Page 86

			FEI	FEI				
Line		AF	PROVED		2016	Flow-Through		
No.	Particulars	(G-193-15		ACTUAL	Variance		
	(1)		(2)		(3)		(4)	
1	Delivery Mergin							
2	Posidential (Pate 1)	¢	(112 632)	¢	(444 610)	¢	(1 078)	
2	Commorcial (Pate 2, 2, 23)	φ	(442.032)	φ	(444.010)	φ	(1.970)	
1	Industrial (All Others)		(215.005)		(220.203)		(4.002)	
-			(750.922)		(100.910)		(12.010)	
5			(759.025)		(773.733)		(13.910)	
7	O&M Tracked outside of Formula							
8	Insurance		6.275		5.519		(0.756)	
9	Bio-Methane		1.022		1.154		0.132	
10	Bio-Methane O&M transferred to BVA		(0.959)		(1.096)		(0.137)	
11	NGT O&M		1.167		1.205		0.038	
12	LNG Production O&M		0.870		1.438		0.568	
13								
14	Property and Sundry Taxes		63.036		63.265		0.229	
15								
16	Depreciation and Amortization		199.490		197.916		(1.574)	
17								
18	Other Operating Revenue		(41.852)		(42.152)		(0.300)	
19								
20	Interest Expense		130.511		128.675		(1.836)	
21								
22	Income Taxes		46.173		52.501		6.328	
23					((11.010)	
24	2016 Actual After Tax Flow-Infough Addition t	O Deferi			ing financing)		(11.218)	
25	2016 Projected Atter-Tax Flow-Through Addition	on to De	eterral Accou	nt (exc	iuding financing)		(1.137)	
20	2016 After Tay Flow Through Addition True up	to Dofe	rral Account	(ovolu			(10.001)	
21	2016 Einancing True-up		and Account	(exclu	iuling intancing)		(10.001)	
20 20							(0.550)	
29 30	2016 Ending Deferral Account Balance True-	n					(10 431)	
00	2010 Ending Defendi Account Dalance The-	۲					(10.401)	

Attachment 10.7



1 *1.4.4.2* Capital Dead Band Regulatory History

2 In the PBR Application¹¹, FEI proposed a capital dead band, and described it as follows:

3 FEI has proposed a capital expenditure deadband outside of which rebasing would 4 occur during the PBR term. That is, if total regular capital expenditures vary by more 5 than 10 percent above or below the total formula-based capital expenditures in any year, 6 the opening plant in service for ratemaking purposes in the following year will be 7 adjusted up or down by the amount that actual capital expenditures vary outside of the 8 10 percent deadband from the formula-based amount. This will limit the impact of any 9 capital savings during the PBR Period that would be shared between the customer and 10 Company, and limit the amount of rebasing that would occur after the PBR Period.

- 11 Further, in response to an information request¹², FEI provided the following example of the 12 functioning of the dead band:
- 13 <u>Question:</u>
- 14 Regarding page 3, lines 19-34, provide a numerical example to show how this capital 15 expenditure deadband would work.
- 16 <u>Response:</u>

17 The total capital spending under PBR for 2014 of \$129.031 million, as set out in Exhibit 18 B-1, Figure B6-3 on page 66 is used for illustrative purposes. It is also assumed for ease 19 of illustration that no cost driver adjustments for actual customer count and service line 20 installations are required.

- If actual capital spending is below 90 percent of \$129.031 million (i.e. \$116.128 million)
 the adjustment described on page 3 of Appendix D4 in this Application would be applied.
- Assume for this example that actual capital spending is at 85 percent of the capital spending level under PBR, or \$109.676 million.

The difference between 90 percent and 85 percent (\$116.128 million - \$109.676 million = \$6.452 million) is deducted from the formula-based capital expenditures spending level to establish an adjusted formula spending allowance for 2014 that will be incorporated in the rate base to establish revenue requirement calculations for future years; that is, the opening rate base for the following year will reflect the lower amount. The calculation of the formula-allowed capital spending amount for rate calculations in future years is unaffected by this adjustment.

