



Diane Roy
Director, Regulatory Services

Gas Regulatory Affairs Correspondence
Email: gas.regulatory.affairs@fortisbc.com

Electric Regulatory Affairs Correspondence
Email: electricity.regulatory.affairs@fortisbc.com

FortisBC
16705 Fraser Highway
Surrey, B.C. V4N 0E8
Tel: (604) 576-7349
Cell: (604) 908-2790
Fax: (604) 576-7074
Email: diane.roy@fortisbc.com
www.fortisbc.com

March 8, 2016

British Columbia Utilities Commission
Sixth Floor
900 Howe Street
Vancouver, B.C.
V6Z 2N3

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

Dear Ms. Ross:

Re: Project No. 3698864
FortisBC Energy Inc. (FEI)
2015 Price Risk Management Application (the Application)
Response to the British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1 – Scope B

On December 23, 2015, FEI filed the Application referenced above. In accordance with Exhibit A-8 setting out the Amended Regulatory Timetable for the review of the Application, FEI respectfully submits the attached response to BCUC Scope B IR No. 1.

If further information is required, please contact Mike Hopkins, Senior Manager, Price Risk & Resource Planning at (604) 592-7842.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Diane Roy

Attachments

cc (email only): Registered Parties

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 1

1 **1.0 Reference: INTRODUCTION**

2 **FortisBC Energy Inc. 2015 Price Risk Management Application**
3 **(Application)**

4 **Exhibit B-1, p. 1, Appendix A, pp. 10, 17**

5 **Exhibit A2-2, FEI 2014 Price Risk Management Review Report, p. 9**

6 **Commission Order G-120-11, Appendix A, pp. 10-11, 20, 22**

7 **Price risk management objectives**

8 On page 1 of the Application, FEI states:

9 FEI believes that the workshop process has helped re-affirm its price risk
10 management objectives which include the following:

- 11 • Mitigate market price volatility to support rate stability; and
12 • Capture opportunities to provide customers with more affordable rates.

13 On pages 10 and 11 of the Commission’s Reasons for Decision attached as Appendix A
14 to Order G-120-11 (2011 Decision) in regard to the FortisBC Energy Inc./FortisBC
15 Energy (Vancouver Island) Inc. (FEU) 2011-2014 Price Risk Management Plan (2011-
16 2014 PRMP), the Commission noted that FEU stated that the primary objectives of the
17 2011-2014 PRMP could be described as:

- 18 (i) improve the likelihood that natural gas will continue to be competitive with
19 other energy sources;
20 (ii) moderation of gas price volatility and its effect on customer rates; and
21 (iii) reduction of risk due to regional price disconnects.

22
23 On page 20 of the 2011 Decision the Commission found that the need for an objective
24 related to the competitiveness of natural gas with other energy sources had not been
25 established and on page 22 stated that moderating volatility is a reasonable goal for
26 FEU to pursue.

27 On page 9 of the 2014 Price Risk Management Review Report (2014 PRM Review
28 Report) FEI states “[t]he primary objectives of FEI’s price risk management are to
29 mitigate market price volatility to support rate stability and capture opportunities to
30 provide customers with more affordable and **more competitive** rates than in the past.”
31 [emphasis added] FEI further states “FEI believes maintaining competitiveness with
32 other sources of energy is an important objective of price risk management.”

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 2

1 In section 2.4.2 on page 10 of the Price Risk Management Workshop Summary Report
2 (PRM Workshop Summary Report) FEI initially describes the objectives discussed with
3 participants in Workshop #2 as worded in the 2014 PRM Review Report and then on
4 page 17 in section 2.4.5 of the PRM Workshop Summary Report, where FEI notes that
5 the objectives were revisited with workshop participants in Workshop #4, FEI notes it
6 adjusted the second objective by dropping the reference to “more competitive rates” in
7 view of the Commission’s decision in Order G-120-11.

8 1.1 Please confirm that the objective in this Application of “capturing opportunities to
9 provide customers with more affordable rates” is a new objective not examined
10 by the Commission in its review of the 2011-2014 PRMP.

11
12 **Response:**

13 Confirmed. However, this objective was discussed in the 2015 workshops with stakeholders
14 and is consistent with the hedging strategy FEI proposed in the 2011-2014 PRMP.

15
16

17
18 1.1.1 If not confirmed, please provide applicable reference to the examination
19 of this objective in the 2011-2014 PRMP proceeding.

20
21 **Response:**

22 Please refer to the response to BCUC Scope B IR 1.1.1.

23
24

25
26 1.1.2 Is “capturing opportunities to provide customers with more affordable
27 rates” effectively still an objective concerned with ensuring the
28 competitiveness of natural gas with other energy sources? Please
29 explain.

30
31 **Response:**

32 No. The objective of capturing opportunities to provide customers with more affordable rates is
33 more about maintaining low natural gas rates for customers, relative to where rates have been
34 in the past, regardless of the rates of other competing sources of energy. Even if competing
35 sources of energy are higher priced than natural gas, FEI should still seek opportunities to lower

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 3

1 natural gas rates for customers. However, achieving the objective of capturing opportunities
2 may, at the same time, help the competitiveness of natural gas with other energy sources.

3
4

5

6 1.2 The objectives of FEI's price risk management plan were the subject of a
7 significant amount of discussion at the workshops. In FEI's view did FEI and
8 stakeholders reach consensus on all the objectives as described in the
9 Application? Please elaborate.

10

11 **Response:**

12 FEI and stakeholders did not reach consensus on all the objectives as described in the
13 Application nor was FEI expecting to, given the diversity of interests represented at the
14 workshops. This is why FEI has submitted a more limited hedging strategy than what FEI had
15 recommended in the 2014 Price Risk Management Review report.

16 However, as noted in the Application, some stakeholders in the workshops indicated their
17 support for the proposed price risk management strategies contained in the Application which in
18 turn has helped FEI re-affirm the price risk management objectives. For example, stakeholders
19 representing low-income customers indicated that they believed that FEI should capture low
20 market price opportunities, if and when they occur, to provide customers with more affordable
21 rates.

22
23

24

25

26 On page 17 of the PRM Workshop Summary Report FEI describes how, in Workshop#4,
27 FEI provided the following as "more detailed metrics for the objectives":

28

- Reduce the magnitude and/or frequency of rate changes
- Limit the impact of significant price spikes (e.g. above \$4/GJ)
- Capture low pricing opportunities (e.g. below \$2.50/GJ)
- Maintain some rate variability to provide price signals to customers
- Transparent and predefined strategies and implementation
- Any strategy costs should be minimal

29

30

31

32

33

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 4

- 1 • Continue to manage deferral account balances (e.g. within +/- \$50 million
2 band).

3 1.3 Please confirm, or otherwise explain, that some of the metrics presented are in
4 conflict with each other.

5
6 **Response:**

7 FEI does not believe that the metrics presented are in conflict with each other. FEI believes
8 these metrics are part of a comprehensive price risk management strategy which includes
9 several components that are responsive in different price environments. For example, a fixed
10 price hedging strategy with predefined low-priced hedging targets can help capture low market
11 prices while a low-cost premium call option strategy can help limit the impacts of significant
12 price spikes. And both can help limit the magnitude and frequency of rate changes without
13 significant costs. Assuming these strategies are applied to half of the gas supply portfolio in
14 determining the commodity rate, then the portfolio will continue to be somewhat exposed to
15 market prices and therefore result in somewhat variable rates for customers. These strategies
16 can also help to manage deferral account balances within a reasonable range as they would
17 help to reduce the variability in gas costs relative to market prices and rates.

18
19

20

21 1.4 Did FEI and stakeholders at the workshop reach consensus in regard to FEI's list
22 of metrics as described in the Application? Please elaborate.

23

24 **Response:**

25 No, FEI and stakeholders at the workshop did not reach consensus in regard to this list of
26 metrics. As discussed in the Application, FEI had expected that a likely outcome of the
27 workshop process would have been some support for a price risk management framework that
28 included strategies which were responsive in different market price environments. For example,
29 a fixed-price swap hedging strategy could target capturing low market prices while a low-priced
30 premium call option strategy could help mitigate short-term market price spikes and their
31 impacts on rates. However, this outcome did not occur as there was no support for such a
32 framework and, in particular, the low-cost premium call option strategy. As a result, the
33 Application, with regard to hedging, only includes the request for approval of the more limited
34 fixed price hedging strategy applicable in specific market circumstances. As discussed in the
35 response to BCUC Scope B IR 1.1.2, there was some support indicated in the workshops for
36 capturing low market price opportunities. Furthermore, during the workshops, some
37 stakeholders expressed support for FEI limiting the magnitude of rate changes as this is difficult
38 for some customers to manage. Therefore, FEI has requested approval for a commodity rate
39 change cap within the Application. FEI understands that Commission staff concur that the



FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 5

- 1 objective of managing deferral account balances was one of the considerations the Commission
- 2 considers in setting rates and that objective was consistent with the rate setting guidelines.

