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September 11, 2017

British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC
V6Z 2N3

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

Dear Mr. Wruck:

Re: FortisBC Energy Inc. (FEI)

Project No. 1598917

2017 Price Risk Management Plan (2017 PRMP or Application) – FEI Submission on Process

On June 13, 2017, FEI filed its 2017 PRMP with the British Columbia Utilities Commission (the Commission). The 2017 PRMP requests approval to extend and refine the currently approved price risk management strategy and to implement longer term hedges if certain market price targets are reached. In accordance with Commission Order G-133-17, FEI files the following submission on the proposed scope and on the preferred review process for the 2017 PRMP.

Previous Process Has Laid the Groundwork for the 2017 PRMP

The scope and review process for the 2017 PRMP should reflect the considerable discussion relating to price risk management objectives and tools and strategies in the 2015 Price Risk Management Plan (2015 PRMP).

As set out in Attachment A to the 2015 PRMP (attached to this letter as Attachment 1), in 2015, FEI conducted four workshops regarding FEI's price risk management with interested stakeholders and Commission staff. These workshops covered both the objectives and strategies of price risk management:

- On March 30, 2015, in Workshop #2, FEI presented the objectives of price risk management and engaged in further discussions regarding objectives with the stakeholders.
- On May 28, 2015, in Workshop #3, the consultant, Aether Advisors, LLC, presented the modeling approach for rate setting and hedging simulations to the stakeholders to assess which strategies might best achieve the objectives.
- On June 18, 2015, in Workshop #4, the discussions focused on circling back to the price risk management objectives and proposed rate setting and medium-term hedging strategies to help meet the objectives.

The 2015 PRMP included stakeholder feedback from the workshops to frame the specific requests for approval that were submitted to the Commission.

In addition to hedging, in the 2015 PRMP, FEI proposed enhancements to the commodity rate setting mechanism based on simulations to better understand how effective various tools are as part of FEI's overall price risk management strategy. Appendix B of the 2017 PRMP includes an updated table of various alternative tools outlining their benefits and limitations in mitigating price risk.

Before receiving approval for the 2015 PRMP requests, FEI responded to two rounds of Information Requests which included discussions on the objectives and alternative price risk management tools and strategies.

In the Commission Decision regarding the 2015 PRMP (2015 PRMP Decision)¹, the Panel acknowledged that the Commission had previously found that moderating the volatility of natural gas prices is a worthy objective for the utility and accepted this objective remains equally important in the 2015 proceeding. The Panel accepted that the current low price environment provided FEI the opportunity to mitigate price volatility and potentially capture opportunities to provide customers with more affordable rates². The Panel also accepted that FEI's current portfolio of comprehensive price risk management strategies and tools was working well from the perspective of managing volatility, sending appropriate market signals and managing the Commodity Cost Reconciliation Account (CCRA) deferral account balances within a reasonable range³.

In the 2015 PRMP Decision, the Panel was clear that its reasons for not approving the heading strategy for more than three years related to whether the natural gas pricing environment would change. The Commission stated (at p. 9): "Our concern is not whether the objective of capturing opportunities to provide customers with more affordable rates is appropriate at this time, but rather, whether it is appropriate to apply it in a natural gas pricing environment that is higher than it is today."

Significantly, the market conditions have not changed since the 2015 PRMP was filed. There continues to be low market prices and the potential for price volatility in response to

¹ Decision and Order E-10-16 dated June 17, 2016.

² Ibid, Page 9.

³ Ibid, Page 12.

supply/demand imbalances and higher prices in the future.

The Commission in the 2015 PRMP Decision also addressed its expectations for a future application, as follows:

In the event a formal application is filed, the Panel expects FEI to include in its application a review of the effectiveness of the strategies approved in this Decision as compared to the other price risk management tools which may be available to FEI. In particular, FEI is directed to include an evaluation of the option of increasing the acceptable CCRA deferral account balance to \$200 million to manage CCRA during periods of extreme volatility.

FEI has addressed these items in the 2017 PRMP, with Section 4 providing a review of increasing the deferral account balance limit and Appendix B discussing alternative tools and strategies.

Proposed Scope

FEI's view is that the scope of the proceeding should be limited to the approvals sought in the Application, which would include a review of the effectiveness of the proposed strategies compared to other tools, such as increasing the acceptable CCRA deferral account balance limit to \$200 million to manage the CCRA during periods of extreme volatility.

As FEI is proposing a continuation of the same strategy in the same natural gas pricing environment as was fully reviewed in 2015, the Application does not require the Commission to fully revisit in this proceeding the fundamental questions set out in Appendix A to Order G-133-17. Instead, FEI submits that the Commission need only satisfy itself that the extensions of the strategy as proposed by FEI are appropriately applied in the current natural gas pricing environment and are effective as compared to other price risk management tools available to FEI to meet the objectives.