The adjustment of \$6.452 million would be deducted from the capital accounts (for ratemaking) in the same proportions as included in the \$129.031 million before the adjustment.

¹¹ PBR Application, Appendix D4.

¹² PBR Proceeding, response to BCUC IR 1.45.1.



1 In the PBR Decision, the Commission stated:

Fortis states that "limited rebasing of capital will occur if annual capital expenditures are
above or below the formula-based amount by more than 10%" (FEI Exhibit B-1, p. 8;
FBC Exhibit B-1, p. 40).

5 To this, BCSPO points out that "the proposed deadband does not take into account the 6 fact that capital is cumulative and that, if there is a consistent under spending of 9.5% 7 per year, this will result in capital expenditures that are 46% lower than one year's 8 capital. As such, in addition to the annual threshold of 10% for capital rebasing, BCPSO 9 submits there should be a cumulative threshold that reflects the cumulative nature of 10 capital." (BCSPO PBR Final Argument, p. 10)

- There are two provisions in the PBR mechanism that mitigate the impact of this and thereby protect ratepayers in this eventuality. The first is Fortis' proposed dead-band around the actual capital spend relative to the spending envelope, which would be triggered if the under-spend was of sufficient magnitude and/or duration. The Panel finds this an appropriate mitigation, providing the dead-band trigger results in a rebasing of the capital formula, and that in this eventuality, the rebased amount be applied to the subsequent year's formula.
- Until such time as any further determination is made concerning capital exclusion,
 the Panel approves the current CPCN exemption threshold as the threshold for
 exclusion for both utilities as applied for.
- In making this determination, we are mindful of the concerns of Interveners and are of
 the view that a two year cumulative dead band is appropriate and considers 15 percent
 over or underspend an appropriate setting for a two year cumulative dead-band.
 Accordingly, the Commission Panel directs, in addition to the one year 10 percent
 dead-band previously approved, a two year cumulative 15 percent dead-band for
 all Fortis' formulaic capital spending.
- Finally, in the decision accompanying Order G-120-15 that addressed FEI's Capital Exclusion
 Criteria under PBR, the Commission stated:¹³
- As noted, the PBR Decisions provided direction on the setting of dead band parameters but provided no definitive direction with respect to the process to deal with rebasing future base capital amounts in the event that the dead band parameters are exceeded. This is addressed below.
- The Panel accepts there are a number of reasons why a capital expenditure level may be higher or lower than the threshold. Some of these may support and justify raising or lowering base capital while others may demonstrate a particular result to be an anomaly, not necessarily requiring rebasing. Because of this, the Panel determines that the full

¹³ Capital Exclusion Criteria Decision, p. 17.



circumstances of any variance from the dead-band must be examined in a transparent
 manner at the annual review process. Where the dead band is exceeded for any year,
 FEI and FBC are directed in the next Annual Review filing to include
 recommendations as to any adjustment to base capital other than those driven by
 the I-X mechanism. This will provide interveners the opportunity to review and comment
 on any such proposed changes prior to the Commission making its determination.

7 1.4.4.3 Treatment of Capital Spending outside of the Dead Band

- 8 Based on the regulatory history discussed above, the functioning of the approved capital dead9 band is summarized below.
- The capital dead band places a limit on the extent to which there is earning sharing on variances from (either above or below) the capital formula amount;
- The threshold for the capital dead band is a one year 10 percent variance or a two-year
 cumulative 15 percent variance from the capital formula amount;
- If the capital dead band is exceeded, the opening plant in service for ratemaking purposes in the following year will be adjusted up or down by the amount that actual capital expenditures vary outside of the dead band from the formula-based amount, and the capital expenditure level utilized in calculating the earnings sharing is adjusted up or down by the same amount;
- The result of exceeding the capital dead band is that there is no earnings sharing for amounts outside of the dead band;
- If the capital dead band is exceeded, FEI will make a recommendation in the Annual
 Review regarding whether there is a need to adjust (or "rebase") the capital formula
 amount for the following year.
- 24

