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Our File: 23841/0166

March 8, 2018

VIA ELECTRONIC MAIL

British Columbia Utilities Commission
6th Floor, 900 Howe Street
Vancouver, B.C. V6Z 2N3

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

Dear Sirs/Mesdames:

Re: FortisBC Energy Inc. ("FEI") – 2017 Price Risk Management Plan ~ Project No. 1598917

We are counsel for the Commercial Energy Consumers Association of British Columbia (the "CEC"). Attached please find the CEC's first set of Information requests with respect to the above-noted matter.

If you have any questions regarding the foregoing, please do not hesitate to contact the undersigned.

Yours truly,

OWEN BIRD LAW CORPORATION

Christopher P. Weafer

CPW/jj
cc: CEC
cc: FortisBC Energy Inc.
cc: Registered Interveners

COMMERCIAL ENERGY CONSUMERS ASSOCIATION OF BRITISH COLUMBIA

INFORMATION REQUEST NO. 1

FortisBC Energy Inc. 2017 Price Risk Management Plan Project No. 1598917

March 8, 2018

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1. Reference: Exhibit B-1-2, page 4 and page 5

In Order G-168-17, FEI was asked which objectives or a combination thereof should be used to assess the design and/or efficacy of FEI's hedging program:

- Manage price volatility;
- Manage supply security;
- Take a market position in anticipation of future commodity prices changes; or
- Other

FEI's objectives for its price risk management, which includes hedging, include the following:

- Mitigate market price volatility to support rate stability, and
- Capture opportunities to maintain commodity rates at historically low levels.

Managing Supply Security is Not One of FEI's Price Risk Management Objectives

Managing security of supply is primarily an objective of the Annual Contracting Plan (ACP), which outlines FEI's physical resource contracting strategies, as discussed in Section 4.1. Managing supply security helps FEI ensure ratepayers receive cost effective and reliable supply, which subsequently supports some degree of managing price volatility. However, the price management benefits are a secondary benefit of FEI's ACP. It is the ACP, which first determines the physical resources required to meet customers' load requirements. This typically includes contracting for physical resources including supply based on market index prices. Then, based on this market index pricing exposure, the hedging strategy is applied to reduce the impacts of any market price volatility and potentially lock in low forward market prices.

1.1 Please confirm the hedging program adds no risk to FEI's security of supply.

1.1.1 If not confirmed, please explain why not.

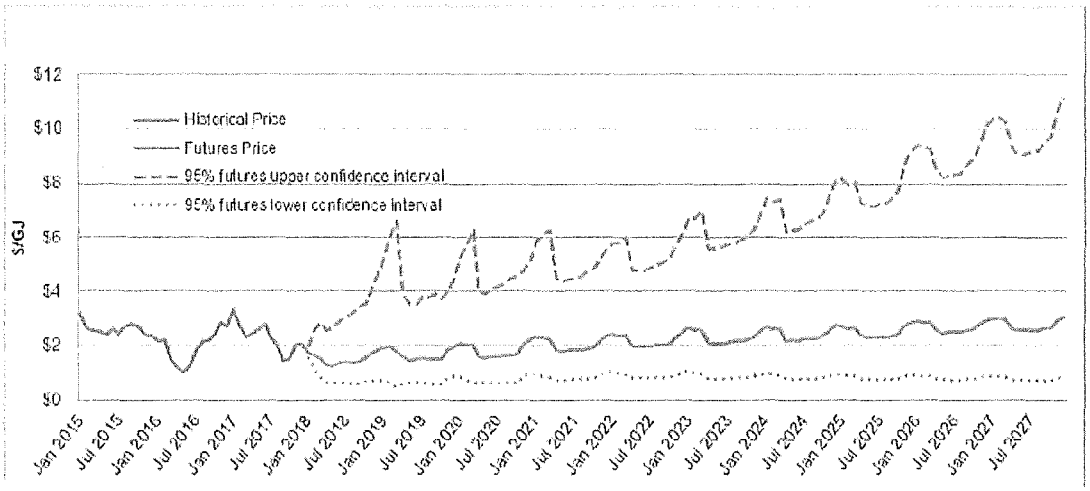
1.2 Please identify if FEI has prioritized one of its objectives over the other.

2. Reference: Exhibit B-1-2, page 5 and page 11

Taking a Market Position is Not One of FEI's Price Risk Management Objectives

FEI's price risk management objectives and proposed hedging strategy are consistent with a "risk" view rather than a "market" view. By setting predefined hedging price targets based on consideration of gas producer break-even costs, historical prices relative to current price levels and FEI's commodity rate, FEI's hedging strategy is aligned with a risk view rather than a market view. A market view involves speculating on future price movements in attempt to capture gains. FEI does not try to predict the direction or magnitude of future market prices changes or whether the market prices may fall to more favourable levels. The objective of capturing opportunities to provide customers with more affordable rates is about helping maintain low, but not necessarily the lowest, rates for customers relative to where rates have been in the past.

Figure 3-6: AECO/NIT Price Probability Range



2.1.1 Please confirm that FEI would alter its hedging price targets if its market knowledge indicated that the market price would likely decline dramatically in the future?

2.1.1.1 If not confirmed, please explain why not.

2.1.2 If yes, please confirm that the hedging strategy includes a general expectation of future market prices and where FEI considers the current market price to be relative to both the past and the future.

2.1.3 If not, please explain why not.

3. Reference: Exhibit B-1-2, page 8 and page 9

3.1.3 Wide AECO/NIT Discount May Tighten

FEI purchases the majority of its gas supply based on AECO/NIT index pricing. The discount between Henry Hub, the North American benchmark hub, and AECO/NIT prices (i.e. the AECO/NIT basis) has continued to widen in the forward market prices in the past year. However, easing of pipeline constraints in the next five years to move excess supply from the WCSB could tighten the basis and increase AECO/NIT prices.

Forward AECO/NIT market prices have fallen recently as less natural gas supply from the WCSB is required for eastern U.S. and Canadian markets in the future due to the growth in gas supply and pipeline connections from the Marcellus and Utica shale regions. In addition, WCSB supply has increased at the same time.

AECO/NIT market prices are near their lowest levels in decades due to a combination of natural gas from the WCSB being pushed back from the east, increasing Alberta supply due to lower break-even costs, and Alberta pipeline constraints. The pipeline constraints within the WCSB to access downstream markets will continue to influence the discount between Henry Hub and AECO/NIT prices for the near future. The AECO/NIT basis will continue to be seasonally pressured during summer pipeline maintenance season causing lower prices, relative to Henry Hub, in those months.