3

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) <u>Scope B</u> Information Request (IR) No. 1	Page 6

1 **2.0 Reference: INTRODUCTION**

2 **Exhibit B-1, Section 3.1.1, p 5**

3 **Exhibit A2-2, 2014 Price Risk Management Review Report, p. 9**

4 **Washington Utilities and Transportation Commission (WTUC)**
5 **Docket UG-132019 inquiry into local distribution companies’**
6 **hedging practices, July 2015 paper prepared for the WUTC by**
7 **Michael Gettings, Senior Partner of RiskCentrix, LLC titled “Natural**
8 **Gas Utility Hedging Practices and Regulatory Oversight: An Inquiry**
9 **into Local Natural Gas Distribution Companies’ Hedging Practices**
10 **and Regulatory Oversight”,**

11 **Appendix C, p. 6**

12 **<http://www.utc.wa.gov/docs/Pages/DocketLookup.aspx>**

13 **“Risk View “versus “Market View”**

14 The Washington Utilities and Transportation Commission (WUTC) has an ongoing
15 inquiry into natural gas local distribution companies’ hedging practices and the regulation
16 of those hedging practices. In the white paper dated July 2015, prepared for the WUTC
17 by Michael Gettings, Senior Partner of RiskCentrix, LLC. Mr. Gettings provides the
18 following comments on page 6 in Appendix C on the topic of taking a “risk view” instead
19 of a “market view”:

20 The distinction between risk view and market view is important. Hedges are
21 placed at futures-market prices which reflect all participants’ money-backed
22 consensus as to the future price of natural gas. For the purpose of making hedge
23 decisions, it is meaningless to hold a view that the spot physical price of gas is
24 likely to rise (or fall) because of fundamental factors. One cannot hedge next
25 year’s gas at today’s spot price, and the

26 futures price right now could be dramatically different than the prevailing
27 fundamentals might indicate. A hedge manager who buys on a market view is
28 effectively acting on something far more speculative. If stated properly it would
29 be this: “While all market participants have equal access to data regarding
30 consumption, production, storage and other factors, and they have reached a
31 consensus on next year’s futures price, I know better.”

32 A risk view is very different. It holds that we do not know the direction or
33 magnitude of futures price changes, but we do know the current futures price
34 (market consensus) and we can observe the uncertainty of that consensus as
35 daily futures-price fluctuations. If we decide on our tolerances for upside costs
36 and downside hedge losses, we can compare the observed risk to our tolerances
37 and take hedge actions accordingly.

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 7

1 On page 5 of the Application in section 3.1.1, FEI states, “While there is uncertainty in
2 terms of how low market prices will settle, market information suggests that further
3 sustained downside price movements are limited.” FEI then describes in some detail in
4 section 3.1.1 market information regarding historical price movements and recent
5 forward natural gas prices, gas producer break-even costs and coal-to-gas fuel switching
6 price levels.

7 2.1 Does FEI agree that FEI’s stated objective of “capturing opportunities to provide
8 customers with more affordable rates” and the proposed execution of hedges
9 based on reaching a price threshold established on the basis that the market is
10 not likely to fall further is taking a market view rather than a risk view? Please
11 discuss.

12

13 **Response:**

14 FEI’s view is that the objectives and proposed hedging strategy are consistent primarily with a
15 risk view rather than a market view. The objective of capturing opportunities to provide
16 customers with more affordable rates is about helping maintain low, but not necessarily the
17 lowest, rates for customers relative to where rates have been in the past. In other words, as FEI
18 explicitly states in the Application, the goal of price risk management is not to “beat the market”.
19 FEI does not know the direction or magnitude of future market prices changes or whether the
20 market prices may fall further than current levels.

21

22

23

24

25 On page 9 of the 2014 PRM Review Report, in reference to FEI’s stated objectives, FEI
26 states:

27 An underlying goal is to meet these objectives in a cost effective manner. It
28 should be recognized that this does not necessarily mean avoiding hedging costs
29 or out-of-market outcomes. The goal of price risk management is not to achieve
30 the lowest possible market price or “beat the market”; rather it should be thought
31 of like insurance, which comes with a cost. However, the benefits of price risk
32 management should justify the costs.

33 2.2 Does FEI agree that FEI’s description of the goal of price risk management as
34 being more like insurance than “beating the market” is a risk view. Please
35 discuss.

36

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 8

1 **Response:**

2 Yes.

3

4

5

6 2.3 Does FEI agree, as stated by Mr. Gettings in the WUTC white paper, that one
7 must first develop a measure of volatility and determine the tolerance for risk
8 before one can measure the benefits of a particular price risk management
9 strategy against the costs? Please discuss.

10

11 **Response:**

12 FEI agrees, as stated by Mr. Gettings in the WUTC white paper, that first developing a measure
13 of volatility and determining the tolerance for risk is a way to measure the benefits of a particular
14 price risk management strategy against the costs. FEI had proposed these recommendations
15 by Mr. Gettings as part of a comprehensive hedging strategy in its 2011-2014 PRMP which,
16 except for the basis hedging request, was denied by the Commission. FEI believes that
17 customers' tolerances for risk can be determined in a number of different ways, such as through
18 surveys or discussions with representative stakeholders in a workshop setting.

19

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 9

1 **3.0 Reference: CUSTOMER RESEARCH**

2 **Exhibit A2-3, Price Risk Management Workshop Summary Report, p.**
3 **11**

4 **Exhibit A2-2, 2014 Price Risk Management Review Report, pp. 55, 59,**
5 **61**

6 **Customer tolerances for annual bill changes**

7 On page 55 in section 7 of the 2014 PRM Review Report FEI states that in order to
8 assess customers' tolerances for rate and bill fluctuations and possible preferences for
9 alternative rate offerings and structure, FEI conducted quantitative research and
10 qualitative research with focus groups in 2012.

11 On page 59 of the 2014 PRM Review Report, FEI describes the customer research
12 conducted in 2012 and also summarizes the research done in 2005. FEI describes how
13 it concluded in the 2005 research that, on average, participants in the Residential
14 Customer Price Volatility Preferences Study can tolerate annual natural gas billing
15 changes of \$169 (or 16 percent of average annual billing of \$1033).

16 3.1 Please describe any further efforts FEI have made to quantify the customer
17 tolerance for rate change since the 2005 research.

18

19 **Response:**

20 FEI has not undertaken any additional quantitative assessments regarding customer tolerances
21 but has conducted other research since 2005. In order to assess customers' tolerances for rate
22 and bill fluctuations and possible preferences for alternative rate offerings and structures, FEI
23 conducted surveys and qualitative research with focus groups in 2012. FEI also notes that it
24 conducted the workshop process in 2015, in part, to discuss with stakeholders, who represent
25 customers, the risk tolerances of their particular customers and constituents to determine
26 interest in FEI's proposed price risk management strategies.

27

28

29

30 3.2 Based on the research done in 2012, does FEI consider the \$169 tolerance to
31 still be a reasonable measure of the tolerance for most residential customers?

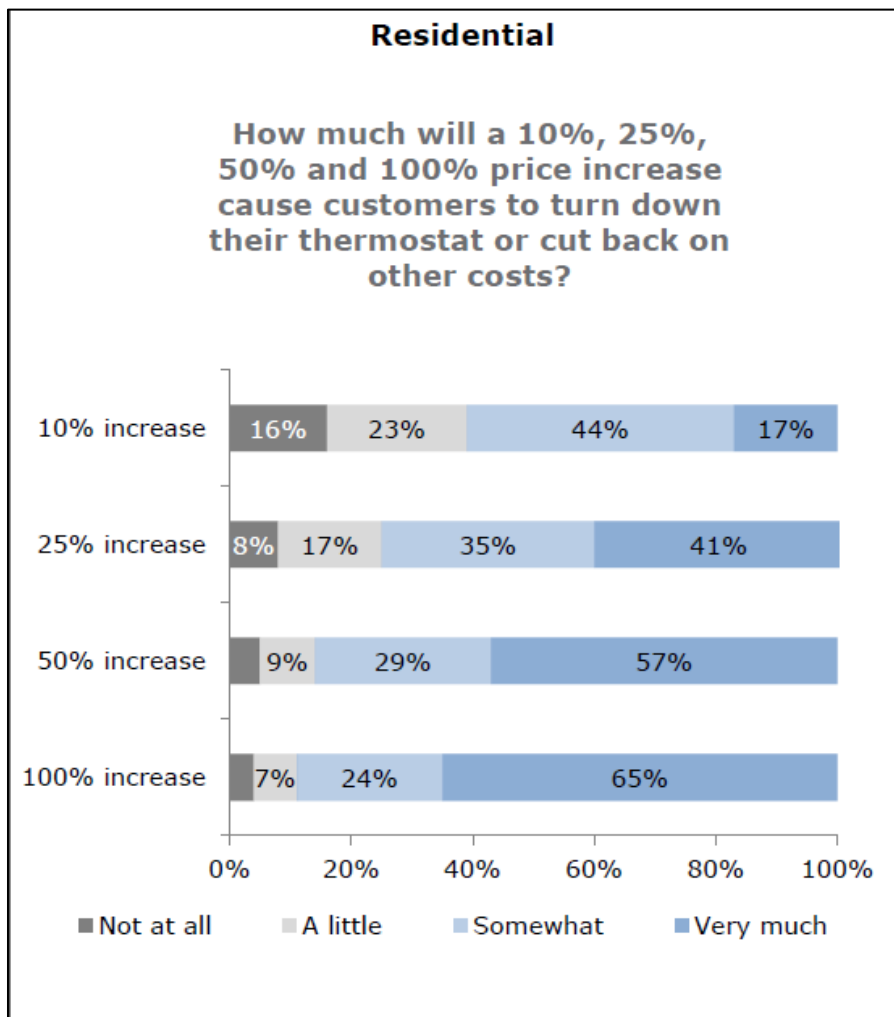
32

33 **Response:**

34 While FEI has not done any further assessments to quantify the specific customer tolerance
35 level since 2005, the 2012 research does provide some insights into customer tolerances. FEI
36 also notes that the total average customer natural gas bill (including carbon tax) since January

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 10

1 2012 of about \$1,000 (based on average annual consumption of about 90 GJ and total bill
 2 components of about \$11/GJ including carbon tax) is similar to the average customer annual bill
 3 of \$1,033 used in the 2005 research. The \$169 equates to about 17% of the total annual bill.
 4 The customer research done in 2012 shows how various percentage increases in gas rates
 5 would influence consumer consumption behavior. The following figure is from page 18 of the
 6 2012 Customer Survey Results in Appendix C of the FEI 2014 Price Risk Management Review
 7 Report (Exhibit A2-2). It indicates that the greater the rate increase, the more the surveyed
 8 residential customers would change their behavior. It also shows that only a 10% increase in
 9 rates would cause about 61% of the surveyed customers to change their behavior somewhat or
 10 very much.