Review process

FEI believes the 2017 PRMP should be reviewed without an extensive review process. The requests are not fundamental changes to the currently-approved hedging program, but are merely extensions and refinements to the strategy that was approved, as recently as June 17, 2016, by the Commission and supported by stakeholders. As noted above, the market conditions have not changed since the 2015 PRMP was filed. While the longer-term hedging request is a slightly different term than the medium-term hedging strategy, it is an extension of the same strategy with the same objectives and so should also not warrant an extensive review.

FEI is proposing the process and timetable for review of the 2017 PRMP as set out below.

Action	Dates (2017)
FEI Submission on Scope and Process	Monday, September 11
Intervener Registrations	Monday, September 11
Intervener submissions on scope and process	Monday, September 25
FEI Reply submission	Monday, October 2
Commission and Intervener Information Requests (IRs)	Tuesday, October 10
FEI Responses to IRs	Thursday, October 26
Intervener Written Submissions	Thursday, November 9
FEI Written Reply Submission	Tuesday, November 21

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

cc (email only): Registered Parties



FORTISBC ENERGY INC.

2015 Price Risk Management Application

December 23, 2015

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EXECUTIVE SUMMARY

On October 27, 2015, FortisBC Energy Inc. (FEI) submitted to the British Columbia Utilities Commission (the Commission) the FEI Workshop Summary Report (the 2015 Workshop Report). The 2015 Workshop Report provided an update on developments regarding the price risk management of FEI and, in particular, the recently held stakeholder workshop process. The workshops were conducted during the first half of 2015 to provide background and education and obtain stakeholder feedback regarding FEI's review of its price risk management activities, strategies and options as discussed within its 2014 Price Risk Management Review Report (the 2014 Review Report). The 2014 Review Report was filed with the Commission on October 20, 2014. The 2015 Workshop Report did not include any requests for approval from the Commission relating to any FEI price risk management strategies. It was intended to provide background information and act as a framework for specific requests for approval that FEI is now submitting to the Commission.

Continuous improvements in technology and production efficiencies have resulted in lower costs of gas production and more gas supply throughout North America. As a result, market natural gas prices are near their lowest levels in over a decade. Despite this, significant price volatility continues in the gas marketplace in response to short-term supply/demand imbalances. The current price environment provides FEI with the opportunity to help meet the price risk management objectives of mitigating market price volatility to support rate stability and capturing favourable prices to provide customers with more affordable rates. A medium-term hedging strategy that includes locking in up to half of the commodity supply portfolio with fixed price purchases or swaps, if pre-defined price targets are reached, would help keep FEI's commodity rate at low and favourable levels relative to historical values. The workshop process revealed that some stakeholders, in particular those representing low-income customers, believed that FEI should capture low market price opportunities, if they occurred, with medium-term hedging for a portion of the portfolio.

The workshop process also revealed that stakeholders and FEI agree that the current FEI quarterly rate setting and deferral account mechanism is working as intended. However, there was also some agreement that enhancements could be made to the rate setting mechanism that would meet the price risk management objectives and benefit customers, particularly during periods of significant market price volatility. Maintaining commodity deferral account balances within a reasonable range is also an important consideration when setting commodity rates. The proposed enhancements include implementing a commodity rate change cap and establishing criteria to assist in determining when consideration should be given to rate proposals beyond the standard 12-month timeframe.

FEI believes that an abbreviated review process is warranted for this application. Considerable discussion of FEI's existing price risk management tools and the various price risk management options occurred during the workshop process in order to provide better understanding and determine stakeholders' interest in the alternatives. This enabled FEI to provide stakeholders with background information, help answer questions and discuss issues and determine which

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- 1 alternatives had support and which did not. The feedback provided in this workshop process
- 2 has helped FEI to refine this application and specific requests for approval.
- 3

1. INTRODUCTION

On October 27, 2015, FortisBC Energy Inc. (FEI) submitted to the British Columbia Utilities Commission (the Commission) the FEI Workshop Summary Report (the 2015 Workshop Report). The 2015 Workshop Report provided an update on developments regarding the price risk management of FEI and, in particular, the recently held stakeholder workshop process. The workshops were conducted during the first half of 2015 to provide background and education and obtain stakeholder feedback regarding FEI's review of its price risk management activities, strategies and options as discussed within its 2014 Price Risk Management Review Report (the 2014 Review Report). The 2014 Review Report was filed with the Commission on October 20, 2014. The 2015 Workshop Report did not include any requests for approval from the Commission relating to any FEI price risk management strategies. It was intended to provide background information and act as a framework for specific requests for approval that FEI is now submitting to the Commission. The 2015 Workshop Report, without its appendices, is provided in Appendix A.