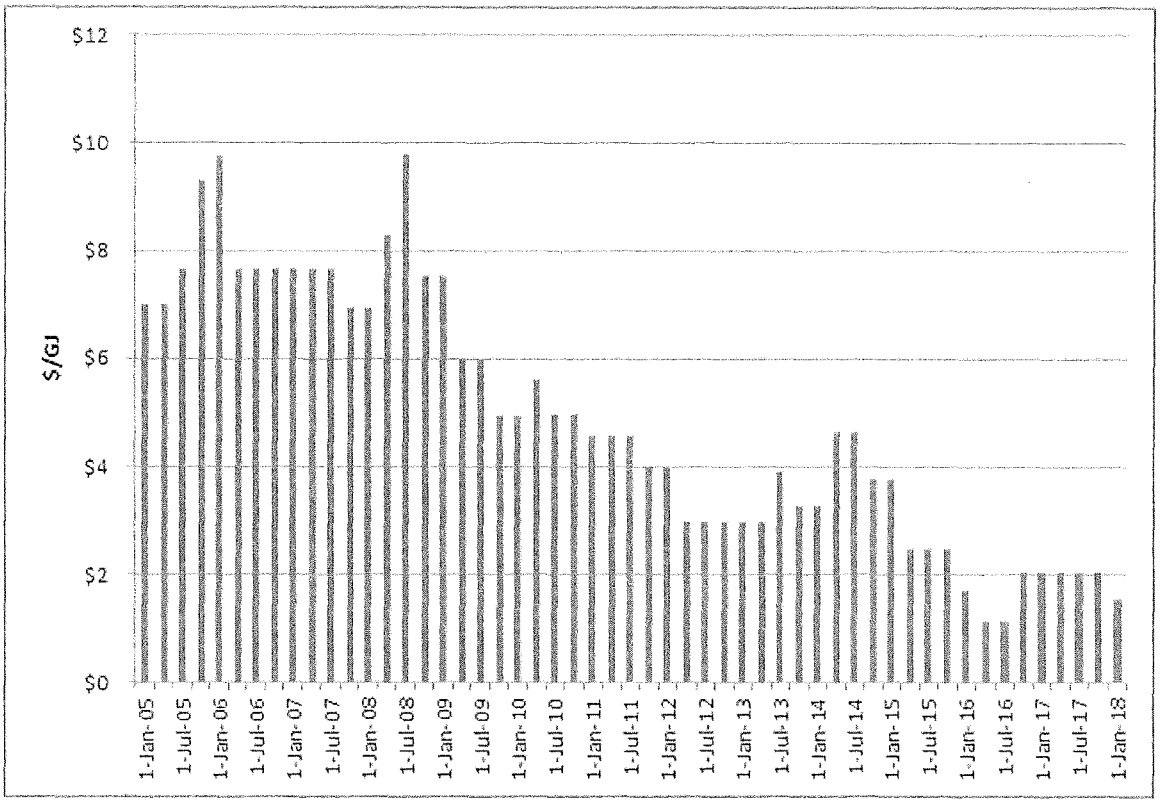
However, pipeline developments over the next five years could significantly alleviate price pressure and start to tighten the AECO/NIT basis, as shown in the figure below.

3.1 Does the Forward AECO/NIT market price reflect the prospective easing of pipeline constraints?

3.1.1 Please explain why or why not.

4. Reference: Exhibit B-1-2 page 12

Figure 3-7: FEI Historical Commodity Rate



4.1 Please provide Figure 3-7 monthly and overlay this with the FEI customer cost of gas.

5. Reference: Exhibit B-1-2, page 12 and 13

FEI is sensitive to the impacts increases in commodity rates can have on customers' bills and that increases of more than 10 percent, as has occurred in recent years, may be difficult for some customers. In the shale gas era in recent years, the impact of market price volatility has caused commodity rate increases that have amounted to more than 10 percent bill increases for customers. This has occurred twice during the shale gas era, including July 2013, when the cost of gas for residential customers increased from the previous quarter by $0.94 per GJ or 31 percent to increase the average annual bill by 10 percent and also in April 2014 when the cost of gas increased from the previous quarter by $1.37 per GJ or 42 percent to increase the average annual bill by 14 percent. As of January 1, 2018, the cost of gas for residential customers is $1.549 per GJ. At this level, a commodity rate increase of only $0.82 per GJ or 53 percent would cause the annual average bill to increase by 10 percent. Implementing the proposed hedging strategy with hedging price targets aligned with the commodity rate would help mitigate significant bill increases in the future.

5.1 Please clarify whether or not the 2 instances of bill increases over 10% above involved commodity price changes from the prior quarter or FEI cost of gas to customers changes from the prior quarter.

5.2 Please provide the customer bill rates by month for the last 10 years.

6. Reference: Exhibit B-1-2 page 13

The survey indicates that customers generally, at this time, have less concern over natural gas bills than other household expenditures such as gasoline, groceries, electricity, and auto insurance[6]. However, the results indicate that customers appear fairly sensitive to increases to their gas bill. The majority of customers surveyed indicated that they would definitely or probably make some changes to their household behavior to offset bill increases of 25 percent or more[7]. Customers also indicated they would prefer that FEI make smaller, more frequent adjustments to the commodity rate, rather than less frequent but possibly larger adjustments[8].

The responses in the survey point to a willingness by many customers to pay a small premium for bill stability. The survey indicates that 62 percent would be willing to pay a small premium for bill stability while 31 percent indicated they would not be willing to pay a premium and 7 percent were uncertain[9]. The survey results show that, on average, residential customers would be willing to pay up to 3.6 percent each month and small commercial customers would be willing to pay up to 4.6 percent each month for greater stability in their natural gas bill[10]. This translates into an average of about 19 to 24 percent premium on the commodity rate component of the bill[11].

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[6] Appendix A page 23 – Concern About Price Increases
[7] Appendix A page 30 – Impact of Natural Gas Bill Increases on Behavior
[8] Appendix A page 33 – Cost of Gas Rate Adjustment Preferences
[9] Appendix A page 28 - 62% of All Residents includes 19% that "Like it" and 43% that state "It's ok"
[10] Appendix A page 27 – Residential customers willing to pay 3.6% and Commercial customers willing to pay 4.6% a month
[11] 3.6% to 4.6% of total bill per GJ ($8.241/GJ) equals $0.30/GJ to $0.38/GJ, which, when divided by commodity rate component per GJ ($1.549/GJ), is about 19% to 24%.

6.1 How did FEI define 'bill stability' to its customers in the above survey?

6.2 Please confirm or otherwise explain that FEI is referencing customer sensitivity to an increase of 25% or more to their total gas bill in the above clipping.

6.3 Please confirm that the commodity accounts for about 18.7963% of the total natural gas bill. Please distinguish between residential and commercial customers if there is a difference.

6.4 Please confirm or otherwise explain that footnote 11 indicates that FEI backwards calculated the acceptable increase in commodity rates assuming that customers were willing to pay a premium on their 'total bill', and not just a premium on the cost of gas.

6.5 Please confirm or otherwise explain that customer surveys of willingness to pay always exceeds by a large margin the customer choice to pay for the service.

6.6 Please provide all research FEI has done comparing customer expressed willingness to pay on a survey versus customer's actual choice to make the payment.