11

12

13

14

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 12

1
2
3 In section 7.1 of the 2014 PRM Review Report, FEI describes the research conducted in
4 2012 to determine customer preferences regarding four alternative rate offerings. On
5 page 61 of this Report FEI recommends more comprehensive price risk management on
6 a portfolio basis, specifically implementation of a medium term hedging program to
7 mitigate market price volatility and enable FEI to capture favourable market price
8 opportunities if they arise. FEI states it “believes that conducting further customer
9 research regarding customers’ tolerable annual bill increases would determine more
10 definitive hedging parameters, such as amounts to hedge and instruments, depending
11 upon market price conditions and volatility.”

12 On page 11 of the PRM Workshop Summary Report, FEI notes it was suggested by one
13 of the workshop participants that “conducting a survey to find out customers’ bill change
14 tolerance levels would help in determining rate setting objectives and mechanism
15 enhancements.” In response FEI states it believes that customer research is important
16 in determining customers’ preferences but does not think more customer research would
17 be valuable at this time given the participation of the customer group representatives in
18 the workshops and the difficulty of exploring the same level of detail with customers
19 directly.

20 3.5 Has FEI explored or considered alternative means of measuring customers’
21 tolerances for either annual bill increases or rate changes? For instance could
22 either the correlation of either the level of call centre activity or the number of
23 customers electing to move to the Equal Payment Plan with the magnitude of the
24 rate changes be used as an indirect measure? Please elaborate.
25

26 **Response:**

27 FEI has explored and considered several alternative means of measuring customers’ tolerances
28 for either annual bill increases or rate changes. FEI conducted surveys and focus groups
29 regarding customers’ risk tolerances and preferences for alternative rate offerings in 2012 and
30 held the 2015 workshops to discuss customers’ risk tolerances with representative
31 stakeholders.

32 FEI has also reviewed the level of call centre activity and the number of customers electing to
33 move to the Equal Payment Plan against the magnitude of previous rate changes. However,
34 FEI has not found any correlations that indicated customers’ tolerances.

35

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 13

1 **4.0 Reference: PRICE RISK MANAGEMENT WORKSHOP SUMMARY REPORT**
2 **Exhibit A2-3, FEI Price Risk Management Workshop Summary**
3 **Report, Appendix A,**
4 **pp. 26–27; Appendix C, p. 43**
5 **FEI residential rates**

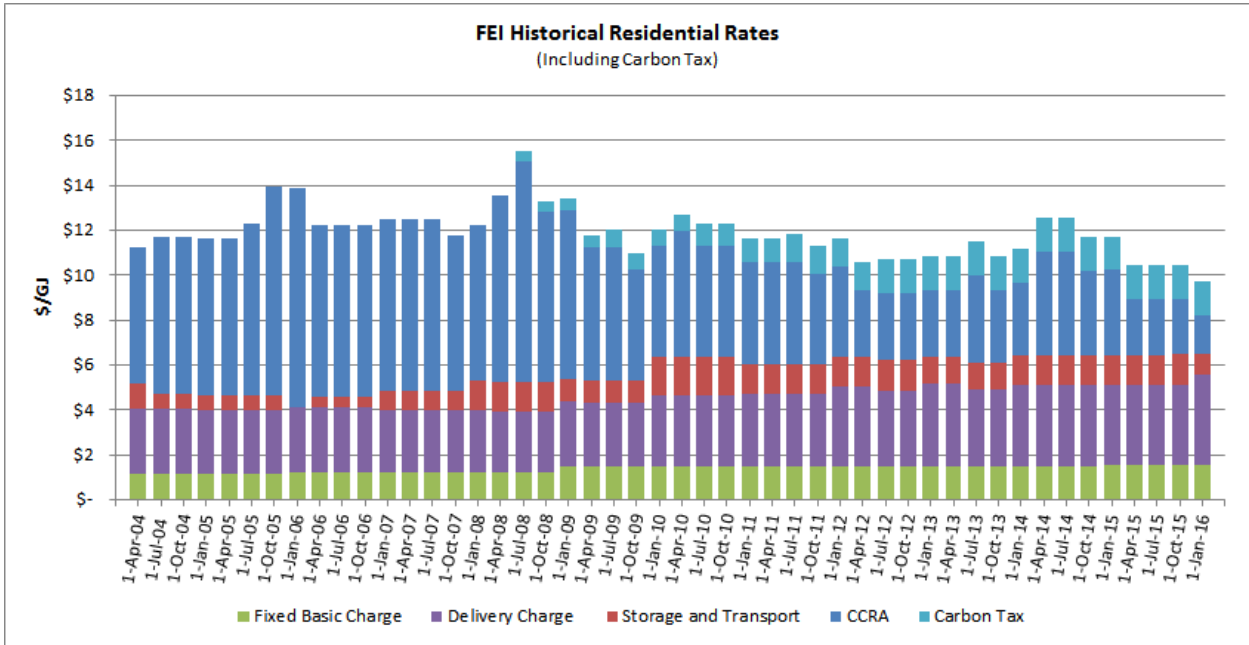
6 In FEI’s PRM Workshop Summary Report, Appendix A, page 26, FEI shows that the
7 focus of the 2014 PRM Review Report is on the commodity component of customer bills.
8 On page 27, FEI further shows a breakdown of the components of historical residential
9 rates from April 1, 2004 to July 1, 2014.

10 Using data from the April 2010 to March 2015 test period, Aether Advisors performed
11 modeling simulations on how commodity rates is impacted by a 25 percent, 50 percent,
12 and 75 percent hedge ratio using fixed price swaps. The modeling result is presented in
13 FEI’s PRM Workshop Summary Report, Appendix C, on page 43.

14 4.1 Please extend the graph provided on page 27 in Appendix A of FEI’s PRM
15 Workshop Summary Report to include a breakdown of the components of
16 residential rates up to February 1, 2016, and quantify each component in terms
17 of \$/GJ and % of the total rate.

18
19 **Response:**

20 The following figure shows the breakdown of the components of quarterly residential rates from
21 April 1, 2010 to February 1, 2016. The value of each component in terms of \$/GJ and % of the
22 total rate is listed in the data table in the fully functional Excel spreadsheet provided in
23 Attachment 4.1.



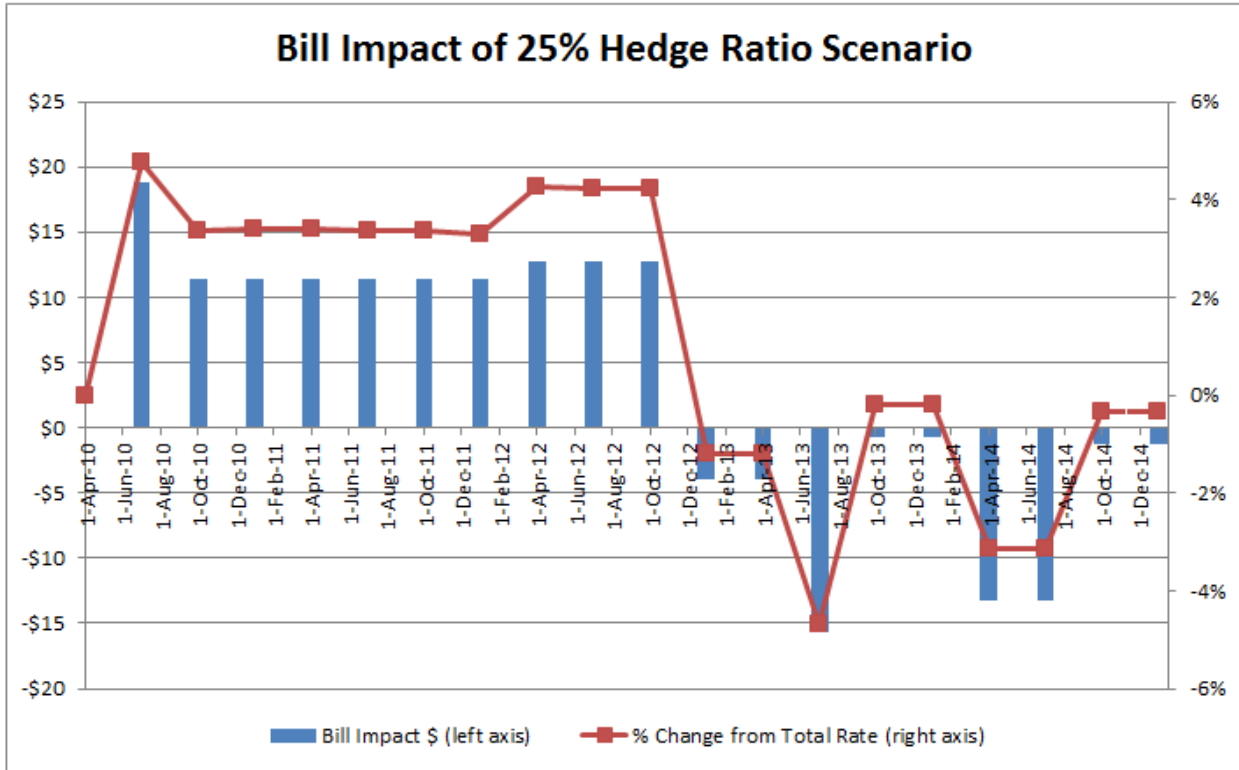
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

4.2 Assuming the 25 percent hedge ratio scenario in the Aether Advisors simulations presented on page 43 of Appendix C in FEI’s Price Risk Management Workshop Summary Report, please provide a graph and a data table in a functional excel spreadsheet to show (in terms of both percentage of total rate and absolute dollar amount), for each of the quarters in the period from April 2010 through March 2015, how much of the total residential bill is impacted for a residential customer consuming 90 GJ/year as compared to the Base Case.

