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October 19, 2016

British Columbia Utilities Commission  
6<sup>th</sup> Floor, 900 Howe Street  
Vancouver, BC  
V6Z 2N3

Attention: Ms. Laurel Ross, Acting Commission Secretary and Director

Dear Ms. Ross:

**Re: FortisBC Energy Inc. (FEI)**

**Project No. 3698886**

**Multi-Year Performance Based Ratemaking Plan for 2014 through 2019  
approved by British Columbia Utilities Commission (the Commission) Order G-  
138-14 – Annual Review for 2017 Rates (the Application)**

**Response to Workshop Undertakings**

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In accordance with Commission Order G-122-16 setting out the Regulatory Timetable for review of the Application, FEI respectfully files the attached responses to the six undertakings from the Workshop held on October 12, 2016.

FEI would also like to note several corrections to the Transcript, Volume 1 for the record.

- Page 3, line 4, “Brystom” should read “Bystrom” and “Vaskin” should be “Fasken”.
- Page 12, line 3, “in” should read “or” (...one half of the decrease or savings from....)
- Page 23, line 13, “20” should be “25”
- Page 43, line 13, “volutility” should read “volatility”
- Page 43, line 16, “exiting” should read “existing”
- Page 45, line 1, “exiting” should read “existing”
- Page 45, line 13, “to” should read “so” (...come so close.)
- Page 46, line 20, “splitting” should read “smoothing”
- Page 50, line 10, “don’t” should read “doing”

- Page 52, line 4, “quiet” should read “quite”
- Page 55, line 2, “volutility” should read “volatility”
- Page 112, line 6, “Holst” should read “Holt’s”
- Page 116, line 1, “90” should read “naïve”

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.**  
**Multi-Year PBR 2014-2019 Annual Review of 2017 Rates**  
**Workshop October 12, 2016**

**UNDERTAKING No. 2**

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**WORKSHOP DATE:** October 12, 2016

**TRANSCRIPT  
REFERENCE:** Volume 1, Page 32, Lines 12 to 20

**REQUESTOR:** Ms. Walsh (BCUC Staff)

**QUESTION:** Confirm if the FEI Fort Nelson Revenue Surplus deferral account earning short-term interest or weighted average cost of capital.

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**RESPONSE:**

FEI confirms that it did not request a return on the Revenue Deficiency deferral account requested in the 2017-2018 Fort Nelson Revenue Requirement Application. FEI did not request a return on this non-rate base deferral account given the forecast balance in the account of \$148 thousand would result in an immaterial amount, approximately \$2 thousand dollars, to be collected from customers.

In contrast, FEI is requesting a short-term interest return on the 2017 Revenue Surplus Deferral Account requested in this Application. FEI believes a short-term interest return is appropriate for this account given the amount will represent an over-collection of cash, or revenues, from customers and is not related to investments in the specific components of the cost of service which would normally attract a weighted average cost of capital return. This treatment is similar to the approved treatment of the existing Rate Stabilization Deferral Account where the balance in the account was also the result of variances in revenues collected from customers and the actual cost of service. The short-term interest return is also consistent with that consistently ordered by the Commission for the difference between interim and permanent rates<sup>1</sup>.

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<sup>1</sup> Recent orders with an interest return at the prime rate for interim versus permanent rate differences are Order G-97-15 in FEI's 2015-2016 Revenue Requirements and Rates for the Fort Nelson Service Area and Order G-86-15 in FEI's Annual Review for 2015 Delivery Rates,

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**UNDERTAKING No. 2**

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**WORKSHOP DATE:** October 12, 2016

**TRANSCRIPT**

**REFERENCE:** Volume 1, Page 85, Line 20 to Page 86, Line 5 and Page 88, Line 14 to Page 89, Line 15

**REQUESTOR:** Mr. Quail (MoveUP)

**QUESTION:** Reference presentation Slide 13. Provide the calculation/derivation of the \$50,000. Provide the fully-loaded cost per hour of labour included in the \$50,000.

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**RESPONSE:**

The original estimate of \$50,000 was a projection based on what was experienced in Q1 and Q2. Now that actual information for Q3 is available, the year end forecast has been updated to \$80,423.

	Q1 Actuals	Q2 Actuals	Q3 Actuals	Q4 Forecast	YEF
<b># Calls</b>	1,230	2,010	6,073	1,400	10,713
<b>Cost per</b>	\$6.32	\$8.27	\$7.76	\$6.35	
<b>Total Cost</b>	\$7,776	\$16,630	\$47,127	\$8,890	\$80,423

The third quarter was higher than anticipated as a number of vacancies in the Trail office were filled during that time. In addition, more training than expected was completed in support of improvements in first contact resolution, resulting in the need for additional support from Prince George CSRs. These events were contained to Q3 and are not expected to continue in Q4.