7. Reference: Exhibit B-1-2, Appendix A page 9

Executive Summary

sentis

- For FortisBC to develop a price risk management strategy that meets the needs of various customer classes, it helps to understand the breakdown of residential customers in terms of how they feel about the concept of hedging and paying a higher natural gas bill to protect against possible price increases. Sentis undertook a segmentation analysis among FortisBC's residential customers to provide a better understanding of this customer class and to help facilitate program development, marketing and communication efforts. (Note that the same segmentation was not undertaken for small commercial customers given the small sample size (n= 167).)

Stability Seekers

- Support the concept of paying extra to protect against increases (71% in support)
- Willing to pay more for natural gas stability (91%)
- Think paying extra for stability is ok, but still worry about paying too much for natural gas (65%); still, some like the idea (32%)
- Prefer smaller, more frequent adjustments to their natural gas bill (62%) over larger, less frequent adjustments (21%)
- Most likely to be on a pre-approved payment plan (39%) or the EPP (44%)
- Demographically are highly reflective of all FortisBC natural gas residential customers

Strong Opposers

- Do not support the concept of paying extra to protect against increases (63% would rather not pay extra)
- Not willing to pay more for natural gas stability (72% are not)
- Do not like the idea of paying extra for stability in their natural gas bill (81%)
- Lean toward preferring smaller, more frequent adjustments to their natural gas bill (43%) over larger, less frequent adjustments (17%)
- Least sensitive to natural gas bill increases
- Less likely than Stability Seekers to be on the EPP, and least likely of any segment to be interested in joining
- Demographically are slightly older, male, and most likely to be living in a single detached home

Anxious & Uncertain

- Would rather not pay extra to protect against increases (42%) or are unsure (37%)
- Not willing to pay more for natural gas stability (49%) or are unsure (51%)
- Feel that paying extra for stability is ok, but worry about paying too much for natural gas (76%)
- Similar to *Stability Seekers* and *Strong Opposers*, prefer smaller, more frequent adjustments to their natural gas bill (46%) over larger, less frequent adjustments (17%)
- Most sensitive to natural gas bill increases, especially at a 25% increase (40% say they would definitely make changes)
- Most likely to know they pay the same for natural gas as FortisBC (54%) and most likely to give their natural gas bill a thorough review
- Most concerned about increasing prices in all expenditure areas
- 37% are on the EPP and among those who are not, this segment is most interested in joining (57%)
- Demographically are slightly younger, more likely to be low income and live in a townhouse, apartment or condo versus the other segments

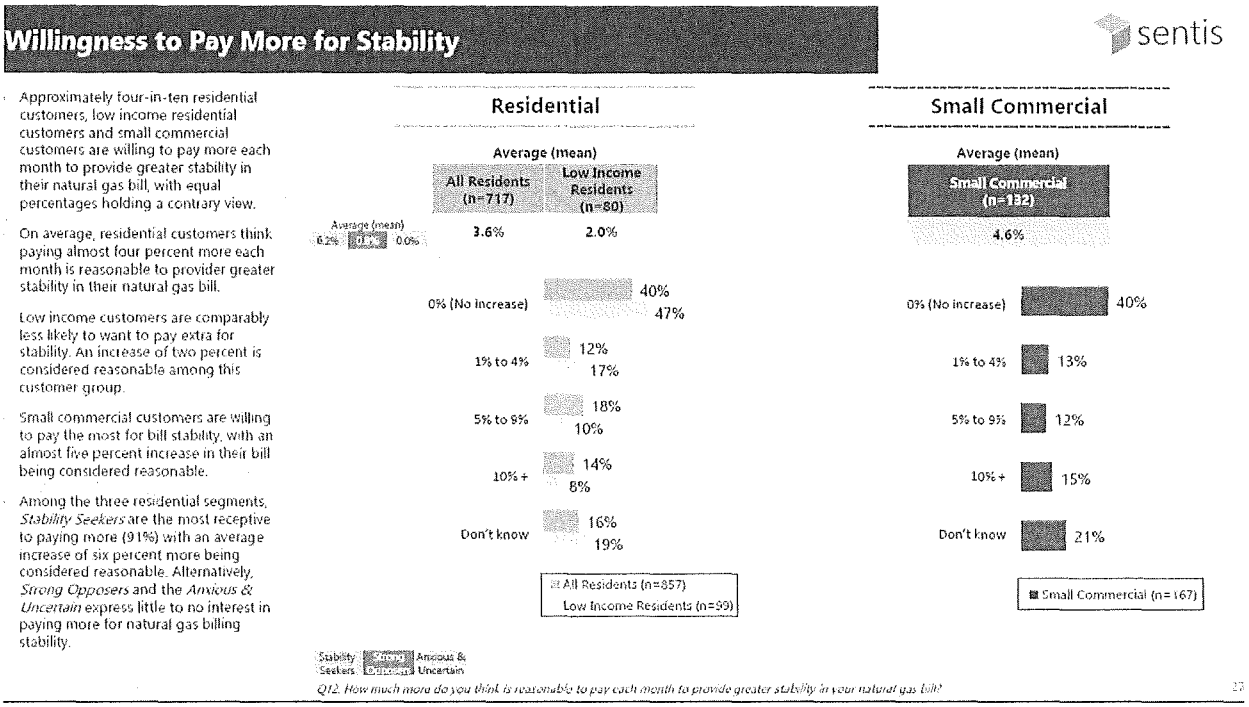
9

7.1 How did FEI initially segregate respondents into their respective groups of Stability Seekers, Strong Opponents and Anxious & Uncertain

7.2 Could FEI develop an option whereby Strong Opposers could opt out and Stability Seekers could opt in? Please explain why or why not.

7.2.1 If yes, please provide an overview of how such a program could be managed.

8. Reference: Exhibit B-1-2 Appendix A page 27



8.1 Please provide the full dataset for the Appendix A results or indicate where in the application it may be found.

8.2 Please provide (or indicate where in the application) the dataset, calculations and the sources of information used in making the statement that 'On average residential customers think paying almost four percent more each month is reasonable to provide greater stability in their natural gas bill'.