25 At this time, for 2016, FEI is projecting to be within the 10 percent one-year capital dead band, 26 but to exceed the 15 percent two-year cumulative dead band. Specifically, over 2015 and 2016, 27 capital spending will be cumulatively 19.1 percent above the combined capital formula amounts 28 for those years, which exceeds the two-year cumulative dead band by 4.1 percent. Accordingly, FEI has added 4.1 percent of its 2016 capital spending, or \$6.118 million¹⁴ to its opening plant in 29 30 service for 2017. FEI has also reduced the cumulative capital expenditures utilized in the 31 earning sharing mechanism by the same amount (\$6.118 million), such that the earnings 32 sharing with customers is increased (see section 10 of the Application). In this way, there is no 33 earnings sharing on the amount by which FEI exceeded the dead band.

At this time, FEI is not recommending an increase to the annual capital formula amount for the remaining years of the PBR term. Within the many projects that contribute to capital spending

¹⁴ \$163.157 million actual spending less \$6.118 million = \$157.039 million revised spending. When compared to \$149.390 million approved formula this results in a revised capital spending variance of 5.12%. 2015 variance of 9.88% plus 2016 revised variance of 5.12% = 15%.



1 in any given year, FEI is unable to isolate any that in particular are ongoing and should be 2 added to the formula. FEI does not believe that a lengthy process to review what capital items 3 should be added into the capital formula is an efficient solution to the ongoing capital issues. By 4 not adjusting the capital formula amount, the incentive properties of the PBR Plan remain intact 5 and will remain consistent throughout the remainder of the PBR term. While FEI expects to 6 continue to experience capital cost pressures, the dead band mechanism remains a reasonable 7 way to deal with capital cost pressures by ensuring no sharing of negative earnings impacts with 8 customers for capital expenditures in excess of 10 percent of the formula amount or 15 percent 9 over two years.

10 1.4.4.4 Conclusion on Capital Spending

FEI has evaluated its alternatives and believes that it is in the best long-term interest of customers to pursue the capital spending program it has planned that will result in the dead band being exceeded, not only in 2016, but in some of the remaining years of the PBR term. It is clear that the capital spending is required and it is the right thing to do to limit increasing risk exposure in the system, and avoid unplanned and urgent capital work. It is also required to provide FEI the ability to work in an efficient and cost-effective manner and realize productivity efficiencies and operational savings during the PBR term.

18 **1.4.5 Summary**

In summary, FEI's experience in 2014 through 2016 has resulted in the realization of earnings sharing on O&M, with increases in delivery rates that are in line with inflation. The first three years of PBR have also shown the challenges of the capital formula that are expected to continue and impact the remainder of the PBR term.

23 **1.5** *Revenue Requirement and Rate Changes for 2017*

The Company is requesting a delivery rate increase of 1.2 percent for 2017 compared to 2016 delivery rates. The rate increase results from a revenue deficiency of \$9.319 million. The revenue deficiency is due to revenue at existing rates being lower than the forecast cost of service. The forecast cost of service is impacted by both items calculated under the PBR Plan formula (controllable O&M and capital expenditures), and items that are forecast on a cost of service basis.

The following chart summarizes the items that contribute to the 2017 revenue deficiency. The chart shows each item that increases the deficiency in yellow and each item that decreases the deficiency in green. The total deficiency is then the sum of all of the previous bars, and is shown at the end of the chart in blue.

Attachment 14.1

REFER TO LIVE SPREADSHEET MODEL

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)

Attachment 16.1

REFER TO LIVE SPREADSHEET MODEL

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)

Attachment 18.1

FORTISBC ENERGY INC.