Several aspects of FEI's price risk management were discussed during the stakeholder workshops. The initial workshop focused on background information and FEI's current price risk management activities and tools. These include physical gas purchasing and storage strategies as defined within the Annual Contracting Plan (ACP) as well as FEI's current quarterly commodity rate setting and deferral account mechanism. Also discussed were optional services and programs that customers can elect to participate in. Customers can choose to mitigate their commodity rate or bill volatility through the Customer Choice Program or transportation-only service rate options (if applicable) or the Equal Payment Plan.

The second workshop focused on the objectives of FEI's price risk management. FEI believes that the workshop process has helped to re-affirm its price risk management objectives which include the following:

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

During the 2011 review of FEI's price risk management objectives and strategy, the Commission and stakeholders agreed that moderating the volatility of natural gas prices is a reasonable goal for FEI¹.

FEI recognizes that the objectives should be met in a cost effective manner in order to provide value for customers. Maintaining deferral account balances within a reasonable range is also an important consideration when setting commodity rates.

In the third workshop, FEI's consultant, Aether Advisors, LLC (Aether), reviewed the results of various price risk management strategies simulations. These included several medium-term hedging strategies and rate setting mechanism enhancements. The simulations included the

¹ Commission Order G-120-11, Appendix A, page 22.

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1 stakeholder feedback FEI had received in the previous workshops. The simulations helped
2 stakeholders understand the commodity rate impacts of various strategies and which ones
3 reduced rate volatility and at what potential cost. This also helped stakeholders assess which
4 strategies might best achieve the price risk management objectives.

5 For the final workshop the main focus of the discussion circled back to the price risk
6 management objectives and proposed rate setting and medium-term hedging strategies to help
7 meet the objectives. In order to help provide the context for the potential hedging strategy price
8 targets, a gas market update was provided. Longer-term tools and strategies were also
9 discussed including an overview of other jurisdictions that use hedging.

10 While there may be different opinions among stakeholders on how to best achieve the
11 objectives, there was some support expressed for FEI's rate setting mechanism enhancements.
12 For example, while stakeholders generally agreed that the current commodity rate setting
13 mechanism was working reasonably well, there was some stakeholder support for enhancing
14 the existing mechanism with a commodity rate change cap. This would help to mitigate large
15 commodity rate increases during periods of significant market price volatility, like those which
16 occurred as recently as winter 2013/14. There was also some support for the use of a 24-
17 month outlook period when setting commodity rates under certain situations, provided that
18 criteria would be established for when this would be used instead of the 12-month outlook
19 period. These enhancements would help with the objective of mitigating market price volatility
20 to support rate stability, while still providing customers with market price signals.

21 There was also some support for FEI's proposed medium-term hedging strategies. Some
22 stakeholders, in particular those representing low-income customers, believed that FEI should
23 capture low market price opportunities, if and when they occurred, with medium-term hedging,
24 such as fixed price swaps or purchases, for a portion of the portfolio. Market price targets could
25 be based on consideration of how low market prices have been in the past, where market prices
26 are currently, gas producer break-even costs and other market-based factors such as coal-to-
27 gas switching price levels. This strategy would help with meeting both of the objectives of
28 mitigating market price volatility to support rate stability and capturing opportunities to provide
29 customers with more affordable rates over the medium term. Furthermore, any potential
30 hedging costs would be limited given that market prices are approaching or at some producer
31 break-even costs for gas production and further downside is limited.

32 FEI had expected that a likely outcome of the workshop process would have been some support
33 for a price risk management framework that included strategies which were responsive in
34 different market price environments. For example, a fixed-price swap hedging strategy could
35 target capturing low market prices while a low-priced premium call option strategy could help
36 mitigate short-term market price spikes and their impacts on rates. This would position FEI with
37 appropriate price risk management strategies before significant changes occurred in the market
38 instead of having to react to market events after they have begun to take place. However, this
39 outcome did not occur as there was no support for such a framework. As a result, FEI is putting
40 forward a limited number of requests for approval to the Commission at this time.

2. REQUEST FOR COMMISSION APPROVAL

FEI is requesting Commission approval to implement specific price risk management tools and strategies for customers who receive commodity supply from FEI. These include the following:

1. Implementation of a medium-term fixed-price hedging strategy, which includes the following components:

- a) Execute hedges when forward AECO/NIT market prices are at or below [REDACTED] for up to [REDACTED] of the FEI commodity supply portfolio;
- b) Execute hedges when forward AECO/NIT market prices are at or below [REDACTED] for up to [REDACTED] of the FEI commodity supply portfolio;
- c) Maximum hedging for any term is 50% of the FEI commodity supply portfolio;
- d) Hedges can include fixed price financial swaps or physical fixed price purchases;
- e) Price targets apply to each winter or summer term or one-year term within the three-year horizon of April 2016 to March 2019, and
- f) No hedging is executed if the price targets in (a) or (b) above are not reached.