This estimate will be subject to changes in actual volumes in October through November. The current estimate assumes similar levels to that experienced in Q1 2016. The actual volumes and costs for 2016 will be reviewed and presented during the Annual Review for 2018 Rates.

The fully loaded rate for a CSR is \$31.04. Therefore, the overall estimate of \$80,000 for 2016 represents a total of approximately 2,577 CSR hours. This translates to an average FTE for the year of approximately 1.4. However, this is not an accurate representation of the number of resources required to be trained and ready to take customer calls. This is because assistance is scheduled only during certain times resulting in some shifts with no FEI CSRs taking electric calls, and some shifts with multiple FEI CSRs taking electric calls.

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**UNDERTAKING No. 3**

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**WORKSHOP DATE:** October 12, 2016

**TRANSCRIPT**

**REFERENCE:** Volume 1, Page 105, Line 7 to Page 107, Line 21

**REQUESTOR:** Mr. Craig (CEC)

**QUESTION:** Provide forecast information for the potential rate pressures for 2018 to provide a context for the ratepayer impacts of leaving rates flat now and to consider whether further smoothing of rates would be reasonable.

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**RESPONSE:**

Based on the known information at this time FEI has evaluated possible rate smoothing options as outlined in the table below. The options include a possible 2 percent rate increase to 2017 delivery rates and the use of a Revenue Surplus Deferral account with a one or two year amortization period.

Underlying assumptions include: a flat demand profile; an assumed rate increase in years 2018 through 2020 of two percent from formula and other possible revenue requirement changes; Tilbury Expansion project in service in 2018; Coastal Transmission System (CTS) upgrades in service in 2018, as currently expected based on the project schedule; and Lower Mainland Intermediate Pressure Pipeline System Upgrade (LMIPSU) in service in 2019, as currently expected based on the project schedule.

FEI has presented the option with the lowest year-to-year delivery rate volatility first and the option with the highest volatility last.

**Options**

1. A 2017 delivery rate increase of 2%<sup>1</sup> followed by a 6%, 5% and 5% increase in 2018, 2019 and 2020. This could be accomplished by a two year amortization of the 2017 Revenue Surplus deferral account.
2. Hold 2017 delivery rates at 2016 levels<sup>2</sup>, followed by a 7%, 5% and 4% increase in 2018, 2019 and 2020. This could be accomplished by a two year amortization of the 2017 Revenue Surplus deferral account.

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<sup>1</sup> Exclusive of Delivery Rate Riders

<sup>2</sup> Ibid

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3. Hold 2017 delivery rates at 2016 levels<sup>3</sup>, followed by a 5%, 9% and 2% increase in 2018, 2019 and 2020. This could be accomplished by a one year amortization of the 2017 Revenue Surplus deferral account.
4. A 2017 delivery rate increase of 2%<sup>4</sup> followed by a 3%, 11% and 2% increase in 2018, 2019 and 2020. This could be accomplished by a one year amortization of the 2017 Revenue Surplus deferral account.
5. A 2017 delivery rate decrease of 4%<sup>5</sup> followed by a 10%, 5% and 2% rate increase in 2018, 2019 and 2020. This assumes no 2017 Revenue Surplus deferral account.

Option	Description	Delivery Rate Change			
		2017	2018	2019	2020
1	A 2017 delivery rate increase equal to 2%, Surplus deferral account with two year amortization	2%	6%	5%	5%
2	No 2017 delivery rate increase, Surplus deferral account with two year amortization	0%	7%	5%	4%
3	No 2017 delivery rate increase, Surplus deferral account with one year amortization	0%	5%	9%	2%
4	A 2017 delivery rate increase equal to 2%, Surplus deferral account with one year amortization	2%	3%	11%	2%
5	No Surplus deferral account	-4%	10%	5%	2%

The 2018 impacts would be mitigated if the LNG income tax or the Natural Gas Tax Credit (discussed in section 9.4 on page 72 of the Application) reduces FEI's income taxes in 2017 or 2018.

Although FEI's upcoming Rate Design Application (RDA) will not increase delivery rates in total, the proposals, if accepted, may result in a rate increase for one group of customers and a rate decrease for another group. These rate changes would also be effective in 2018.

FEI proposed Option 3 in its Evidentiary Update as a reasonable option for smoothing the rate impacts that would otherwise result, as seen in Option 5. Keeping rates flat is an option that has been utilized by the Commission in similar situations in the past.

However, of the 5 options considered above, Option 1 provides the most rate stability for customers, based on the forecast assumptions. FEI therefore believes that a 2 percent delivery rate increase in 2017 would be a reasonable option and provide the most

<sup>3</sup> Ibid  
<sup>4</sup> Ibid  
<sup>5</sup> Ibid

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flexibility to smooth out rate increases in future years for the benefit of customers. FEI would therefore be amenable to a 2 percent delivery rate increase in 2017.