Response:

FEI notes that the simulations presented on page 43 of Appendix C in FEI’s Price Risk Management Workshop Summary Report are not in line with the hedging strategy FEI has proposed in the Application. These simulations were based on a programmatic hedging implementation strategy which is not consistent with the more dynamic hedging strategy FEI has proposed in the Application. Please refer to the responses to CEC Scope B IRs 1.17.1 and 1.17.2.

1 Nevertheless, FEI has provided the requested information. The following graph shows the
 2 residential bill impact (in both percentage of total rate and absolute dollar amount) of the 25
 3 percent hedge ratio scenario compared to the base case for a residential customer consuming
 4 90 GJ/year. Please refer to the fully functional Excel spreadsheet provided in Attachment 4.2.



5

6

1 **5.0 Reference: REQUEST FOR COMMISSION APPROVAL**

2 **Exhibit B-1, pp. 3, 15**

3 **Fixed-price hedging strategy**

4 On page 3 of the Application, FEI states that “Price targets apply to each winter or
 5 summer term or one-year term within the three-year horizon of April 2016 to
 6 March 2019.”

7 Table 1 on page 15 of the Application shows the 5-month (November to March) and 7-
 8 month (April to October) seasonal forward AECO/NIT market prices as of December 1,
 9 2015.

10 5.1 Please update Table 1 in the application with forward AECO/NIT market prices
 11 as of February 1, 2016.

12
 13 **Response:**

14 The following table provides the updated forward AECO/NIT market prices as of February 1,
 15 2016.

16 **Table 1: Forward AECO/NIT Market Prices as of February 1, 2016 (in \$Cdn/GJ)**

<u>Term</u>	<u>Price</u>
Apr16-Oct16	\$ 2.15
Nov16-Mar17	\$ 2.64
Apr17-Oct17	\$ 2.59
Nov17-Mar18	\$ 2.94
Apr18-Oct18	\$ 2.70
Nov18-Mar19	\$ 3.19
Apr19-Oct19	\$ 2.97

17

18

19

20

21 5.2 Please provide the monthly and yearly forward AECO/NIT market prices for
 22 November 2016 to October 2019 as of February 1, 2016.

23

24 **Response:**

25 The following tables provide the monthly and yearly forward AECO/NIT market prices for
 26 November 2016 to October 2019 as of February 1, 2016.

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 17

AECO \$Cdn/GJ		AECO \$Cdn/GJ	
Nov-16	\$2.36	May-18	\$2.63
Dec-16	\$2.61	Jun-18	\$2.67
Jan-17	\$2.77	Jul-18	\$2.72
Feb-17	\$2.76	Aug-18	\$2.74
Mar-17	\$2.70	Sep-18	\$2.73
Apr-17	\$2.46	Oct-18	\$2.77
May-17	\$2.51	Nov-18	\$2.87
Jun-17	\$2.60	Dec-18	\$3.20
Jul-17	\$2.62	Jan-19	\$3.33
Aug-17	\$2.63	Feb-19	\$3.32
Sep-17	\$2.62	Mar-19	\$3.23
Oct-17	\$2.67	Apr-19	\$2.90
Nov-17	\$2.76	May-19	\$2.90
Dec-17	\$2.92	Jun-19	\$2.95
Jan-18	\$3.05	Jul-19	\$2.99
Feb-18	\$3.04	Aug-19	\$3.01
Mar-18	\$2.95	Sep-19	\$3.00
Apr-18	\$2.61	Oct-19	\$3.04

1

AECO \$Cdn/GJ	
Nov 16 - Oct 17	\$2.61
Nov 17 - Oct 18	\$2.80
Nov 18 - Oct 19	\$3.06

2

3

4

5

6

5.3 Please confirm, or otherwise explain, that the price target is the same for winter and summer term.

7

8

9

Response:

10

Confirmed. The proposed price targets are the same for winter, summer and one-year terms.

11

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 18

1 **6.0 Reference: INTRODUCTION**

2 **Exhibit B-1, p. 2**

3 **Requests only applicable for current market conditions**

4 On page 2 of the Application, FEI states:

5 FEI had expected that a likely outcome of the workshop process would have
6 been some support for a price risk management framework that included
7 strategies which were responsive in different market price environments.
8 However, this outcome did not occur as there was no support for such a
9 framework. As a result, FEI is putting forward a limited number of requests for
10 approval to the Commission at this time.

11 6.1 Please confirm, or otherwise explain, that the actions and strategies set out in the
12 Application are not meant to apply in all market conditions, only the current
13 market conditions.

14
15 **Response:**

16 Confirmed, subject to the following explanations.

17 The proposals set out in the Application are not meant to apply in all market conditions, only in
18 the current market conditions. By “current market conditions”, FEI is referring to the market
19 price environment which is characterized by an abundance of gas supply with slow growth in
20 demand such that market prices are relatively low compared to historical values. The current
21 market price environment may also include periods of market price volatility during periods of
22 high demand, such as was experienced during winter 2013/14.

23 FEI had proposed a more comprehensive hedging strategy within the 2011-2014 PRMP, which
24 included tools applicable in different market conditions, which was denied (except for the
25 Sumas-AECO/NIT basis swaps) by the Commission. As discussed in the workshops with
26 stakeholders, FEI continues to support a more comprehensive strategy that is applicable in
27 different market conditions. However, given the feedback in the workshops, FEI has put forward
28 in this Application a more limited hedging strategy applicable in current market conditions.

29

30

31

32

33

34

6.1.1 If confirmed, please define “current market conditions”.

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 19

1 **Response:**

2 Please refer to the response to BCUC Scope B IR 1.6.1.

3

4

5

6 6.1.2 Does the FEI's request for approval of the proposed medium-term fixed-
7 price hedging strategy expire at the end of March 2019?

8

9 **Response:**

10 The horizon covering FEI's proposed medium-term fixed-price hedging strategy extends to the
11 end of March 2019. If the requests regarding hedging within this Application are approved, FEI
12 could seek to extend the hedging horizon beyond March 2019 in a future application if
13 warranted.

14

15

16

17 6.2 Please describe the actions and/or regulatory review and approval processes
18 that FEI intends to undertake, if and when market conditions move outside FEI's
19 definition of current market conditions over the three-year hedging horizon set
20 out in the Application. Would FEI seek approval to alter the threshold market
21 prices or maximum portfolio percentages?

22

23 **Response:**

24 FEI expects that it would file a hedging plan on an annual basis that includes a rolling three-year
25 hedging horizon and appropriate hedging volumes and price targets given prevailing market
26 conditions. If, in between the annual filings, there are substantial market changes, FEI could
27 submit a revision on a one-off basis. This would likely be to address changing market price
28 targets rather than the maximum hedging volume percentage.

29

30

31

32 6.2.1 To the extent FEI wishes to extend the period and/or, please describe
33 the timing and regulatory review and approval process anticipated by
34 FEI.

35



FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 20

1 **Response:**

2 As discussed in the response to BCUC Scope B IR 1.6.2, FEI plans to file an application each
3 year that includes a rolling three-year hedging horizon (as in previous price risk management
4 plans) and appropriate hedging price targets.

5

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 21

1 **7.0 Reference: REASONS FOR THE REQUEST**

2 **Exhibit B-1, p. 5**

3 **Low market gas price environment**

4 On page 5 of the Application, FEI states that “This low price environment provides FEI
5 with the opportunity to help meet the price risk management objectives of mitigating
6 market price volatility to support rate stability and capturing opportunities to provide
7 customers with more affordable rates.”

8 7.1 Please explain whether it is FEI’s view that the gas market is currently in a “low
9 price environment”.

10

11 **Response:**

12 It is FEI’s view that the gas market is currently in a low price environment. As discussed in
13 Section 3.1.1 of the Application and in the response to CEC Scope A IR 1.6.4, some gas
14 producers are cutting back on drilling as market prices are below their production costs. As
15 noted in Figure 1 on page 6 of the Application, current market prices are near their lowest levels
16 since April 2004 and FEI’s current commodity rate of \$1.719 per gigajoule is FEI’s lowest
17 commodity rate since the Essential Services Model was implemented in 2004, and gas cost
18 recovery rates were separated into commodity and midstream components. While it is possible
19 for gas prices to move lower, FEI believes that, in this current market price environment, there is
20 more room for gas prices to increase than to decrease.

21

22

23

24 7.2 Please explain, in FEI’s view, whether it is possible for prices to continue lower in
25 a “low price environment”.

26

27 **Response:**

28 Please refer to the response to BCUC Scope B IR 1.7.1.

29

30

31

32 7.3 If FEI enters into a fixed price transaction, would FEI then be capturing a gain or
33 loss when the transaction is ultimately settled? Please elaborate.

34



FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 22

1 **Response:**

2 If FEI enters into a fixed price financial swap transaction, depending on the settled price FEI
3 would record a gain or a loss when the transaction is ultimately settled. If FEI enters into a fixed
4 price physical purchase, then FEI would be required to record costs (transacted volume times
5 fixed price) when the transaction is ultimately settled.