2. Implementation of enhancements to FEI's quarterly commodity rate setting mechanism, which includes the following components:

- a) Commodity rate change cap of \$1.00/GJ, applicable to rate increases or decreases, provided the deferral account balance is maintained within a reasonable range:
 - i. Implementing a commodity rate change cap, plus or minus \$1.00/GJ, would be utilized for a maximum of two consecutive quarters provided that the rate changes subject to the cap have been in the same direction, and
 - ii. The cap is removed for the third consecutive quarter if the rate change is in the same direction.
- b) Criteria for consideration of using a prospective period beyond the 12-month outlook to determine a new effective commodity rate. A 24-month prospective period may be used in specific situations to maintain the Commodity Cost Reconciliation Account (CCRA) deferral account balance within a reasonable range over the full duration of the 24-month period, which includes:
 - i. When a commodity rate change is indicated using a standard 12-month prospective period;
 - ii. When there is a difference of \$0.75/GJ or more between the CCRA weighted average cost of gas (WACOG) for year one versus year two of the 24-month prospective period, and
 - iii. The direction of the commodity rate change indicated using a standard 12-month prospective period is opposite to the direction of the CCRA WACOG for year two compared to the CCRA WACOG for year one (for example, if the indicated

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1 commodity rate change was an increase, the CCRA WACOG for year two would
2 need to be lower than the CCRA WACOG for year one).

3 FEI notes that it is not proposing any changes to the Commission guidelines for setting gas cost
4 recovery rates and managing the gas cost reconciliation balances as set out in Letters L-5-01
5 and L-40-11 (the Guidelines) with respect to the consideration of the full circumstances. It is
6 merely proposing some criteria to provide further clarification of when consideration be given to
7 the appropriateness of commodity rate proposals for timeframes beyond the 12-month outlook
8 since the guidelines currently do not include any specific metrics or criteria in this regard.

9 In terms of the hedging percentages, the FEI commodity supply portfolio includes the gas
10 purchases FEI requires for its commodity portfolio and excludes any supply provided to FEI by
11 natural gas marketers per the Customer Choice Program. The commodity supply portfolio is
12 determined within the ACP each year. For the 2015/16 gas year, the FEI supplied volumes are
13 approximately 320 terajoules per day (TJ/d) (excluding marketer-supplied volumes of about 13
14 TJ/d). For simplicity, FEI has defined the hedging terms as including whole winter, summer or
15 one-year terms and not included hedging for individual months.

16 In terms of the rate setting mechanism enhancements, FEI currently considers a band of
17 approximately +/- \$50-60 million a reasonable range for the commodity deferral account.
18 Deviations falling materially outside of this range can pose challenges for FEI in terms of the
19 timing of refunding or recovering significant dollar amounts from customers and can impact
20 FEI's balance sheet and potentially its credit rating and borrowing capacity.

21 FEI recognizes that the rate setting enhancement and medium-term hedging strategies are
22 appropriate in the current market price environment but may not be applicable if market
23 conditions changed significantly in the future. FEI suggests that the strategies be reviewed
24 through an update report on an annual basis to discuss how the strategies have worked so far
25 and if any refinements need to be made.

26 At the same time as this application, FEI is also filing with the Commission a separate request
27 for approval relating to the recovery of the workshop participant funding costs in FEI's flow-
28 through gas costs.

3. REASONS FOR THE REQUEST

This section describes the reasons for the requests for approval. The hedging strategy is discussed first, followed by the rate setting mechanism enhancements.

3.1 MEDIUM-TERM HEDGING STRATEGY

Continuous improvements in technology and production efficiencies have resulted in lower costs of production and more gas supply throughout North America. As a result, market natural gas prices are near their lowest levels in over a decade. However, there continues to be market price volatility in response to supply and demand imbalances. This low price environment provides FEI with the opportunity to help meet the price risk management objectives of mitigating market price volatility to support rate stability and capturing opportunities to provide customers with more affordable rates. Much of the information in this section was presented to and discussed with stakeholders during the workshop process.