Regardless of whether delivery rates are held flat or a 2 percent delivery rate increase is approved, FEI believes it would be beneficial to refrain from setting an amortization period for the Revenue Surplus deferral account at this time. The determination of whether the Revenue Surplus deferral account should be amortized over one year or over two years should be made in the Annual Review for 2018 Rates. By that time, FEI will have more certainty over the costs and timing of the CTS and LMIPSU projects, and the potential for any future tax reductions or rate rebalancing from the RDA.

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**UNDERTAKING No. 4**

**WORKSHOP DATE:** October 12, 2016

**TRANSCRIPT REFERENCE:** Volume 1, Page 112, Line 14 to Line 23

**REQUESTOR:** Mr. South (BCUC Staff)

**QUESTION:** Reference BCUC IR 21.5. Provide a table ranking each of the forecasting criteria including understandability, credibility, reasonable costs, maintainability, and adaptability for FEI's existing method and Holt's exponential smoothing method, with a high, medium or low ranking, or a scale of one to five.

**RESPONSE:**

The table below provides the requested ranking of the Existing Method and the Exponential Smoothing (ETS) method against the following five qualitative measures:

- Understandability
- Credibility
- Reasonable Cost
- Maintainability
- Adaptability

The table below provides a definition of each of these qualitative measures and a high, medium or low ranking for the Existing Method and the Exponential Smoothing method.

Measure	Definition	Existing Method	Exponential Smoothing
<b>Understandability</b>	<p>How understandable is the method? Is it easy to explain and derive worked examples? Are there multiple steps to the method?</p> <p><i>High means the model is very easy to understand.</i></p> <p><i>Low means the model is very difficult to understand.</i></p>	<p>Medium</p> <p>The Existing Method uses easily understood forecasting practices, but requires numerous steps which can be complicated. For example, some of the methods require a determination of whether or not a trend exists. Based on the test one of two forecast methods is chosen (trend or three year average). As shown in Appendix A3 of the Application, the method can be reasonably explained in some detail over approximately 10 pages.</p>	<p>Medium</p> <p>The method is well documented in the literature and is conceptually easy to understand. However, a fully worked derivation of the method as shown in the response to BCUC IR 1.21.4 requires several pages to explain, involving somewhat complex mathematical formulas.</p>



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Measure	Definition	Existing Method	Exponential Smoothing
<b>Credibility</b>	<p>How well does the method perform? Do others use the method?</p> <p><i>High means the model is credible.</i></p> <p><i>Low means the model is not credible.</i></p>	<p>High</p> <p>The results from the Existing Method consistently outperform the Sample Group average. As shown in section 4 of Appendix A4, the residential demand forecast calculated with the Existing Method resulted in a seven year MAPE value of just 1.1% while the commercial demand MAPE score for the same period was 2.6% compared to 4% for the Sample Group Average.</p> <p>In addition, as shown in the response to BCUC IR 1.21.1, several other natural gas utilities also use a three year average for one or more components of their demand forecast.</p> <p>The Existing Method is able to consistently produce very credible results.</p>	<p>High</p> <p>While there is no evidence that any other utilities are using ETS (at least in 11 of the 35 survey results where FEI has some insight into the methods used), the fact the Microsoft chose to implement this method in Microsoft Excel confirms that it is credible.</p> <p>In addition the ETS method as implemented in Excel was the best performing alternate method. Over the four residential UPC test forecasts, it performed slightly better than the Existing Method.</p> <p>The ETS method is able to produce good results and the Microsoft decision to implement this method over all others confirms the method is credible.</p>
<b>Reasonable Cost</b>	<p>How expensive is the method to operate once the source data has been gathered and prepared?</p> <p><i>High means the method is expensive to operate after source data has been gathered and prepared.</i></p> <p><i>Low means the method is inexpensive to operate after the source data has been gathered and prepared.</i></p>	<p>Low</p> <p>The existing methods are implemented in models that are easy for a forecast analyst to use and update every year.</p> <p>Implementing and operating the Existing Methods can be done for a very reasonable cost.</p>	<p>Low</p> <p>The cost to implement and operate the ETS method, whether in a manual model or by using the built-in version in Microsoft Excel 2016, is low.</p>

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Measure	Definition	Existing Method	Exponential Smoothing
<b>Maintainability</b>	How easy are the models to maintain?  <i>High implies the model is easy to maintain.</i>  <i>Low implies the model is difficult to maintain.</i>	High  The Existing Method is very stable and has been used for many years. The ease with which the models can be updated with new data every year is good.  The Existing Method is easy to maintain.	High  The ETS model is implemented in Excel or in a manual model. The method is stable and only requires new actual data every year. Updating either model with new data every year can be done easily.  The ETS method is easy to maintain.
<b>Adaptability</b>	Can the model be used to forecast different components of the demand forecast?  <i>High means the method is very adaptable to other components of the forecast.</i>  <i>Low means the method is very specific to a single component of the forecast.</i>	High  The trend and three year average used in the Existing Method are adaptable to commercial customer additions as well as commercial and residential use rates.  The Existing Method is very adaptable.	High  The ETS method can be used to forecast many quantities.  For FEI, the ETS method was the best performing alternate method for forecasting residential and commercial use rates as well as commercial customer additions.  The ETS method is very adaptable.