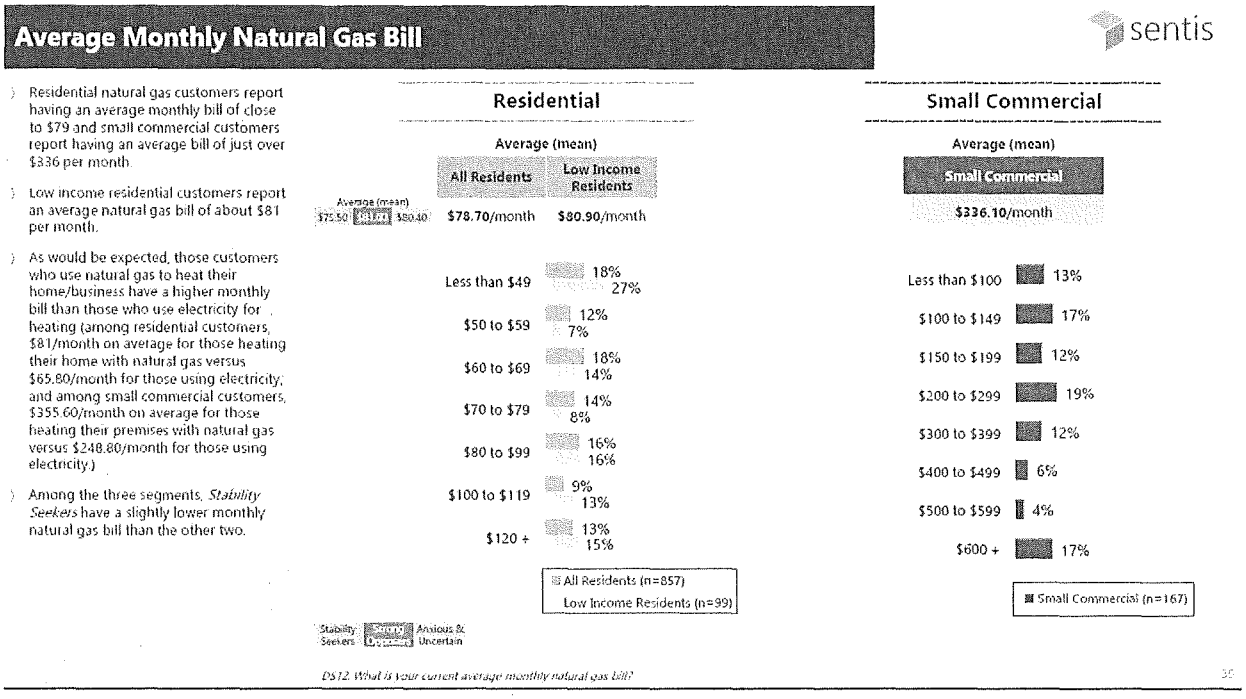
8.3 Please rationalize the All Residents N of 717 with the All Residents N of 857 both of which are shown on the page.

8.4 Please rationalize the Low Income Residents N of 80 with the Low Income Residents of 99 both of which are shown on the page.

8.5 Please rationalize the Small Commercial N of 167 with the Small Commercial N of 132 both of which are shown on the page.

8.6 Did FEI survey large commercial customers? Please explain why or why not.

9. Reference: Exhibit B-1-2 Appendix A page 35 and Appendix A Survey page 4



Survey Page 4

QDS12. What is your current average monthly natural gas bill? *Please enter in a round dollar amount (no cents).*

If you don't know what your average bill is, please provide your best estimate. IF RES: *For your reference, the average monthly natural gas bill is between $55 and $80 for a household with 4 people in a 2,200 square foot home.* IF BUS: *For your reference, the average monthly natural gas bill is between $165 and $240 for an organization of your size.*

*$*_____ / month **RANGE IS 11-999 (9999 FOR BUSINESSES)**

9.1 Please confirm that a customer responding to QDS12 on page 4 of the Survey in Appendix A (and shown on page 35 of Appendix A) were reporting their total monthly natural gas bill, and not just the commodity/Cost of Gas portion.

10. Reference: Exhibit B-1-2, Appendix A, survey page 6

Awareness Of Natural Gas Pricing

Your natural gas bill is made up of several different components.

One component of the bill is the Cost of Gas, which is the price FortisBC pays for natural gas on the open market. These charges are passed on to customers without a mark-up. All customers, unless they have signed a contract with a natural gas marketer, pay the same rate for the Cost of Gas.

In the rest of the survey we will be talking about the Cost of Gas part of the bill.
SHOW EXPLANATION ABOVE AND QUESTIONS 5 & 6 ON THE SAME SCREEN

10.1 Please confirm that the statement 'In the rest of the survey we will be talking about the Cost of Gas part of the bill' is the primary statement in the survey that distinguishes that the remainder of the survey is evaluating the response to a rise in Cost of Gas rather a rise in the total natural gas bill.

10.2 Please confirm that this statement occurs prior to the survey questions regarding tolerance for natural gas bill fluctuations (7,8,9) and the questions on preferences for managing natural gas fluctuations (11,12,13,14).

10.3 Please confirm that the customer was at no time provided with information regarding the proportion that the natural gas commodity accounts for in their total natural gas bill.

10.3.1 If not confirmed, please identify in what part of the survey the customer was provided with, and/or identified accurate awareness as to the relative size and value of the commodity portion of their natural gas bill.

10.4 Please confirm that FEI did not provide customers who were surveyed with data on FEI's cost of gas charged to the customer and any proposed hedging impact on the customer's cost of gas and total bill over time.

10.4.1 If not confirmed, please identify in what part of the survey the customer was provided with this information.

10.4.1.1 Please identify is customers demonstrated understanding of this information.

11. Reference: Exhibit B-1-2 Appendix A Survey page 6 and page 6 and page 7

<u>Tolerance Re: Natural Gas Bill Fluctuations</u>

Because FortisBC buys natural gas on the open market it is subject to price fluctuations.

Imagine that for next year your average **monthly** natural gas bill was going to increase from **[AMOUNT FROM QDS12]** to **[AMOUNT FROM QDS12 x1.25]** due to an increase in the cost of natural gas and **not** because of any increase in usage on the part of your IF RES: household/ IF BUS: organization.

Q7. How likely would you be to change your IF RES: household's/ IF BUS: organization's behaviour (such as turning down the thermostat, cutting back spending in other areas, trying to use your natural gas appliances/equipment less often, etc.) to help offset this increase in your bill?

5. Definitely would make some changes
4. Probably
3. Might or might not
2. Probably not
1. Definitely would not make any changes
98. Don't know/ not sure

6

ASK Q8 IF Q7=1, 2, 3, OR 4. OTHERWISE GO TO Q10
Q8. And what if for the next year your average monthly bill went from **[AMOUNT FROM QDS12]** to **[AMOUNT FROM QDS12 x1.5]**? Would you...

5. Definitely would make some changes
4. Probably
3. Might or might not
2. Probably not
1. Definitely would not make any changes
98. Don't know/ not sure

ASK Q9 IF Q8=1, 2, 3, OR 4. OTHERWISE GO TO Q10
Q9. And finally, what if for the next year your average monthly bill went from **[AMOUNT FROM QDS12]** to **[AMOUNT FROM QDS12 x 2]**? Would you...

5. Definitely would make some changes
4. Probably
3. Might or might not
2. Probably not
1. Definitely would not make any changes
98. Don't know/ not sure

11.1 Please confirm that the statement

"Imagine that for the next year your average monthly natural gas bill was going to increase from [AMOUNT FROM QDS12] to [AMOUNT FROM QDS2 x 1.25] due to an increase in the cost of natural gas and not because of any increase in the usage on the part of your IF RES: household/ IF BUS: organization" implies that the total customer bill would rise by 25%, 50% or 100% as a result of an increase in the Cost of Gas.

11.2 Please confirm that a discussion of increases in the total monthly gas bill is inconsistent with the prior statement that the remainder of the survey would be 'talking about the Cost of Gas part of the bill'.

11.3 Please confirm that to the extent customers provide their total natural gas bill in response to question QDS12, and not just the commodity portion, customers could be imagining increases of 25%, 50% and 100% to their total bill when responding to Q7, Q8 and Q9.