6

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 23

1 **8.0 Reference: REASONS FOR THE REQUEST**

2 **Exhibit B-1, p. 6**

3 **FEI Common Equity Component and Return on Equity for 2016**
4 **proceeding, Exhibit B-1, Appendix C, p. 26**

5 **Historical and forward AECO/NIT prices**

6 On page 6 of the Application, FEI presents Figure 1 showing the historical AECO/NIT
7 daily and monthly prices from April 1, 2004 to December 1, 2015, and the monthly
8 forward prices as of December 1, 2015 for January 1, 2016 to January 1, 2022.

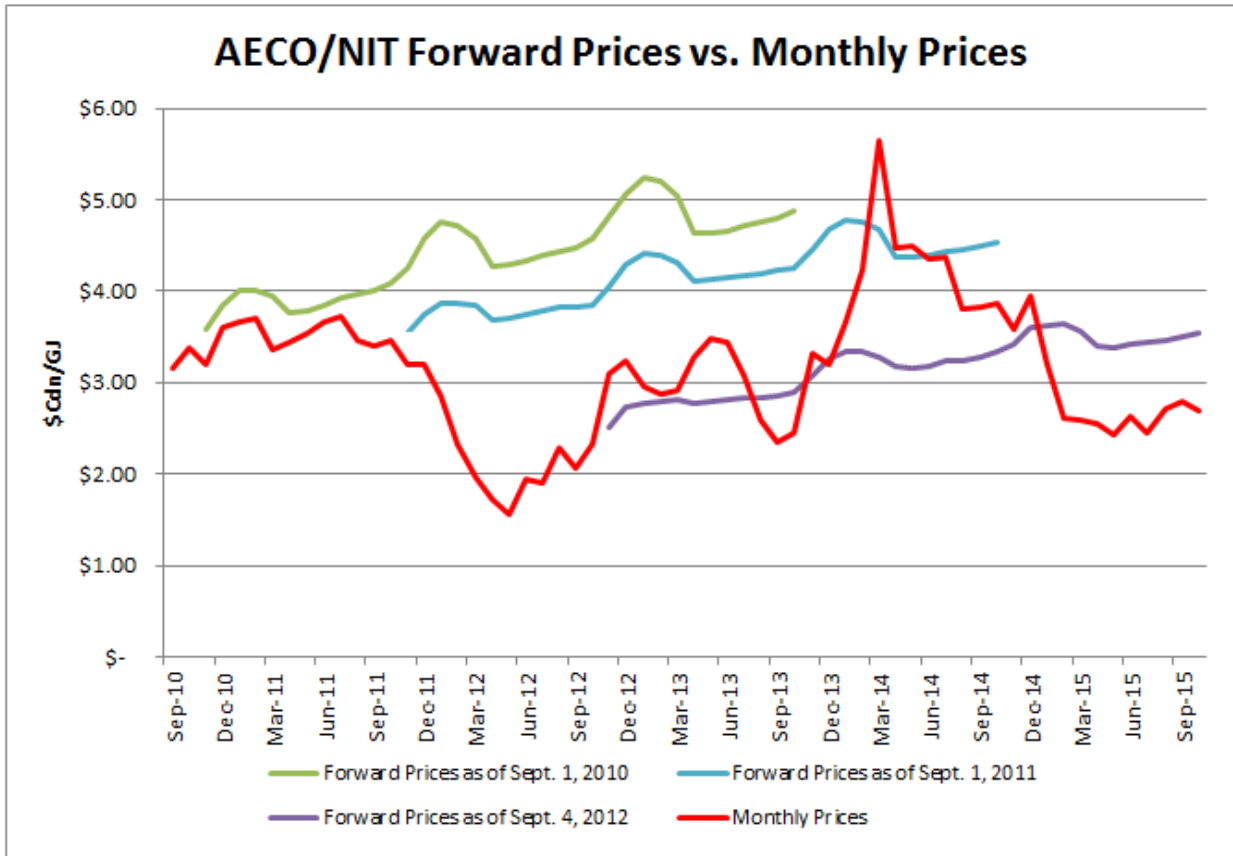
9 In the FEI Common Equity Component and Return on Equity for 2016 proceeding,
10 Exhibit B-1, Appendix C, page 26, Figure C-14 shows the changes in AECO/NIT forward
11 price curves over time.

12 8.1 Please provide a graph, as well as a data table in a functional excel spreadsheet,
13 showing i) the AECO/NIT forward price curve as of September 1, 2010 for the
14 November 1, 2010 to Oct 31, 2013 period; ii) the AECO/NIT forward price curve
15 as of September 1, 2011 for the November 1, 2011 to Oct 31, 2014 period; iii) the
16 AECO/NIT forward price curve as of September 1, 2012 for the November 1,
17 2012 to Oct 31, 2015 period, and iv) the actual AECO/NIT monthly index prices
18 for the September 1, 2010 to Oct 31, 2015 period.

19
20 **Response:**

21 FEI notes that the hedging strategy suggested in this question is not reflective of the hedging
22 strategy that FEI has proposed in the Application. However, FEI has provided the results below
23 to respond to the question.

24 The following figure compares the AECO/NIT forward price curves as of Sept. 1, 2010, Sept. 1,
25 2011, and Sept. 4, 2012, and the actual AECO/NIT monthly index prices.



1

2

3 FEI examined a three upcoming gas year hedging strategy for 25% of its commodity supply
 4 portfolio by locking-in the three upcoming gas years at the AECO/NIT forward price curve
 5 (rather than purchasing at monthly index) as of Sept. 1, 2010, Sept. 1, 2011, Sept. 4, 2012 and
 6 the results are as follows:

Transaction Date	Hedging Period	Gain (Cost) \$/GJ	Gain (Cost) Total \$
Sept. 1, 2010	Nov. 1, 2010 – Oct. 31, 2013	(\$1.49)	(\$115,430,747)
Sept. 1, 2011	Nov. 1, 2011 – Oct. 31, 2014	(\$1.06)	(\$83,798,242)
Sept. 4, 2012	Nov. 1, 2012 – Oct. 31, 2015	\$0.13	\$9,851,539

7

8 By locking-in the AECO/NIT forward price curves instead of monthly index prices, there would
 9 be an average of \$1.49/GJ (or \$115,430,747) cost, an average of \$1.06/GJ (or \$ 83,798,242)
 10 cost, and an average of \$0.13/GJ (or \$9,851,539) gain for the three hedging periods of Nov. 1,
 11 2010 – Oct. 31, 2013, Nov. 1, 2011 – Oct. 31, 2014, and Nov. 1, 2012 – Oct. 31, 2015
 12 respectively.



FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 25

1 Please refer to the fully functional Excel spreadsheet provided in Attachment 8.1 for the data
2 tables. Please also note that September 4, 2012 was used instead of September 1, 2012 since
3 September 1, 2012 was a Saturday and September 3, 2012 was a public holiday (Labour Day).

4
5

6

7

8.1.1 Assume, FEI implemented a three upcoming gas year hedging strategy
9 for 25 percent of its commodity supply portfolio by locking-in the three
10 upcoming gas years at the AECO/NIT forward price curve as of
11 September 1, 2010 and with a transaction dated of September 1, 2010.

11

12

13

14

15

16

17

Response:

18

Please refer to the response to BCUC Scope B IR 1.8.1.

19

20

21

22

23

24

25

26

27

Response:

28

Please refer to the response to BCUC Scope B IR 1.8.1.

29

8.1.1.1 Please repeat the calculation performed above for two
additional scenarios: September 1, 2011 and September 1,
2012. Assume that the scenarios are independent of each
other and no other hedges were transacted.

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 26

1 **9.0 Reference: REASONS FOR THE REQUEST**

2 **Exhibit B-1, p. 7**

3 **Risk and price volatility**

4 Figure 2 on page 7 of the Application shows the AECO/NIT forward curve and 95%
5 confidence interval bands.

6 9.1 Please replicate Figure 2 for the AECO/NIT forward curve and 95 percent
7 confidence interval bands as of October 1, 2005 (after Hurricane Katrina).

8
9 **Response:**

10 Please refer to the response to BCUC Scope B IR 1.9.2.

11

12

13

14 9.2 For Figure 2 as presented in the Application, as well as the figure produced in
15 response to question 8.1 above, please provide:

16 i. The numeric values of the AECO/NIT forward curve price and 95%
17 confidence interval in a table and in a functional excel spreadsheet;

18 ii. The methodology and data source to calculate the 95% confidence interval; if
19 the 95% confidence interval is calculated by third-party, please provide a
20 detailed reference;

21 iii. The key assumptions including future price volatility assumed in calculating
22 the 95% confidence interval;

23

24 **Response:**

25 The following figures illustrate the AECO/NIT forward curves and 95% confidence interval bands
26 as of October 3, 2005 and January 29, 2016. October 3, 2005 is the closest date to October 1,
27 2005 that FEI has data available to replicate Figure 2. Please refer to the fully functional Excel
28 spreadsheet provided in Attachment 9.2 for the numeric values of the AECO/NIT forward curve
29 prices and 95% confidence interval (for October 3, 2005, November 30, 2015, and January 29,
30 2016)¹.