Both models perform identically in these qualitative tests.

Both methods are reasonably easy, but not trivial to understand. While the three year average method is used by other natural gas utilities, the ETS method has been implemented in Microsoft Excel 2016 and as a result FEI believes both are credible. Both models can be implemented at a reasonable cost either by reusing existing models for the Existing Method or by using Excel 2016 or manual models for ETS. Both models are easy to maintain and are adaptable to multiple components of the forecast.

In conclusion, FEI does not believe any of these qualitative criteria can be used to select one method over the other. As a result, we believe that the MAPE score, as identified in the response to BCUC IR 1.21.5, should be used to evaluate model performance and suitability.

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**UNDERTAKING No. 5**

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**WORKSHOP DATE:** October 12, 2016

**TRANSCRIPT  
REFERENCE:** Volume 1, Page 135, Line 19 to Page 137, Line 10

**REQUESTOR:** Ms. Walsh (BCUC Staff)

**QUESTION:** Reference BCUC IR 27.1, 2016 Cost of Capital Deferral account compare the costs to 2012 GCOC Stage 1, 2012-2013 RRA, and the PBR proceeding – compare the 3 hearings to the 2016 COC hearing in terms of the number of oral hearing days, number IRs, number of IR rounds, and specifically related to FEI expert costs, # experts/consultants, #hours billed, and rate charged per hour if not confidential. Confirm that the oral portion in the 2016 Cost of Capital process was a confined scope to the oral proceeding.

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**RESPONSE:**

Please see the table below.

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Applicaton	FEI 2016 Cost of Capital	FEI-FBC 2014-2019 PBR*	FEU 2012-2013 RRA	2012 GCOC Stage 1*
Commission Costs	\$ 150,000 <sup>(1)</sup>	\$ 318,079	\$ 389,430	\$ 500,000 <sup>(2)</sup>
Intervener PACA	249,799	513,720	351,020	477,650
FEI Experts/Consultants **	833,755	455,758	299,053	1,095,879
Legal Costs	453,945	946,431	489,233	528,314
Other/Misc.	18,767	21,548	32,240	6,953
<b>Total:</b>	<b>\$ 1,706,266</b>	<b>\$ 2,255,536</b>	<b>\$ 1,560,976</b>	<b>\$ 2,608,797</b>
Limited Oral Hearing Scope	Yes	Yes	No	No
# Oral Hearing Days***	3	7	8	7
# IRs	561	3,534	1,665	956
# Rounds of IRs	2	3	3	2
# FEI Experts	1	1	1	4
# Hours Billed	1,915	Approx. 1,300	Approx. 800	Approx. 3,000
Rate per Hour****	\$55-725 USD	\$300-\$400 USD	\$90-\$205 CAD	\$100-\$500 USD

Note (1) Forecast not yet final

Note (2) Commission's direct costs \$500,000 through the levy

\* total costs, before allocations to other utilities

\*\* reflects conversion to \$CAD where applicable. Average annual exchange rates were as follows:

2016	0.76512
2014	0.90226
2012	1.00170

\*\*\* Oral hearing days include both Company and Expert witness panels, with the exception of 2016 Cost of Capital

\*\*\*\* hourly rates dependent on the experience and level of support used

FEI notes that the change in exchange rates has resulted in the Expert/Consultant costs being higher in the 2016 Cost of Capital proceeding. For example, had the 2012 exchange rate been in place in 2016, the \$833,755 paid would have been \$638,999.

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**UNDERTAKING No. 6**

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**WORKSHOP DATE:** October 12, 2016

**TRANSCRIPT  
REFERENCE:** Volume 1, Page 140, Lines 21 to 24

**REQUESTOR:** Ms. Walsh (BCUC Staff)

**QUESTION:** Regionalization initiative, \$150 thousand non-labour savings, identify what areas did that represent.

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**RESPONSE:**

This information was provided in response to CEC IR 1.4.1 in the FEI Annual Review for 2016 Rates as follows: "The \$150 thousand non-labour O&M savings were in reduced vehicle costs (lease or depreciation, insurance, etc.) allocated to day-time standby costs."