11.3.1 If not confirmed, please explain why not.

11.4 Please calculate the percentage increase that would be required in the Cost of Gas at present for a customer to experience an increase of 25%, 50% and 100% in their total natural gas bill. Please provide for both residential and commercial customers.

11.4.1 Please discuss the likelihood of an increase occurring in the price of the natural gas commodity over the next five years that would cause an increase of 25%, 50% and 100% in the total natural gas bill.

11.5 Please confirm or otherwise explain that FEI has no reason to expect that market prices will increase to a level which could increase total bills by up to 25%, 50% or 100% in the next 5 years.

11.6 Please confirm that FEI's survey questions regarding tolerance for rate fluctuations did not address the possibility of bill reductions.

11.6.1 If confirmed, please explain why not.

12. Reference: Exhibit B-1-2, Appendix A survey page 8

ASK ALL

Q11. Some products fluctuate in price because they are traded on the open market, which means no one knows for sure if the price will go up or down. When it comes to paying for a product that has a fluctuating price, which most closely matches your point-of-view? **RANDOMIZE TWO OPTIONS**

1. I would rather pay a bit extra each month to protect against possible, larger monthly increases in the future
2. I would rather **not** pay a bit extra each month and not be protected against possible, larger monthly increases in the future

98. Don't know

Q12. Paying extra to ensure stable bills/payments applies to natural gas. Since it is possible for natural gas prices to fluctuate, , this could mean your natural gas bill could go up and/or down several times a year even if your usage remains the same.

Knowing this, how much more do you think is reasonable to pay each month to **provide greater stability in your natural gas bill**? *Type in the percentage increase below*

Paying _____% more each month on my natural gas bill is reasonable **RANGE IS 1-100%**

- ☐ Zero/ Do not want to pay more for greater stability
- ☐ Don't know

Q13. Generally, what do you think of the idea of paying extra now to ensure a more stable nature gas bill? *Select only one.*

1. I like it, keeping **IF RES:** my / **IF BUS:** our natural gas bill stable should be a top priority for FortisBC
2. It's ok, but I worry that **IF RES:** I / **IF BUS:** we will end up paying too much for natural gas
3. I don't like it, FortisBC should just buy the natural gas needed at the market rate and let it fluctuate

97. No opinion/ doesn't matter to me.

Q14. Which of the following best matches your opinion? *Select only one.* **RANDOMIZE TWO OPTIONS**

1. I prefer that FortisBC make **smaller, more frequent adjustments** to the Cost of Gas rate
2. I prefer that FortisBC make **less frequent adjustments** to the Cost of Gas rate **even if the change in the rate maybe larger each time**

97. Neither

98. Don't know

12.1 In question Q12 FEI requests information regarding the percentage increase customers would find reasonable to ensure a more stable natural gas bill. Please confirm that FEI has interpreted this response as referring to an increase in the total natural gas bill, and not just an increase in the commodity portion of the natural gas bill.

12.1.1 If not confirmed, please explain why not and rationalize FEI's statement on page 13 of the application and footnote 11.

12.2 Please explain where FEI distinguished that the survey was at that point referring to a percentage increase in the total natural gas bill and not to a percentage increase in the

Cost of Gas which was declared as the subject matter for the remainder of the survey on page 6 of the survey.

13. Reference: Exhibit B-1-2, page 13 and 14

FEI has considered whether this cost premium is consistent with the potential cost of FEI's current opportunistic hedging strategy. By hedging near the low end of market prices in the current price environment, FEI does not expect hedges to be significantly out-of-the-money for an extended period and believes there is also the likelihood of hedging gains rather than costs over time. Therefore, FEI expects that, over time, any potential premium in gas costs arising from the hedging program would likely be lower than the average customer premium tolerances as indicated in the survey.

The survey results support FEI's view that, at this time, an opportunistic hedging strategy is required to meet the interests of customers. If the market price environment were to change, such as if market prices were significantly higher and more volatile, FEI would consider more customer research to help determine if customers' concerns or tolerances for gas rates or bills has changed, and consider other price risk management tools or strategies.

13.1 Please quantify the potential cost premium of FEI's current opportunistic hedging strategy and show how it is calculated.

13.2 Please elaborate on how much lower the cost premiums are likely to be than the average customer premium tolerances.

13.3 Please elaborate on the term 'out-of-the-money' and why it is important that FEI does not expect hedges to be out-of-the-money for an extended period.

13.4 Please define 'extended period'.

13.5 Please provide a full discussion of each of the 'other' price risk management tools or strategies that FEI is currently using for its customers or reference those discussed in the application to which FEI is referring .

14. Reference: Exhibit B-1-2, page 17

FEI uses a mix of monthly and daily commodity supply purchases to mitigate the volatility of the daily market prices, since monthly prices are set and fixed at the beginning of each month but daily prices can fluctuate throughout the month as they settle daily. FEI currently purchases 60 percent of the commodity supply at monthly index price and the remaining 40 percent at the daily index price. In a rising price environment, purchasing monthly index priced supply benefits customers compared to daily priced supply, since daily prices will continue to be higher than the monthly index price. In a declining price environment, the opposite is true - purchasing daily priced index supply as prices fall during the month would benefit customers from not being locked in with the monthly priced index. In a stable price environment, there is no material difference in monthly and daily index prices. However, purchasing a mix of monthly and daily commodity supply does not significantly mitigate monthly market price volatility as pricing is still based on index prices which fluctuate in response to changes in the supply and demand for natural gas in the marketplace.

14.1 Why does FEI use the ratio of 60% for monthly index and 40% at daily index instead of some other ratio? Please provide a brief explanation.

14.2 Would a ratio of 70% monthly and 30% daily provide FEI with more or less volatility in FEI's gas costs? Please explain.