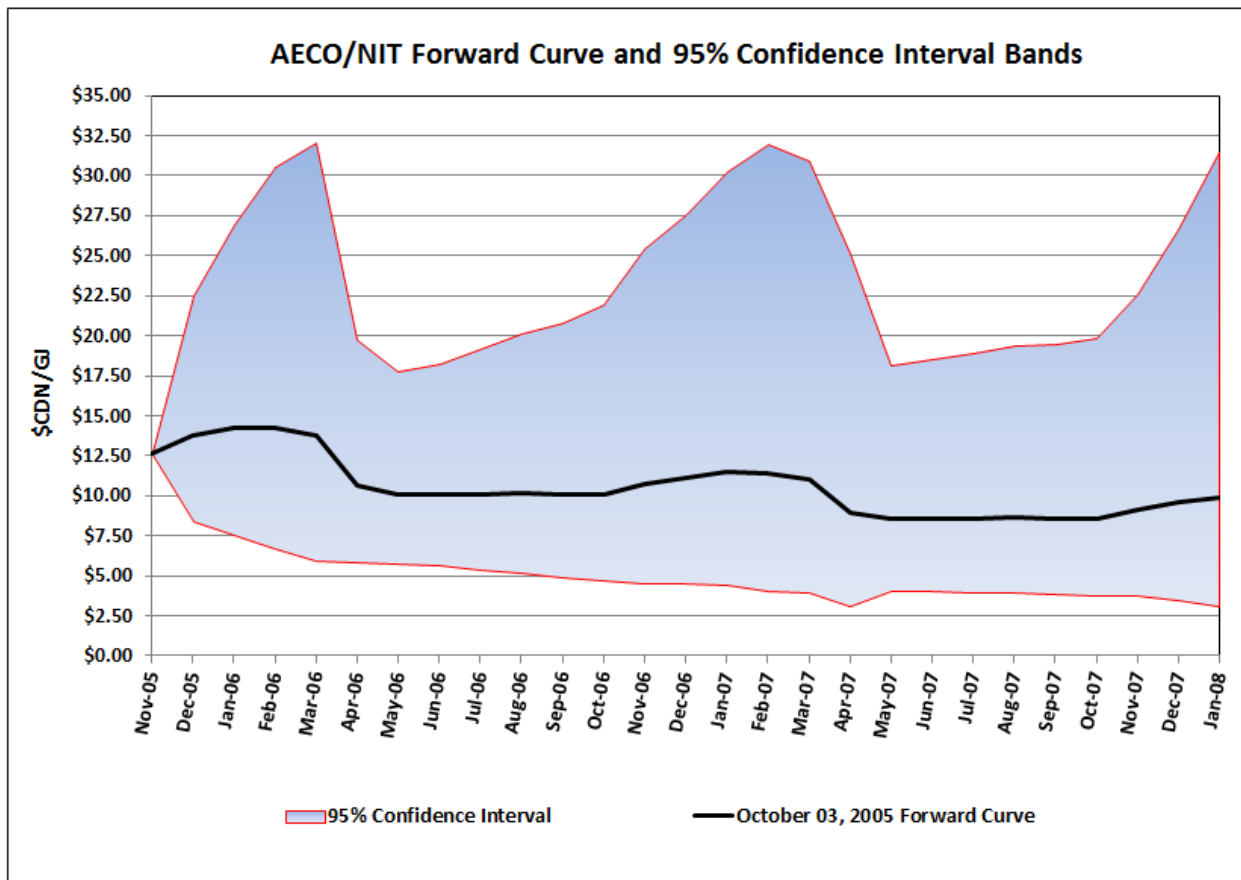
¹ Please note that the original Figure 2 was produced using implied volatility data provided by Goldman Sachs but since Goldman Sachs has requested FEI to keep this information confidential, FEI has replicated Figure 2 using implied volatility data from National Bank instead. The results produced by implied volatility data from National Bank and Goldman Sachs are very similar.

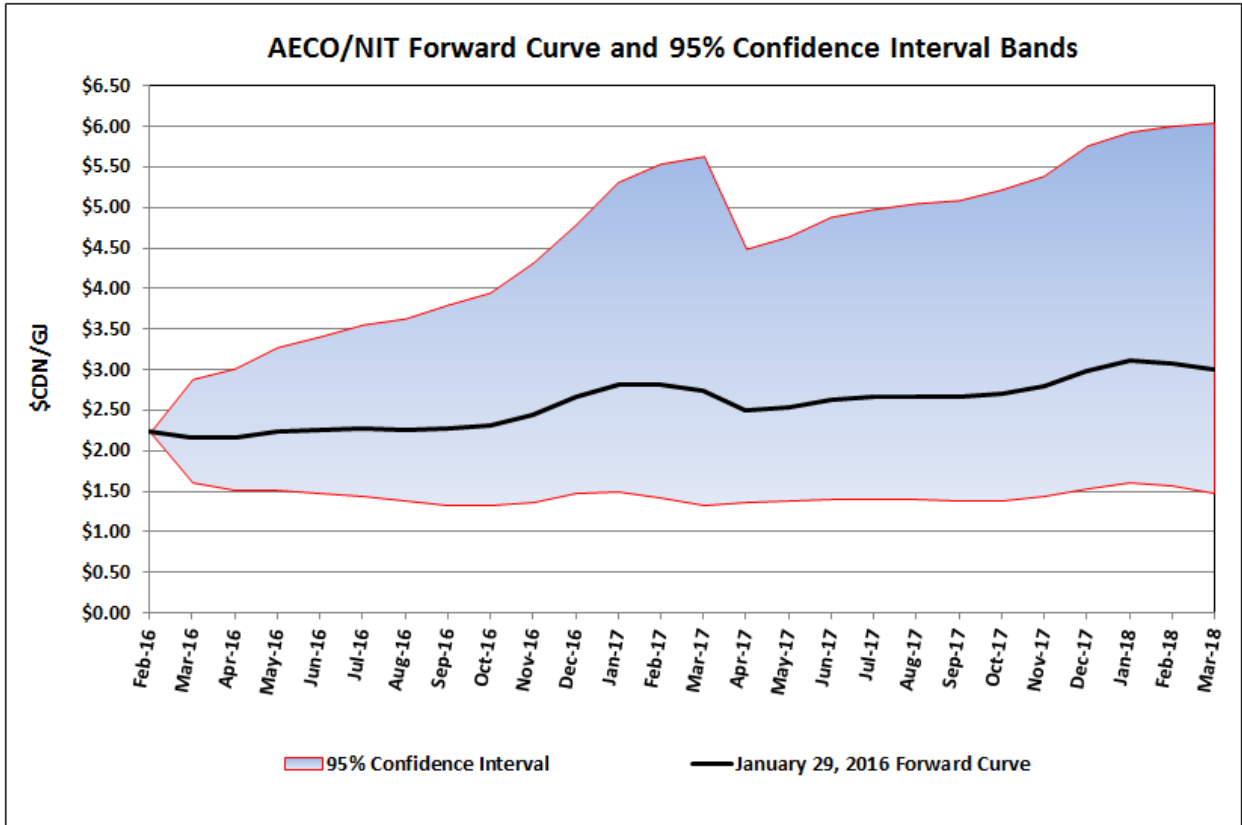
FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 27

1 The model is created by FEI with formula provided by industry experts from the National Bank.
 2 The aim of the distribution model is to determine the 95% confidence interval upper and lower
 3 bands based on currently available objective market-based information with no subjective
 4 component. The mean of the distribution is assumed to be the forward price for any given
 5 forward month on the date of the analysis, while the standard deviation of the distribution is
 6 derived from implied volatility (formerly provided by Goldman Sachs) from the traded market for
 7 at-the-money options on the date of the analysis.

8 While there are other potential sources for future prices, the forward market price from a
 9 particular date of analysis, combined with the implied volatility from the date of analysis, would
 10 produce a reasonable range of potential future prices.

11 Equipped with the assumption of a lognormal price distribution, a mean of the distribution
 12 derived from the forward market price, and the standard deviation of the distribution extracted
 13 from the traded options market, one can then use standard statistical models to construct the
 14 overall distribution and determine the magnitude of any potential move taken to a specified
 15 confidence interval.





1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

9.3 How is the future price volatility for natural gas calculated? Is there is a natural gas volatility index provide the index for the last 10 years. If the information is from a third party, please provide a detailed reference.

Response:

The future implied volatility data for natural gas is derived from the traded market for at-the-money options. FEI is not aware of a natural gas volatility index that is publicly available. FEI obtains its implied volatility information from a third party (Goldman Sachs). Goldman Sachs has requested that FEI keep this historical information confidential due to its proprietary nature and commercial sensitivity. FEI has, therefore, provided Attachment 9.3 in excel format to the Commission ONLY on a confidential basis.

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 29

1 **10.0 Reference: FIXED PRICE SWAP**

2 **Exhibit A2-2, 2014 Price Risk Management Review Report, Appendix**
3 **G, p. 50**

4 **Exhibit B-1, p. 3**

5 **Financial hedging execution**

6 In 2014 PRM Review Report, Appendix G, Aether Advisor LLC states on page 50 that
7 “With respect to credit terms, they differ depending upon whether the utility is transaction
8 bilateral contracts directly with counterparties or clearing swaps through a clearing firm.”

9 On page 3 of the Application, FEI states that “Hedges can include fixed price financial
10 swaps or physical fixed price purchases.”

11 10.1 Please provide a description and explain the mechanism of FEI’s proposed fixed
12 price financial swaps.

13
14 **Response:**

15 A fixed price financial swap transaction is purely a financial transaction between FEI and a
16 counterparty, such as a bank. There is no physical purchase or sale of natural gas. FEI would
17 enter into an agreement with the counterparty to pay the counterparty a fixed price in exchange
18 for the counterparty paying FEI the AECO/NIT monthly index price upon its monthly settlement.

19 Typically, these two payments are netted off against each other so that one party pays the other
20 the net amount. In order to execute the swap, FEI would call the counterparty and enter into the
21 swap transaction based on the forward market prices at the time according to the approved
22 market price targets and maximum hedging volumes.

23 In a separate transaction, unrelated to this financial transaction, FEI would arrange to purchase
24 physical gas supply from a gas producer or marketer and pay this counterparty the settled
25 AECO/NIT monthly index price. This physical transaction would be done regardless of whether
26 or not a financial transaction takes place as FEI needs the commodity supply. This payment by
27 FEI of the AECO/NIT monthly index price would offset the payment by the financial transaction
28 counterparty.