3.1.1 Low Market Gas Price Environment

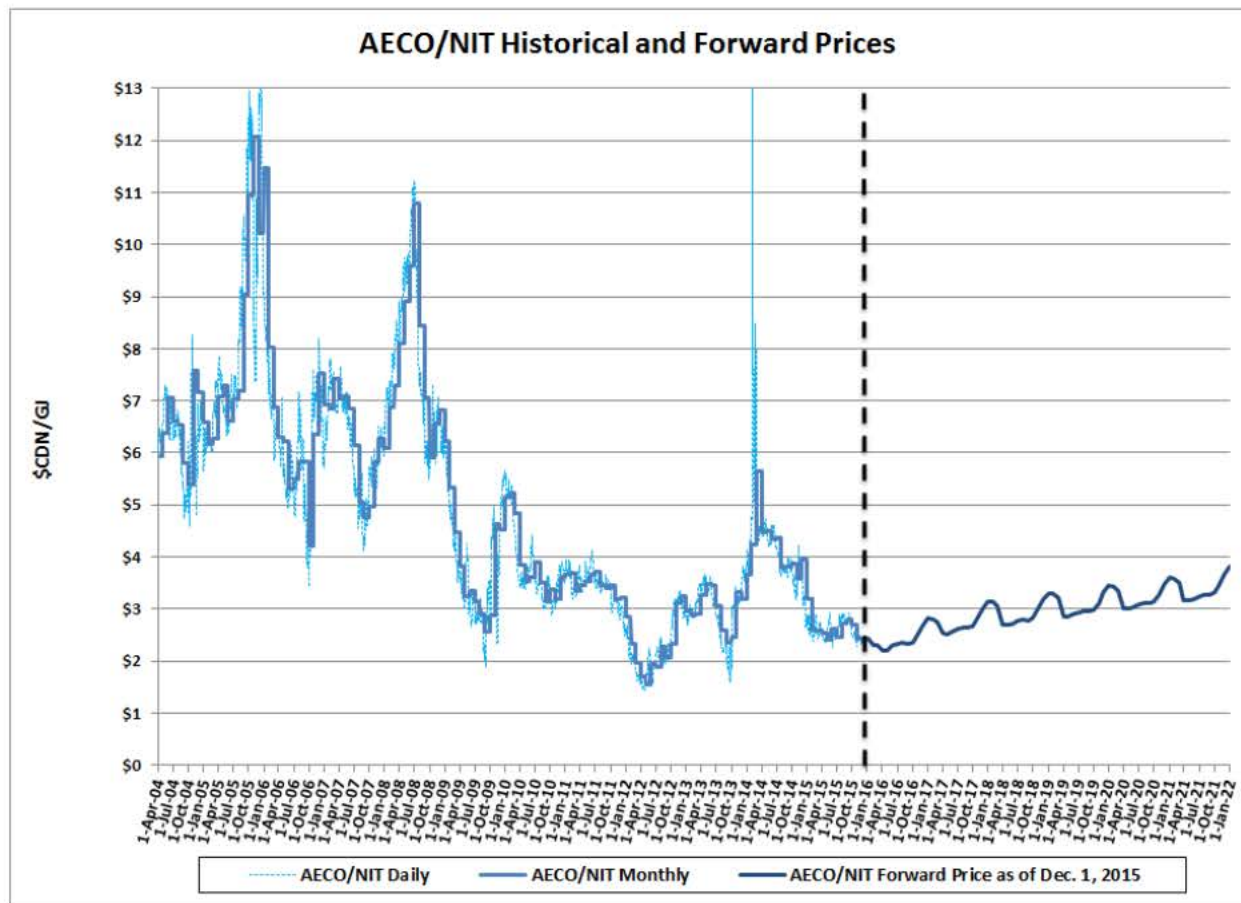
While there is uncertainty in terms of how low market prices will settle, market information suggests that further sustained downside price movements are limited. This market information includes historical price movements, gas producer break-even costs and coal-gas fuel switching price levels. The proposed hedging price targets, as described in the previous section, have been developed in consideration of these market factors.

The following figure shows historical daily and monthly, as well as recent forward natural gas prices (as of December 1, 2015) for AECO/NIT.

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Figure 1: Historical and Forward AECO/NIT Prices