September 26, 2017

Section 11

Attachment 18.1

Schedule 11

UNAMORTIZED DEFERRED CHARGES AND AMORTIZATION - RATE BASE FOR THE YEAR ENDING DECEMBER 31, 2017 (\$000s)

Line	Line			Opening Ba	I./ Gro	DSS	Less	Amor	rtization		Tax on			Ν	/lid-Year	
No.	Particulars	12/3	1/2016	Transfer/A	ij. Addit	ions	Taxes	Exp	pense	Rider	Rider	12	2/31/2017	A	Average	Cross Reference
	(1)		(2)	(3)	(4	l)	(5)		(6)	(7)	(8)		(9)		(10)	(11)
1	1. Forecasting Variance Accounts															
2	Midstream Cost Reconciliation Account (MCRA)	\$ ((33,385)	\$-	\$4	,907	\$ (1,278)	\$	-	\$ 24,475	\$ (6,36	3) \$	(11,644)	\$	(22,515)	
3	Commodity Cost Reconciliation Account (CCRA)	(16,628)	-	1	,512	(391)		-	-	-		(15,507)		(16,068)	
4	Revenue Stabilization Adjustment Mechanism (RSAM)		42,295	-	(34	,622)	9,002		-	(33,988)	8,83	7	(8,476)		16,910	
5	Interest on CCRA / MCRA / RSAM / Gas Storage		(4,514)	-		(612)	159		177	(277)	7	2	(4,995)		(4,755)	
6	Revelstoke Propane Cost Deferral Account		(226)	-		236	(61)		-	-	-		(51)		(139)	
7	SCP Mitigation Revenues Variance Account		(672)	-		875	(228)		355	-	-		330		(171)	
8	Pension & OPEB Variance		(7,507)	-	1	,299	-		2,919	-	-		(3,289)		(5,398)	
9	BCUC Levies Variance		31	-		(342)	89		(517)	-	-		(739)		(354)	
10	Customer Service Variance Account		(6,915)	-		-	-		3,457	-	-		(3,458)		(5,187)	
11	TESDA Overhead Allocation Variance		733	-		700	(182)		(639)	-	-		612		673	
12		\$ ((26,788)	\$ -	\$ (26	,047)	\$ 7,110	\$	5,752	\$ (9,790)	\$ 2,54	6\$	(47,217)	\$	(37,004)	
13	2. Rate Smoothing Accounts															
14																
15	3. Benefits Matching Accounts															
16	Energy Efficiency & Conservation (EEC)	\$	74,154	\$ 13,14	1 \$ 15	,000	\$ (3,899)	\$	(9,838)	\$ -	\$-	\$	88,558	\$	87,927	
17	NGV Conversion Grants		68	-		8	(3)		(20)	-	-		53		61	
18	Emissions Regulations		(1,802)	-		-	-		360	-	-		(1,442)		(1,622)	
19	On-Bill Financing Pilot Program		9	-		(1)	-		-	-	-		8		9	
20	Greenhouse Gas Reduction Regulation Incentives		17,724	-	15	,472	(4,023)		(2,558)	-	-		26,615		22,170	
21	CNG and LNG Recoveries		(431)	-		(121)	32		415	-	-		(105)		(268)	
22	2014-2019 PBR		734	-		-	-		(245)	-	-		489		612	
23	AES Inquiry Cost		123	-		-	-		(76)	-	-		47		85	
24	2016 Cost of Capital Application		1,256	-		-	-		-	-	-		1,256		1,256	
25	Amalgamation and Rate Design Application Costs		32	-		-	-		(32)	-	-		-		16	
26	2015-2019 Annual Review Costs		193	-		100	(26)		(178)	-	-		89		141	
27	2017 Rate Design Application		452	-	1	,000,	(260)		-	-	-		1,192		822	
28	2017 Long Term Resource Plan Application		123	-		433	(113)		-	-	-		443		283	
29	LMIPSU Application Costs		239	-		-	-		(120)	-	-		119		179	
30	2015 System Extension Application		130	-		4	(1)		(135)	-	-		(2)		64	
31	BERC Rate Methodology Application		42	-		-	- '		(23)	-	-		19		31	
32	All-Inclusive Code of Conduct/Transfer Pricing Policy Application		43	-		10	(3)		(115)	-	-		(65)		(11)	
33	0, 11	\$	93,089	\$ 13,14	1 \$ 31	,905	\$ (8,296)	\$ ((12,565)	\$-	\$-	\$	117,274	\$	111,755	