29 To provide an example of these two transactions, FEI could pay a fixed price of \$3/GJ to a bank
30 and the bank would pay FEI the AECO/NIT monthly index. FEI would also pay the monthly
31 index to a gas producer while the gas producer would provide FEI with physical gas
32 supply. The overall net effect for FEI is that FEI pays a fixed price of \$3/GJ and receives
33 physical gas supply.

34 In Appendix C to the PRM Workshop Summary Report that is the material presented at
35 Workshop #3 of the stakeholder consultation workshops, slide 71 provides background

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 30

1 information from Aether Advisors describing the mechanics of a fixed price financial swap as
2 well as the physical gas supply purchase.

3
4

5

6 10.2 Please elaborate on which financial instrument FEI proposes to use to perform its
7 fixed price financial swaps, and discuss why it is the selected instrument.

8

9 **Response:**

10 The financial instrument FEI would use to perform its fixed price financial swaps is, in fact, fixed
11 price financial swaps. There are no other options for implementing fixed price financial swaps.

12
13

14

15 10.2.1 Please provide an example of the transaction cost of hedging using the selected
16 financial instrument. If the response is confidential, please file confidentially.

17

18 **Response:**

19 There is no transaction cost related to fixed price financial swaps. When transacting with a
20 counterparty for the fixed price, the counterparty will provide an offer price to FEI, which may be
21 slightly higher than the forward market price curve at the time. If FEI wanted to receive, rather
22 than pay, a fixed price, then the counterparty would provide a bid price to FEI, which would be
23 slightly lower than the forward market price curve at the time. The difference between the offer
24 and bid prices could be in the order of \$0.01/GJ to \$0.05/GJ, depending on market conditions.

25

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 31

1 **11.0 Reference: REQUEST FOR COMMISSION APPROVAL**

2 **Exhibit A2-3, Price Risk Management Workshop Summary Report,**
3 **Appendix C**

4 **Slide 71, Meeting Notes, pp. 3–4**

5 **Mechanics of fixed price financial swaps**

6 In Appendix C to the PRM Workshop Summary Report that is the material presented at
7 Workshop #3 of the stakeholder consultation workshops, slide 71 provides background
8 information from Aether Advisors describing the mechanics of a fixed price financial
9 swap.

10 11.1 Please confirm, or otherwise explain, that each financial fixed price swap is
11 matched with a physical supply contract for the same quantity of gas priced at an
12 index price.

13
14 **Response:**

15 Each financial fixed price swap transaction is not necessarily matched with a physical supply
16 contract for the same quantity of gas priced at an index price. However, on an aggregate basis,
17 the total volume of all the transacted physical supply contracts for a particular period will match
18 or exceed the total volume of all the financial fixed price swaps for that same period once that
19 period begins. In other words, the individual financial fixed price swaps can be transacted in
20 different volumes and at different times than individual physical supply contracts – but, in
21 aggregate once completed, they will be backed up by physical supply volumes.

22
23

24
25 11.1.1 Please confirm, or otherwise explain, that for fixed price financial swaps
26 for the time periods proposed by FEI in its medium-term hedging
27 strategy (i.e. full winter term, full summer term or one-year term) the
28 index price in the matching physical supply contract will be a monthly
29 index.

30

31 **Response:**

32 Confirmed.

33

34

35

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 32

1 11.1.2 Please confirm, or otherwise explain, that the underlying monthly index
2 will be the AECO/NIT monthly index.

3
4 **Response:**

5 Confirmed.

6
7

8
9

10 In Appendix C to the PRM Workshop Summary Report, on pages 3 and 4 of the Meeting
11 Notes for Workshop # 3, FEI notes the current contracting strategy for physical contracts
12 in the commodity portfolio is 60 percent monthly index and 40 percent daily index and
13 states that increasing the monthly index portion to the 75 percent level used in the
14 hypothetical scenarios modelled by Aether Advisors is not feasible.

15 11.2 Please confirm, or otherwise explain, that the percentage of the portfolio that can
16 be hedged with fixed price financial swaps is effectively limited to the percentage
17 of the portfolio that is physically contracted on monthly index pricing.

18
19 **Response:**

20 Confirmed. Please also refer to the response to BCUC Scope B IR 1.11.1.

21
22

23

24 11.3 Please describe the factors that determine the maximum percentage of the
25 commodity portfolio that should be purchased under monthly index price physical
26 contracts.

27
28 **Response:**

29 When determining how much supply to contract for at monthly and daily indexed prices, FEI
30 takes into consideration a number of factors, such as pricing volatility, customer migration
31 between FEI's variable rate offering and Gas Marketers, and excess commodity resale.
32 Monthly priced supply and daily indexed supply have different strengths in light of these factors:

- 33 • Monthly priced supply helps to cost-effectively reduce price volatility and exposure to
34 daily price spikes.

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 33

- 1 • Monthly priced supply also provides FEI with flexibility to implement hedges, as the
2 percentage to which the commodity portfolio is at a monthly index price would determine
3 the maximum percentage of the commodity portfolio that can be hedged.
- 4 • Daily priced supply assists mitigation and negates any pricing exposure when excess
5 volumes are resold in the marketplace.
- 6 • Daily priced supply also effectively manages monthly variances between actual and
7 forecast customer enrolments between FEI and Gas Marketers under the Customer
8 Choice program.

9

10 Market price conditions are also a consideration. For example, during periods of declining
11 market prices, the daily market prices will average lower than the monthly market prices. During
12 periods of rising market prices, the monthly market prices will average lower than the daily
13 market prices.

14 Overall, over a long period of time, such as ten years, the daily and monthly market prices will
15 be, on average, similar. At this time, FEI believes that the current 60 percent monthly index and
16 40 percent daily index is still the appropriate mix for the commodity portfolio. A higher mix of
17 monthly price supply, such a 75 percent, could result in adverse effects when FEI needs to
18 resell excess volumes on a daily priced basis.

19

20

21

22 11.3.1 Please describe the extent to which consideration of these factors limits
23 the amount of hedging that can be done under each of the two
24 alternatives: fixed price financial swaps and physical fixed price
25 purchases.

26

27 **Response:**

28 Consideration of the factors discussed in the response to BCUC Scope B IR 1.11.3 are what
29 determines the amount of monthly index supply FEI plans for its physical commodity supply
30 portfolio. The amount of monthly index supply planned in the commodity portfolio, in turn, limits
31 the hedging that can be done under each of the two alternatives equally: fixed price financial
32 swaps and physical fixed price purchases. Additionally, the amount of physical supply contracts
33 already executed for future periods also limits the remaining amount of physical fixed price
34 purchases that can be done.

35

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 34

1 **12.0 Reference: REQUEST FOR COMMISSION APPROVAL**

2 **Exhibit B-1, p. 3**

3 **Physical fixed price purchases**

4 12.1 In the case of a physical fixed price purchase, please confirm, or otherwise
5 explain, that the total contract price negotiated with the counterparty, including
6 any market factors the counterparty may include would be equal to or less than
7 the applicable forward AECO/NIT market price threshold.

8
9 **Response:**

10 Not confirmed. FEI's options for fixed price hedging include either financial swaps or physical
11 fixed price purchases. With physical fixed price purchases, FEI would purchase gas supply at
12 Station 2 and negotiate the fixed price based on two main components – the forward AECO/NIT
13 market price plus a premium or discount factor for Station 2 supply. There is typically also a
14 small premium for physical delivery of the gas by the seller. The hedging price targets are
15 based on the equivalent AECO/NIT price component. Therefore, the Station 2 discount, or
16 premium, component of the transacted price may put the total transacted price above or below
17 the hedging price targets. While Station 2 prices currently trade at a discount to AECO/NIT
18 prices, they have, in the past, traded at a premium to AECO/NIT prices.

19
20

21

22 12.2 Please describe the factors that may limit FEI's ability to enter into physical fixed
23 price purchases for the winter term, summer term and full year term within the
24 three-year horizon of April 2016 to March 2019.

25

26 **Response:**

27 There are two main factors that may limit FEI's ability to enter into physical fixed price
28 purchases for the winter term, summer term and full year term within the three-year horizon of
29 April 2016 to March 2019. The first factor is the availability of sellers willing to enter into
30 physical fixed price purchase contracts and if they are willing to transact at the time FEI wants to
31 transact. For example, some producers may not want to transact a fixed price with FEI at a
32 particular time if they believe that market prices may recover in the future, opting instead to sell
33 their gas at the market index price. Although FEI has discussed the subject of fixed price
34 contracts with some of its counterparties in the past, as FEI has not transacted any fixed price
35 purchase contracts, it is not certain of the availability of counterparties in this regard. The
36 second factor is the amount of physical index priced supply purchases that FEI already has in
37 place and implemented according to the Annual Contracting Plans. FEI's total physical supply

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 35

1 purchases for each gas year, as determined within the Annual Contracting Plans, can include
2 both index priced and fixed priced purchases.

3
4

5

6 12.2.1 Has FEI contracted for physical fixed price purchases for a winter term,
7 summer term or full-year term in the past five years? If not, why not?

8

9 **Response:**

10 FEI has not contracted for physical fixed price purchases for a winter term, summer term or full-
11 year term in the past five years because of the Commission decision regarding the FEI 2011-
12 2014 Price Risk Management Plan which denied the request for fixed price hedging in 2011.
13 Fixed price hedging includes either financial fixed price swaps or physical fixed price purchases
14 – both instruments effectively provide the same result in terms of managing market price risk.

15

16

17

18 12.3 In past annual contracting plans has FEI's contracting strategy included plans to
19 purchase some portion of the commodity portfolio under physical fixed price
20 contacts for either full winter, full summer, or full contract year periods as part of
21 its price risk management strategy?