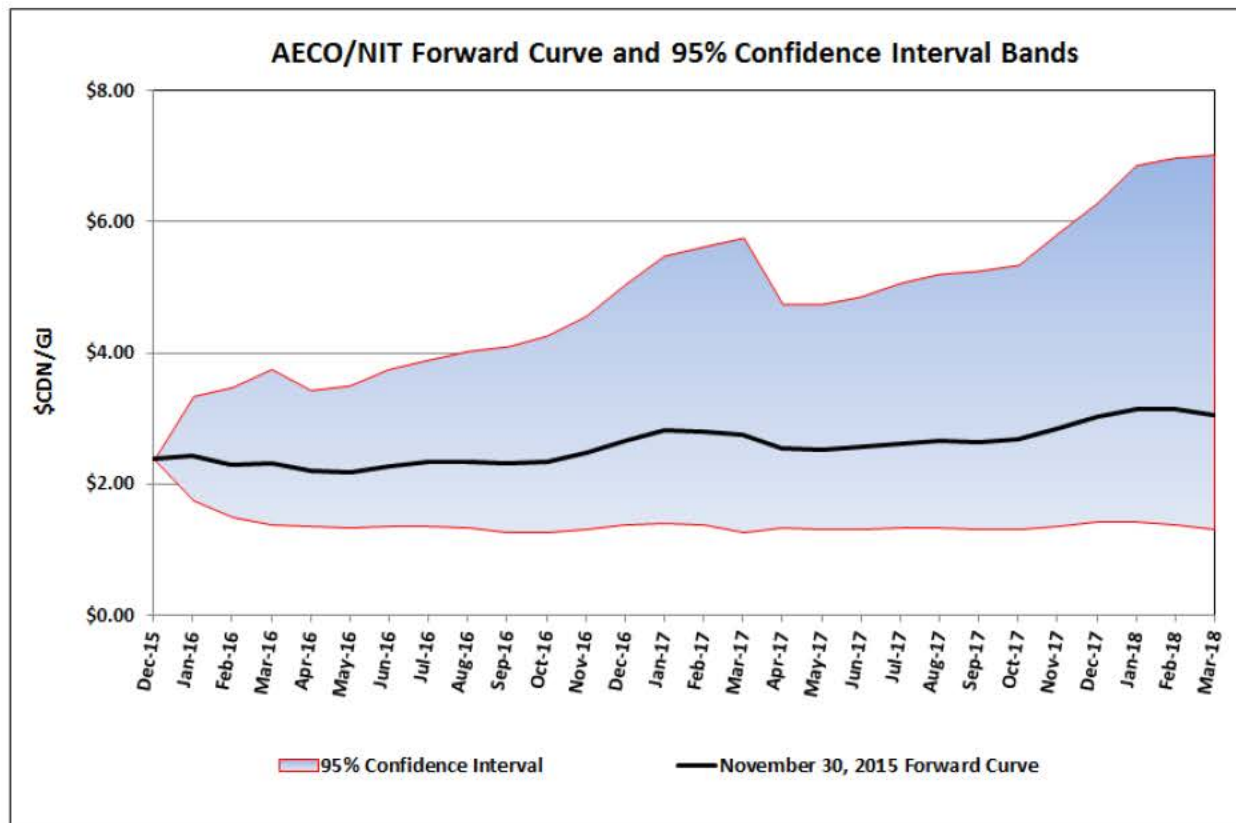


As the figure above shows, while the AECO/NIT historical market prices have settled below \$2.00/GJ several times in the past, they have not remained there for a sustained period of time. This includes periods in recent years where the natural gas market has been oversupplied with shale gas. The same can be said about forward market prices during the past ten years. Only during mid-2012 did forward AECO/NIT prices for terms within the upcoming year fall below \$2.00/GJ. The following figure shows the potential range for AECO/NIT market prices for the next five years. It shows that the downside for market prices is relatively limited compared to the upside price potential.

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Figure 2: Potential Range for AECO/NIT Prices