15. Reference: Exhibit B-1-2, page 18

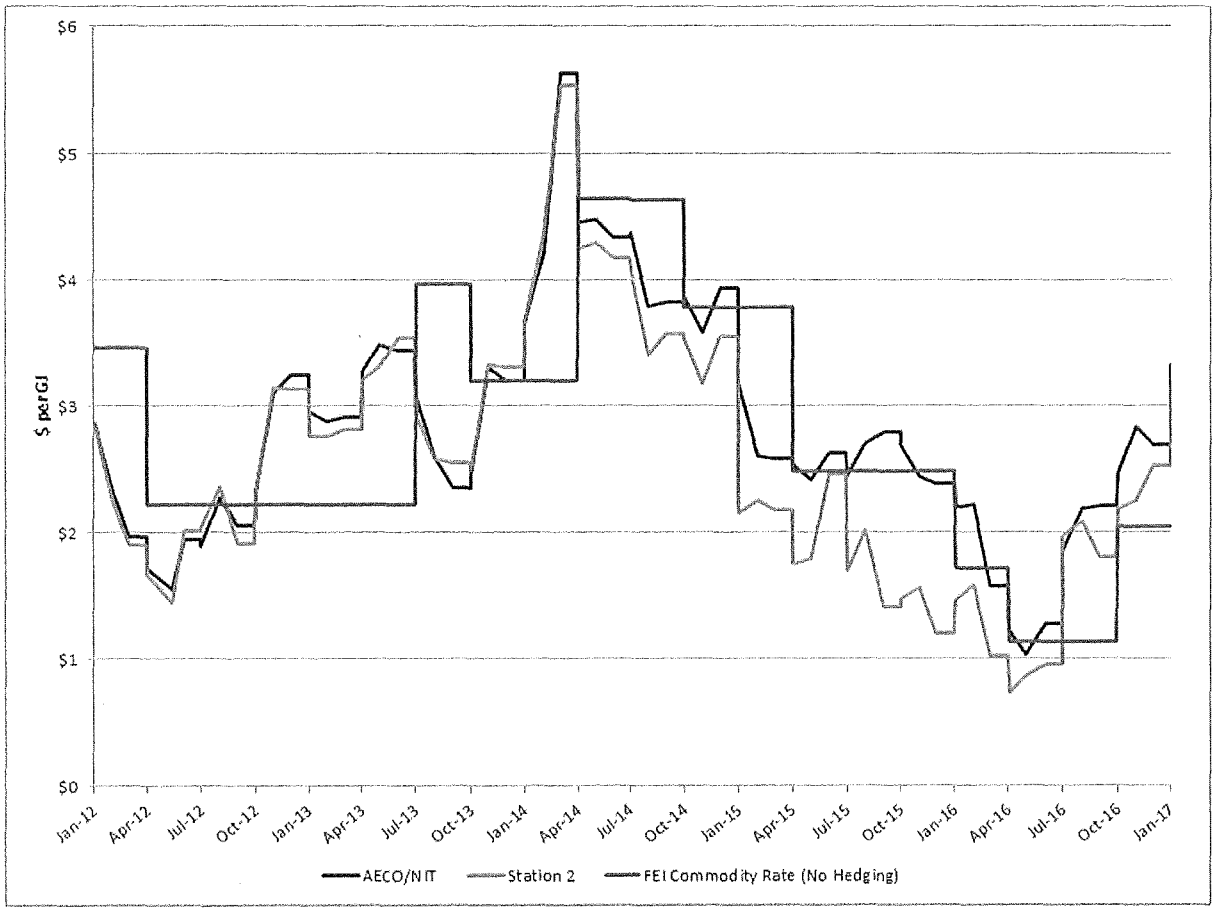
4.2.1 Quarterly Rate Setting and Deferral Account

Each quarter FEI reviews the actual incurred and forward market prices, and the actual and projected deferral account balances to determine if a commodity rate change is warranted. The CCRA captures the difference between what is recovered from customers through rates and what FEI actually pays for its commodity gas supply in the market. Quarterly rate setting allows FEI to manage the size of the balance in the CCRA, while providing customers with some rate stability and price transparency through a relatively simple and efficient process. The mechanism attempts to balance managing the frequency and the size of rate changes with rate stability. More frequent rate changes tend to reduce the magnitude of rate changes when they occur. Less frequent rate changes can lead to more stable rates for a longer period, but may lead to a greater magnitude in rate changes in a volatile market price environment. Less frequent rate changes could also increase deferral account balances to unreasonable levels.

15.1 Please discuss what would occur for pricing volatility if FEI changed prices every 2 months instead of every quarter.

16. Reference: Exhibit B-1-2, page 20

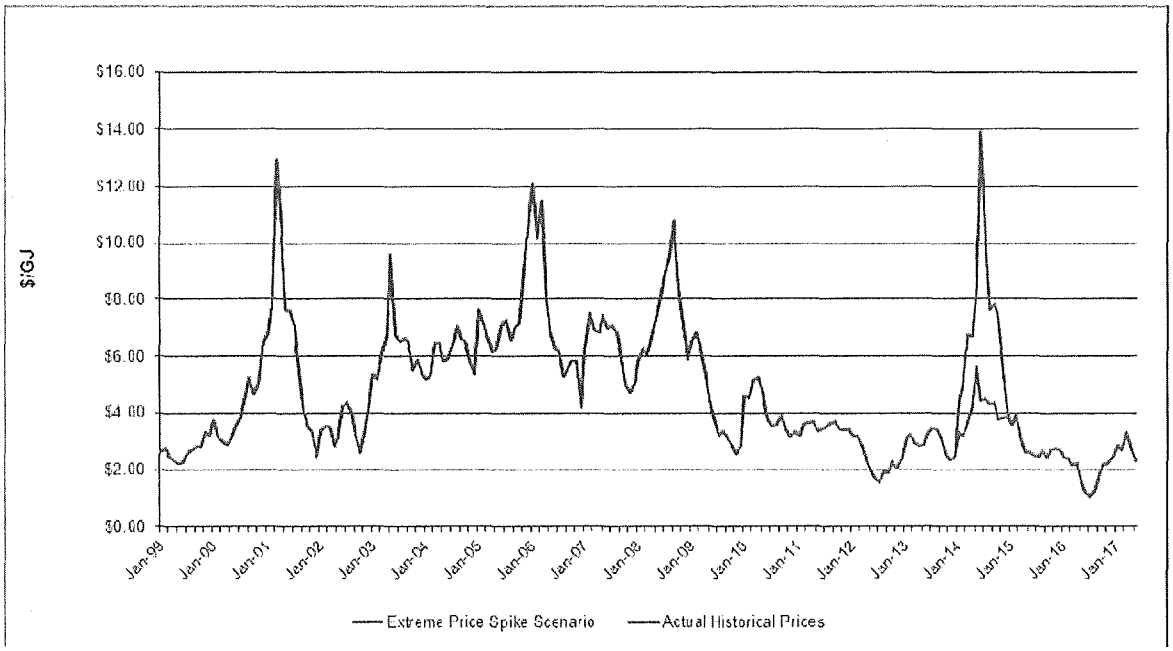
Figure 4-1: Market Prices vs FEI Commodity Rate (Without Hedging)