FORTISBC ENERGY INC.

FOR THE YEAR ENDING DECEMBER 31, 2017 (\$000s)

Line				Ope	ening Bal./	G	ross		Less	Am	ortization			Т	ax on			N	/lid-Year	
No.	Particulars	12/	31/2016	Tra	nsfer/Adj.	Add	ditions	Т	axes	E	xpense	୬ Rider		Rider		12	12/31/2017		Average	Cross Reference
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)	(11)
1	3. Benefits Matching Accounts (cont'd)																			
2	Whistler Pipeline Conversion	\$	9,406	\$	-	\$	-	\$	-	\$	(738)	\$	-	\$	-	\$	8,668	\$	9,037	
3	2010-2011 Customer Service O&M and COS		11,308		-		-		-		(3,251)		-		-		8,057		9,683	
4	Gas Asset Records Project		1,553		-		1,308		(340)		(503)		-		-		2,018		1,786	
5	BC OneCall Project		656		-		128		(33)		(237)		-		-		514		585	
6	Gains and Losses on Asset Disposition		28,416		-		-		-		(3,987)		-		-		24,429		26,423	
7	Net Salvage Provision/Cost		(46,199)		-	1	3,661		-		(32,796)		-		-		(65,334)		(55,767)	
8	PCEC Start Up Costs		832		-		-		-		(44)		-		-		788		810	
9	Huntingdon CPCN Pre-Feasibility Costs		244		-		-		-		(122)		-		-		122		183	
10	LMIPSU Development Costs		1,561		-		-		-		(780)		-		-		781		1,171	
11	2020 Revenue Requirement Proceeding		-		-		30		(8)		-		-		-		22		11	
12	City of Surrey Operating Terms Application Costs		-		-		200		(52)		-		-		-		148		74	
13		\$	7,777	\$	-	\$1	5,327	\$	(433)	\$	(42,458)	\$	-	\$	-	\$	(19,787)	\$	(6,004)	
14	4. Retroactive Expense Accounts																			
15																				
16	5.Other Accounts																			
17	Pension & OPEB Funding	\$ (186,017)	\$	4,143	\$	-	\$	-	\$	-	\$	-	\$	-	\$ (181,874)	\$	(181,874)	
18	US GAAP Pension & OPEB Funded Status		101,516		(4,143)		-		-		-		-		-		97,373		97,373	
19	BFI Costs and Recoveries		(272)		-		(230)		60		-		-		-		(442)		(357)	
20	Residual Delivery Rate Riders		2		-		-		-		(2)		-		-		-		1	
21	BVA Balance Transfer		2,203		-		2,199		(572)		-		-		-		3,830		3,017	
22	Property Tax Deferral		(8)		-		-		-		8		-		-		-		(4)	
23		\$	(82,576)	\$	-	\$	1,969	\$	(512)	\$	6	\$	-	\$	-	\$	(81,113)	\$	(81,844)	
24																				
25	Total	\$	(8,498)	\$	13,141	\$ 2	23,154	\$	(2,131)	\$	(49,265)	\$	(9,790)) \$	2,546	\$	(30,843)	\$	(13,097)	
26	Less: Net Salvage Amortization Transferred to Biomethane B	VA									22									
27	Net Rate Base Deferred Amortization Expense									\$	(49,243)									

UNAMORTIZED DEFERRED CHARGES AND AMORTIZATION - RATE BASE

September 26, 2017 Section 11

Schedule 11.1

FORTISBC ENERGY INC.