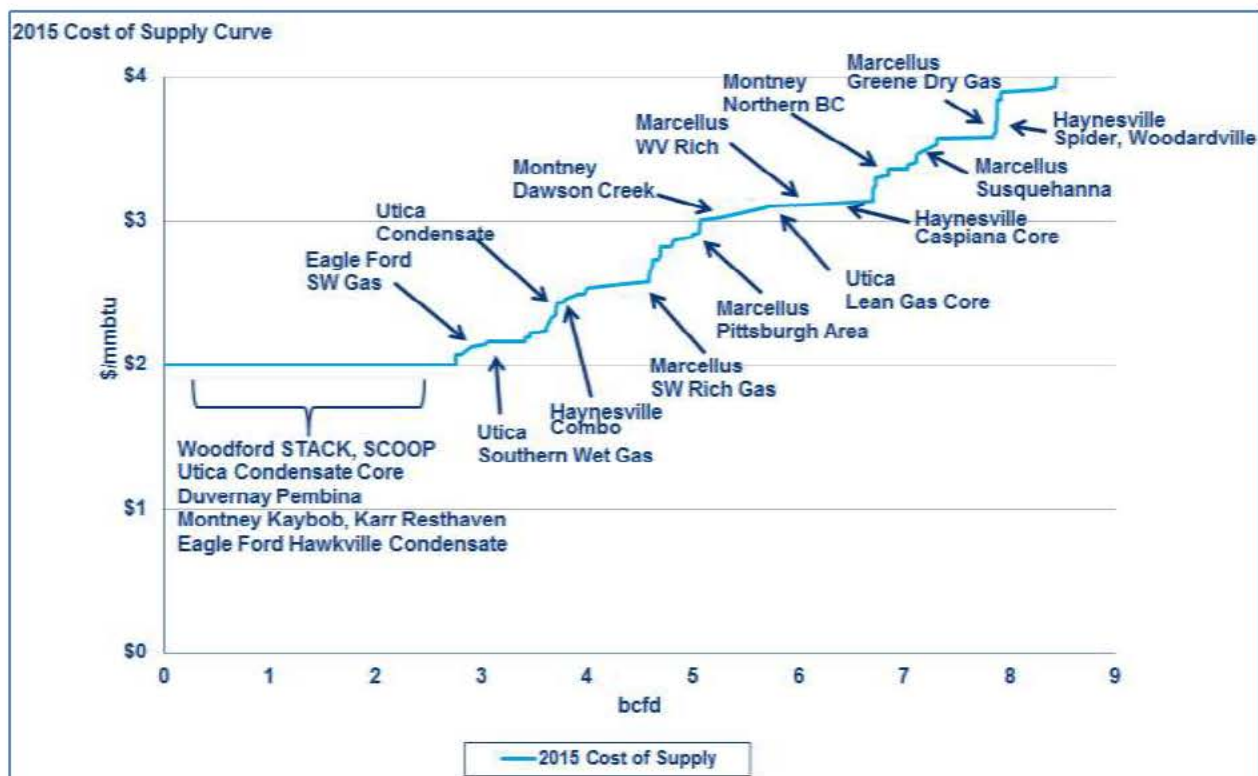


Gas producer break-even costs have come down significantly in recent years as producers have been able to reduce costs and improve production output levels for shale gas plays. Prior to the end of 2014, high crude oil and natural gas liquids prices helped contribute to the low break-even costs for gas producers in liquids-rich production areas. Recent projections and estimates of producer break-even costs suggest that market prices are beginning to impact gas production levels. Production growth is flattening and even declining in some areas. The following figure shows a projection of producer break-even costs for several major shale gas plays (based on equivalent Henry Hub prices).

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1 **Figure 3: Projected Gas Producer Break-Even Costs²**



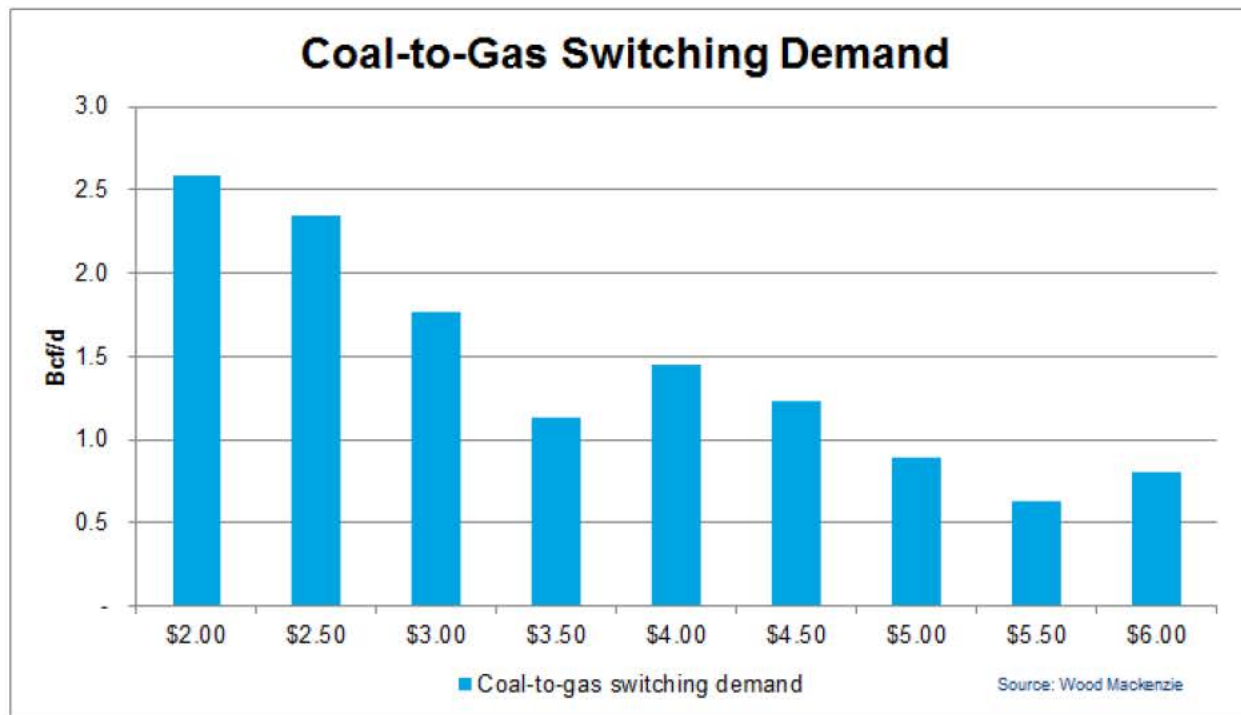
2
3
4 The figure above indicates that, at current market price levels of near \$2.00/MMBtu for Henry
5 Hub, some of these production areas are not recovering their costs and so producers have
6 begun to cut back on their production. For example, the Montney Dawson Creek and Montney
7 Northern BC show break-even costs of above \$3.00/MMBtu and helps explain why there has
8 been a drop in northern BC gas production with the fall in market prices in 2015.