16.1 Please overlay the customer bill rate on Figure 4-1

17. Reference: Exhibit B-1-2, page 23

Figure 4-2: Simulation of Market Prices for Extreme Price Spike Scenario



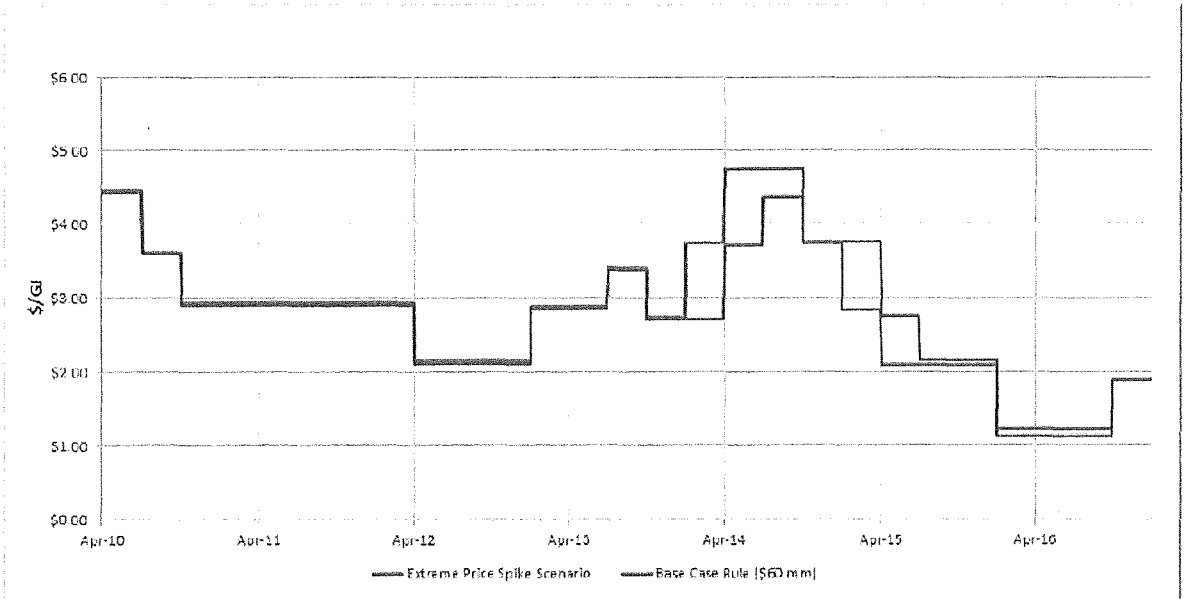
17.1 Please confirm that Figure 4-2 uses daily market prices.

17.1.1 If not confirmed, please specify the market prices used.

17.2 Please provide the same data using 60% monthly and 40% daily pricing.

18. Reference: Exhibit B-1-2 page 24

Figure 4-3: Rate Impacts from Extreme Price Spike Scenario



18.1 Please provide Figure 4-3 using 60% monthly and 40% daily pricing or confirm that 60% monthly and 40% daily pricing has been used.

18.2 Please provide the actual bill rates for each year.

19. Reference: Exhibit B-1-2, page Exhibit B-1-2, page 27

By having a medium term hedging strategy in place, FEI is able to take advantage of favourable market price conditions and capture price opportunities for customers when they arise.

This strategy is not about trying to 'beat the market' by capturing forward prices at levels below those where market prices ultimately settle; it is about locking in favourable market prices to help preserve low commodity rates for customers.

19.1 Please confirm, otherwise explain that FEI is not willing to be measured for the success of its hedging strategy by comparing its hedged prices against the market prices.

19.2 How can FEI be measured for success on its hedging program if it is not to be measured against the market? Please provide quantification of any measures that FEI deems appropriate.

20. Reference: Exhibit B-1-2, page 27

FEI considers that price risk management objectives should be achieved in a cost effective manner. In the current market price environment, characterized by a healthier gas supply outlook, forward market prices are at lower levels and closer to gas production costs for many gas plays (see Section 3.1.2). As such, the likelihood and amount of potential hedging costs is significantly reduced when compared to previous years. However, with any hedging strategy or program, there is always the potential for hedging costs (as well as gains). The key to a successful program is its ability to meet the objectives without incurring significant hedging costs for a period. Therefore, FEI recommends implementing fixed price swaps only in relatively low market price environments in the interests of preserving relatively low commodity rates for customers. Other hedging instruments, such as call options or costless collars, which provide downside price participation, could be used in higher priced environments.

20.1 Please provide the hedging costs for the last 20 years.

20.2 Please confirm or otherwise explain that FEI is referring to a five year forward price.

20.3 What does FEI consider to be 'significant hedging costs'? Please explain and provide quantification.

21. Reference: Exhibit B-1-2, page 15 and Appendix B

4. PRICE RISK MANAGEMENT TOOLS

In this section, FEI provides an assessment of the tools used by or available to FEI to manage price risk on behalf of customers. The various tools are based on a consideration of what is available to FEI in the marketplace, the market price environment and customer research. They include physical gas contracting tools, the use of deferral accounts, rate-setting mechanisms, and hedging instruments. They also include the Equal Payment Plan and Customer Choice program, which offer ways for customers to help smooth out their monthly bills or enter into fixed rate contracts with natural gas marketers. Each of these tools has potential benefits and limitations. As shown by the analysis in this section, hedging is the most effective tool for mitigating market gas price volatility and capturing low market prices for customers.

The following subsections provide an assessment of each price risk management tool. A table summarizing the benefits and limitations of each alternative price risk management tool is included in Appendix B.

APPENDIX B
AVAILABLE PRICE RISK MANAGEMENT TOOLS

FORTIS BC

Price Risk Management Tool	Description	Degree to which meets objectives	Limitations of Tool
Alternatives currently used or available to FEI and its customers			
Physical Gas Contracting Tools			
Contracting with multiple counterparties	FEI purchases supply from multiple producers or marketers.	No impact on mitigating market price or rate volatility or capturing low forward market prices if purchasing at market index prices.	Only helps to manage counterparty credit or supply risk.
Receipt Point allocation	FEI purchases commodity supply at Station 2 and AECO/NIT (and in the past, Huntingdon/Sumas) rather than a single hub.	Mitigates any market price disconnections that may occur at particular price hubs due to regional pipeline constraints or other market conditions.	Does not mitigate overall market price volatility as all market prices generally move together. Does not capture low forward market prices.
Transportation Pipeline Capacity	FEI contracts firm pipeline transportation capacity in BC and Alberta to meet the forecasted load requirements of its core customers.	Reduces FEI's exposure to demand centre hubs such as Sumas and Kingsgate. Does not impact AECO/NIT or Station 2 price volatility or capture low forward market prices.	Costs associated with holding transportation pipeline capacity may not always be cheaper than the alternative of purchasing at a demand centre hub.
Allocation between monthly and daily index priced gas	FEI currently purchases commodity supply at a mix of 60% monthly and 40% daily index prices.	Daily market price volatility is reduced by having monthly priced supply in the portfolio.	Does not mitigate monthly market price volatility or capture low forward market prices.

21.1 In a separate column for all of Appendix B, please identify which Price Risk Management tools FEI has employed in the past and any that FEI proposes to introduce as new.

21.2 Please identify whether each of the Price Risk Management tools that FEI has utilized in the past have been successfully employed.

22. Reference: Exhibit B-1-2, page 34

4.6 *Summary of Price Risk Management Tools and Strategies*

Each tool and mechanism described in Sections 4.1 to 4.5 is appropriate in playing a role in supporting the price risk management objectives during various market conditions and helping ratepayers benefit from improved rate stability. All of the strategies, tools and mechanisms are effective to some degree in reducing volatility, while hedging is most effective during volatile price regimes and during significant price increases. Hedging is also an effective tool that enables FEI to capture low market prices to meet the objective of maintaining historically low rates. For the strategies currently utilised, it is FEI's customers and the gas marketers and shipper agents under the Customer Choice Program and Transportation Service, not FEI's shareholders, who reap the benefits and incur the costs of various price risk management tools and strategies.