September 26, 2017

Section 11

Schedule 12

UNAMORTIZED DEFERRED CHARGES AND AMORTIZATION - NON-RATE BASE FOR THE YEAR ENDING DECEMBER 31, 2017 (\$000s)

(\$0	00s	5)	

Line				Ope	ning Bal./	G	iross	I	Less	Am	ortization			Т	ax on			I	Mid-Year	
No.	Particulars	12	/31/2016	Transfer/Adj.		Additions		Т	Taxes		Expense		Rider		Rider		12/31/2017		Average	Cross Reference
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)	(11)
4	1 Forecasting Variance Accounts																			
2	Biomethane Variance Account	\$	252	\$	_	\$	(323)	\$	84	\$		\$		\$	-	\$	13	\$	133	
2	Elow-Through Account	Ψ	(15 453)	Ψ	-	Ψ	(2 209)	Ψ		Ψ	5 160	Ψ		Ψ	-	Ψ	(12 502)	Ψ	(13 978)	
4	Marketer Cost Variance		- (10,+00)		_		23		(6)		-		-		-		17		(10,070)	
5		\$	(15 201)	\$	-	\$	(2.509)	\$	78	\$	5 160	\$	-	\$	-	\$	(12 472)	\$	(13.836)	
6	2. Rate Smoothing Accounts	Ψ	(10,201)	Ψ		Ψ	(2,000)	Ψ	10	Ψ	0,100	Ψ		Ψ		Ψ	(12,172)	<u> </u>	(10,000)	
7	Phase-In-Rider Balancing Account	\$	(2.289)	\$	-	\$	-	\$	-	\$	-	\$	4.760	\$	(1.238)	\$	1.233	\$	(528)	
8	Rate Stabilization Deferral Account (RSDA)	•	(16,776)	•	-	•	(6)	•	-	•	-		21.853	•	(5.682)	•	(611)	•	(8.694)	
9	2017 & 2018 Revenue Surplus		-		-	(3	32,942)		8,323		-		-		-		(24,619)		(12,310)	
10	,	\$	(19,065)	\$	-	\$ (3	32,948)	\$	8,323	\$	-	\$ 2	26,613	\$	(6,920)	\$	(23,997)	\$	(21,532)	
11	3. Benefits Matching Accounts		(, , ,						,				,						<u>, , , , , , , , , , , , , , , , , ,</u>	
12	EEC-Incentives	\$	25,259	\$	(13,141)	\$	704	\$	-	\$	-	\$	-	\$	-	\$	12,822	\$	12,470	
13	Amalgamation Regulatory Account		758		-		1		-		-		(856)		223		126		442	
14	PEC Pipeline Development Costs and Commitment Fees		6,266		-		-		-		-		-		-		6,266		6,266	
15		\$	32,283	\$	(13,141)	\$	705	\$	-	\$	-	\$	(856)	\$	223	\$	19,214	\$	19,178	
16	4. Retroactive Expense Accounts																			
17																				
18	5.Other Accounts																			
19	Mark to Market - Hedging Transactions	\$	13,724	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	13,724	\$	13,724	
20	2014-2019 Earning Sharing Account		(4,045)		-		(2,943)		712		3,785		-		-		(2,491)		(3,268)	
21		\$	9,679	\$	-	\$	(2,943)	\$	712	\$	3,785	\$	-	\$	-	\$	11,233	\$	10,456	
22																				
23																				
24	Total Non Rate Base Deferral Accounts	\$	7,696	\$	(13,141)	\$ (3	37,695)	\$	9,113	\$	8,945	\$ 2	25,757	\$	(6,697)	\$	(6,022)	\$	(5,734)	
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