22

23 **Response:**

24 No, FEI's past annual contracting plans have not included contracting strategies for purchasing
25 physical fixed price contracts. Please also refer to the response to BCUC Scope B IR 1.12.2.1.

26

27

28

29 12.3.1 If not, why not?

30

31 **Response:**

32 Please refer to the response to BCUC Scope B IR 1.12.2.1

33

34

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 36

1
2 12.3.2 If so, was FEI successful in executing these physical fixed price
3 purchases? Please elaborate.
4

5 **Response:**

6 Please refer to the response to BCUC Scope B IR 1.12.2.1.
7
8

9
10 12.3.3 Does FEI consider that Commission approval/acceptance of a strategy
11 to contract for physical fixed price contracts can be obtaining through
12 the Commission review of the FEI annual contracting plan? Please
13 explain.
14

15 **Response:**

16 FEI could request Commission approval/acceptance of a strategy to contract for physical fixed
17 price contracts via the Annual Contracting Plan (ACP). While FEI's past practice has been to
18 submit requests relating to hedging within a separate application, there is no reason it could not
19 be done within the ACP application.
20

1 **13.0 Reference: REQUEST FOR COMMISSION APPROVAL**

2 **Exhibit B-1, p. 3**

3 **Fixed price financial swaps versus physical fixed price purchases**

4 On page 3 of the Application, FEI describes the components of the medium-term fixed-
 5 price hedging strategy for which it is seeking Commission approval. One component is
 6 that hedges can include either fixed price financial swaps or physical fixed price
 7 purchases.

8 13.1 Please describe how FEI intends to determine which of the two alternative types
 9 of hedges is appropriate and the allocation between the two approaches. Is one
 10 preferred over the other? Please elaborate.

11
 12 **Response:**

13 Both alternatives are appropriate tools to hedge the price of commodity supply and the
 14 allocation between the two approaches will depend on the availability of counterparties with
 15 which to transact and the fixed price they are willing to provide. Please also refer to the
 16 response to BCUC Scope B IRs 1.12.2 and 1.11.3.1.

17
 18

19
 20 13.2 Please populate the table below to compare the benefits, risks and costs of the
 21 two alternatives.

22

	Factors limiting use	Benefits	Risks	Incremental transaction cost over forward AECO/NIT price	Potential for gains or losses
Fixed price financial swap					
Physical fixed price purchase					

23

24 **Response:**

25 The following table compares the benefits, risks and costs of the two alternatives for fixed price
 26 hedging.

	Factors limiting use	Benefits	Risks	Incremental transaction cost over forward AECO/NIT price	Potential for gains or losses
Fixed price financial swap	Availability of financial counterparties	Locked in price. Relatively easy to transact with highly liquid AECO/NIT financial market.	Counterparty default risk (which is mitigated by transacting with sound, credit worthy counterparties)	There are no transaction costs. The counterparty will provide the offer price to FEI, which may be up to \$0.01/GJ above the forward AECO/NIT price.	Difference between fixed price and market settled index price will result in hedging gains or costs. These are recorded as part of mark-to-market accounting. When hedging gains or costs are added or deducted from underlying index priced supply, the overall cost is the same as FEI doing a physical fixed price purchase based on same fixed price.
Physical fixed price purchase	Availability of sellers and willingness to transact when FEI wants to transact or at same price	Includes physical supply as well as locked in price	Counterparty default risk (which is mitigated by contracting with sound counterparties with physical supply resources)	The counterparty will provide the offer price to FEI, which may be up to \$0.01/GJ above the forward AECO/NIT price. The counterparty may also charge FEI a physical supply premium of up to \$0.02/GJ. Brokered deals may cost about \$0.001/GJ.	Transactions are not marked against prevailing market prices so there are no hedging gains or losses. When contract is ultimately settled, it is recorded at cost (i.e. transaction volume times fixed price).

1
 2 Under risks, FEI has noted that counterparty default is a risk. Counterparty default means that
 3 the counterparty is not able to fulfill its obligation to provide the fixed price or physical supply
 4 after the contract is transacted. FEI performs counterparty credit evaluations and only transacts
 5 with counterparties with credit ratings above a certain level in order to reduce this risk.

6 FEI has noted that brokered deals for physical fixed price purchases would likely incur a
 7 transaction cost of about \$0.001/GJ if a broker is used.

8

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 39

1 **14.0 Reference: FIXED PRICE SWAP**

2 **Fixed vs variable financial strategy**

3 In the financial market, home owners can obtain a loan from a financial institution to
4 obtain a mortgage. Loan options include a fixed rate 5 year mortgage or a floating
5 variable rate 5 year mortgage. Depending on home owner preference including cash
6 flow situation, and personal risk tolerances a mortgagee could choose between a fixed
7 rate or a variable rate.

8 14.1 Would FEI agree that the term structure of interest rates (yield curve) is generally
9 upward sloping? If not, please elaborate.

10

11 **Response:**

12 FEI would agree that the typical term structure of interest rates is generally upward sloping,
13 ignoring other factors that could impact the interest rate of a debt instrument. There have been
14 periods where the yield curves have been flat or inverted, but an upward sloping yield curve is
15 more typical.

16

17

18

19 14.2 In the last 5 years, comparing those who entered into fixed rate mortgages vs
20 variable rate mortgages, which financial strategy realized was cheaper? Please
21 elaborate.

22

23 **Response:**

24 FEI does not know, in the last 5 years, comparing those who entered into fixed rate mortgages
25 versus variable rate mortgages, which financial strategy realized was cheaper. FEI believes this
26 would depend upon several factors such as when the mortgage was transacted, the length of
27 the mortgage, the size of the mortgage, any discounts or premiums negotiated and the
28 individual's credit profile. Regardless, FEI does not believe that fixed rate mortgages versus
29 variable rate mortgages are directly comparable to FEI's proposed hedging request (please
30 refer to the response to BCUC Scope B IR 1.14.3).

31

32

33

34 14.3 Is the homeowner choice to lock-in an interest rate or take a floating interest rate
35 analogous to FEI locking in a future natural gas price or buying at daily/monthly
36 index prices? Please elaborate on the similarities and/or differences.

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 40

1

2 **Response:**

3 FEI believes that the homeowner's choice to lock-in an interest rate or take a floating interest
4 rate is only somewhat analogous to FEI locking in a future natural gas price or buying at
5 daily/monthly index prices.

6 FEI does not believe the choice is fully analogous given the primary difference in the underlying
7 purchase being made. Fundamentally, a mortgage is a financial instrument that underpins a
8 unique purchase, that of a home, which likely represents a much larger financial commitment
9 than that of purchasing natural gas for many homeowners, depending on circumstances.
10 Therefore, the risk tolerance for movements in the interest rate vs the natural gas rate may be
11 materially different.

12 Second, in the instance of the mortgage, the homeowner is hedging the total price of the
13 mortgage – i.e., the interest amount, whereas in the natural gas instance, the hedge is only on a
14 portion of the gas commodity cost, which is one component of the natural gas bill.

15 Third, the level of knowledge between a homeowners understanding of the mortgage and the
16 natural gas bill may differ. Mortgage rates are widely advertised and reflect the cost of the
17 mortgage, whereas, the natural gas bill has many components and the posted gas commodity
18 rate at a point in time will not directly reflect the overall natural gas bill or commodity cost on the
19 gas bill. This may make the decision of a homeowner to fix the mortgage more easily
20 understood than the decision to hedge a portion of the natural gas bill.

21 FEI does agree that the objectives of locking in a mortgage rate and fixing natural gas
22 commodity costs are similar, in that the goal is to lock in a rate that is favourable relative to
23 historical rates but not necessarily the lowest possible rate. Mortgage holders may lock in their
24 rate even though they know rates could go lower because they prefer rate certainty and do not
25 want to be exposed to any future upside rate risk. In this sense, both are analogous as there is
26 a goal to transact at a fixed price that represents good value while providing stability.

27

FortisBC Energy Inc. (FEI or the Company) 2015 Price Risk Management Application (the Application)	Submission Date: March 8, 2016
Response to British Columbia Utilities Commission (BCUC or the Commission) Scope B Information Request (IR) No. 1	Page 41

1 **15.0 Reference: PRICE RISK MANAGEMENT IN OTHER JURISDICTIONS**

2 **Exhibit A2-2, 2014 Price Risk Management Review Report, section**
3 **6.1.2, pp. 51–53**

4 **Hedging by other Canadian gas utilities**

5 On page 51 of the 2014 PRM Review Report, FEI states that “Hedging by the major
6 Canadian gas utilities is not as accepted by regulators as it is in the U.S. All of the major
7 Canadian utilities use natural gas storage as part of their price risk management given
8 the peaky nature of winter demand in Canada.” FEI further elaborates on the price risk
9 management strategy by other Canadian gas utilities on page 51 to 53 of FEI’s 2014
10 Price Risk Management Review report.

11 15.1 Please provide an update on current price risk management practices by other
12 Canadian gas utilities, including the use of any hedging strategies.

13
14 **Response:**

15 FEI has contacted its counterparts at the other major Canadian gas utilities and does not have
16 any new information to present beyond what FEI discussed in the FEI 2014 Price Risk
17 Management Review Report.

18

Attachment 4.1

REFER TO LIVE SPREADSHEET MODEL

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)

Attachment 4.2

REFER TO LIVE SPREADSHEET MODEL

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)

Attachment 8.1

REFER TO LIVE SPREADSHEET MODEL

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)

Attachment 9.2

REFER TO LIVE SPREADSHEET MODEL

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)

Attachment 9.3

REFER TO LIVE SPREADSHEET MODEL

Provided in electronic format only

FILED CONFIDENTIALLY

(accessible by opening the Attachments Tab in Adobe)