22.1 Please confirm that the hedging program components that FEI proposes to utilize will also confer benefits or costs on FEI's customers and gas marketers and not on FEI's shareholders.

23. Reference: Exhibit B-1-2 page 36

5.1 *MEDIUM-TERM HEDGING PROGRAM REFINEMENTS*

FEI is requesting Commission approval for refinements to the existing medium-term opportunistic hedging program for customers who receive commodity supply from FEI. These changes include lowering the hedging price targets from the 2017 PRMP, having different winter and summer price targets, and extending the hedging horizon. FEI's previous requests for approval under the 2017 PRMP are provided in Appendix C. For simplicity, FEI has defined the hedging terms as including whole winter, summer or one-year terms and not included hedging for individual months. FEI is seeking approval of the following under its medium-term hedging program:

a) For summer terms, execute hedges when forward AECO/NIT market prices are:
   i. at or below [redacted] for up to 25 percent of the FEI commodity supply portfolio;
   ii. at or below [redacted] for up to 50 percent of the FEI commodity supply portfolio;

b) For winter terms, execute hedges when forward AECO/NIT market prices are:
   i. at or below [redacted] for up to 25 percent of the FEI commodity supply portfolio;
   ii. at or below [redacted] for up to 50 percent of the FEI commodity supply portfolio;

c) For one-year terms, execute hedges when forward AECO/NIT market prices are:
   i. at or below [redacted] for up to 25 percent of the FEI commodity supply portfolio;
   ii. at or below [redacted] for up to 50 percent of the FEI commodity supply portfolio;

d) The price targets listed above apply to each winter or summer term or one-year term within the three-year horizon of November 2018 to October 2021.

The maximum hedging for any term is limited to 50 percent of the FEI commodity supply portfolio. Hedges can include fixed price financial swaps or physical fixed price purchases. No hedges would be executed if the hedge price targets listed above were not reached.

The one-year term hedging price targets have been adjusted to the average of the winter and summer term hedging price targets. For example, the first one-year term hedging price target

23.1 Please show the differences in gas costs FEI would have charged its customers over the last 5 years between the existing hedging criteria and those proposed above in quarterly price for gas, back tested over the last 5 years.

24. Reference: Exhibit B-1-2, page 38 and 39

5.2 *Hedging Terms Up To Five Years*

FEI is also requesting approval for a hedging strategy that includes hedges with terms of up to five years. Like the medium-term hedging program currently in place, this hedging plan is also an opportunistic strategy to capture low market prices and improve the likelihood of maintaining low commodity rate for customers for a longer period. FEI is seeking approval of the following under its longer term hedging program:

a) Execute hedges when forward AECO/NIT market prices are at or below [redacted] for up to 25 percent of the FEI commodity supply portfolio for terms up to five years within the hedging horizon of November 2018 to October 2024;

b) Total hedging for any term in combination with the medium-term hedging program is 50 percent; and

[redacted]

This hedging strategy is an extension of the current medium-term hedging strategy with the objective of capturing low market price opportunities for customers. As discussed in Section 3, forward AECO/NIT market prices have decreased significantly in recent years, not only for the short and medium term, but also for the longer term. However, opportunities to capture low market prices may not last indefinitely. This hedging strategy is also more favourable than other longer term price risk management options that could be available to FEI, as discussed in Section 4.5.

FEI believes that consideration of implementing hedges of terms more than five years, and up to ten years in length, is appropriate in the current market price environment. This would help achieve the objectives for a longer period. However, FEI recognizes that its current opportunistic hedging strategy for up to three years out is newly approved, and that the Commission and/or stakeholders may not, at this time, be supportive of extending hedging to include terms of up to ten years. While FEI believes that the ten-year longer term hedging request would help to meet the 2018 PRMP objectives and has provided reasons for the request in Section 3 and Section 4.5.1, FEI is recommending a maximum five-year hedge term at this time.

24.1 For how many, and which years, has FEI conducted hedging?

24.2 Please provide an overview of FEI's historical hedging practices and their results.

24.3 Please provide FEI's views as to which strategies have been most effective over the period and explain why. Please provide quantification to support the statements.

24.4 Why is FEI recommending a 5 year term if it believes that a 10 year term would be better?

25. Reference: Exhibit B-1-2, page 42

7. FUTURE REPORTING

FEI plans to continue to monitor the market price environment and the effectiveness of its price risk management. FEI intends to submit to the Commission an Annual Report by May 1st each year, which discusses the effectiveness of the hedging program, if approved, in meeting the objectives. More specifically, this report would include the following items:

- A financial summary of any gains or costs, which have resulted from hedging activities.
- A description of the impact on rate volatility of any hedging activity as compared to what would have occurred had hedging not been undertaken.
- The commodity rates achieved relative to historical averages.
- An overall assessment of the effectiveness of any hedging activities undertaken and comments on potential improvements or changes.
- A description of the impact on rate volatility related to the implementation of the recent enhancements made to the commodity rate setting mechanism and comments on any issues arising.

A copy of this report would also be provided to all participants of this Application proceeding, redacted if necessary.

FEI recognizes that the medium-term hedging strategies are appropriate in the current gas market price environment, but may not be applicable if market conditions changed significantly in the future. FEI suggested that the strategies be reviewed through this update report on an annual basis to discuss how the strategies have worked so far and if any refinements need to be made. If refinements are recommended, FEI expects it would discuss these with stakeholders and, if supported, bring these forward to the Commission for approval in a subsequent application.

The effectiveness of the hedging program should be determined over several years, rather than over a single winter or summer season or year. This is because market prices for natural gas can be lower in one period and higher in another. Several years are required to determine if greater rate stability and capturing low market prices has been achieved. However, an annual report will help to provide some initial indications of the effectiveness of the hedging program. The first annual report relating to the proposed hedging program within this 2018 PRMP would be submitted to the Commission by May 1, 2019, given that any hedging, if approved, would not likely be implemented until after May 1, 2018.

25.1 What reporting did FEI undertake during its past/existing hedging program? Please identify where the results may be accessed.

25.2 Please provide FEI's historical results for its past/current hedging programs including:

- A financial summary of any gains or costs, which have resulted from hedging activities by year

- A description of the impact on rate volatility of any hedging activity as compared to what would have occurred had hedging not been undertaken
- The commodity rates achieved relative to historical averages
- An overall assessment of the effectiveness of any hedging activities undertaken and comments on potential improvements or changes
- A description of the impact on rate volatility related to the implementation of recent enhancements made to the commodity rate setting mechanism and comments on any issues arising.
- Please provide quantification for the above.

25.3 Is FEI able to determine whether the rates it provided to its customers exceed or are lower than the rates it would have provided had there been no hedging? Please explain.

25.3.1 If yes, please provide an analysis of whether the rates FEI has provided its customers exceeded or were lower than the rates that would have been provided had there been no hedging.

25.4 How many years are required to determine whether or not low market prices have been achieved? Please provide an explanation for the number.