9 Fuel switching by power producers that can switch between natural gas and coal-fired
10 generation enables them to use the lowest cost fuel source for producing electricity. This
11 switching increases the demand for gas or coal when the price of one falls below the other and
12 helps set a soft floor for market prices. The following table provides a forecast of how much gas
13 demand increases at different levels of gas prices relative to coal prices. For example, when
14 natural gas prices fall to \$2.00 US/MMBtu, the expected incremental demand for gas from coal-
15 to-gas switching is just above 2.5 Bcf/d. This extra demand provides a boost for gas prices and
16 helps keep them from falling any further.

² Wood Mackenzie's North America Gas Markets Long Term Outlook – May 2015

1

Figure 4: Coal-to-Gas Fuel Switching Levels³



2
3

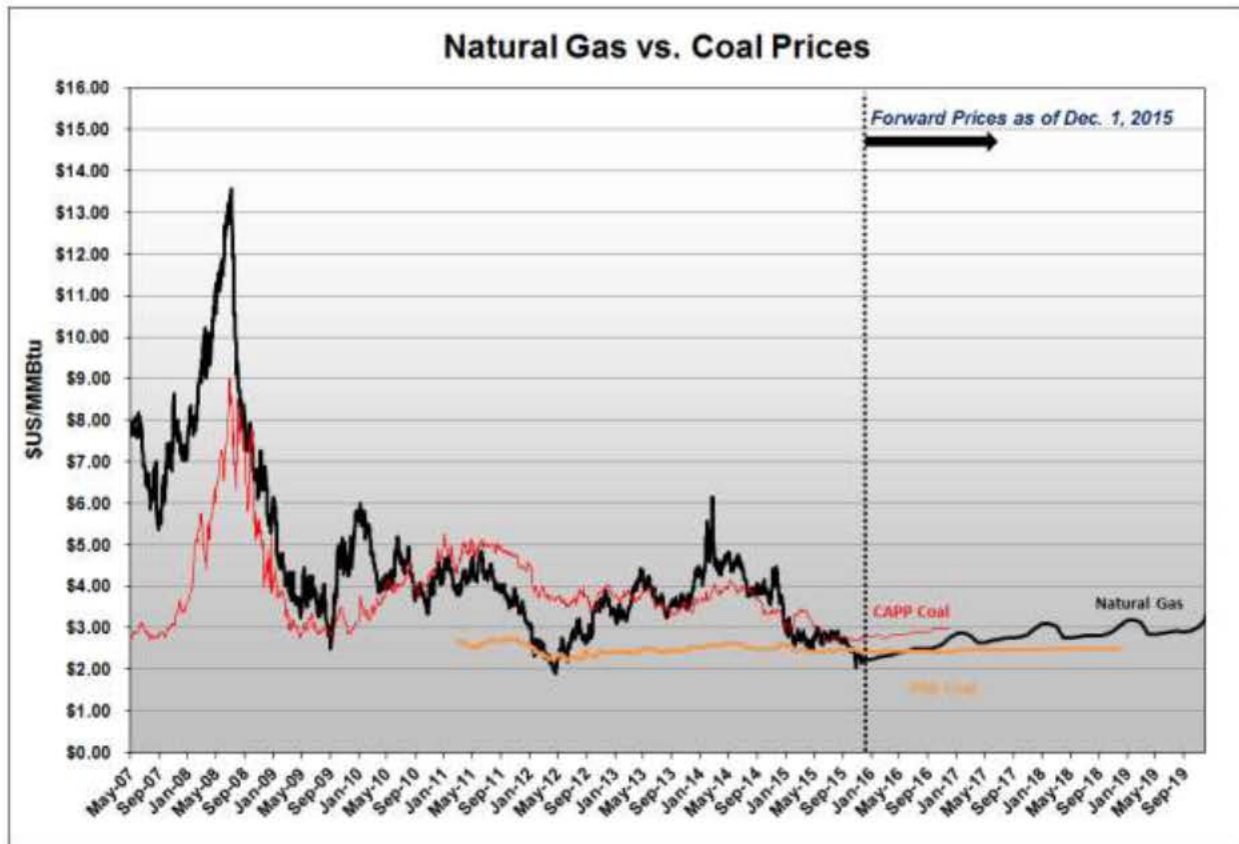
4 This coal-to-gas switching demand helps explain why natural gas prices have remained close to
 5 coal prices in recent years. The following figure shows historical and forward Henry Hub gas
 6 prices relative to Central Appalachian (CAPP) and Power River Basin (PBR) coal prices (on an
 7 equivalent US\$/MMBtu basis).

³ Wood Mackenzie's North America Gas Short Term Outlook – May 2015

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Figure 5: Natural Gas vs. Coal Prices



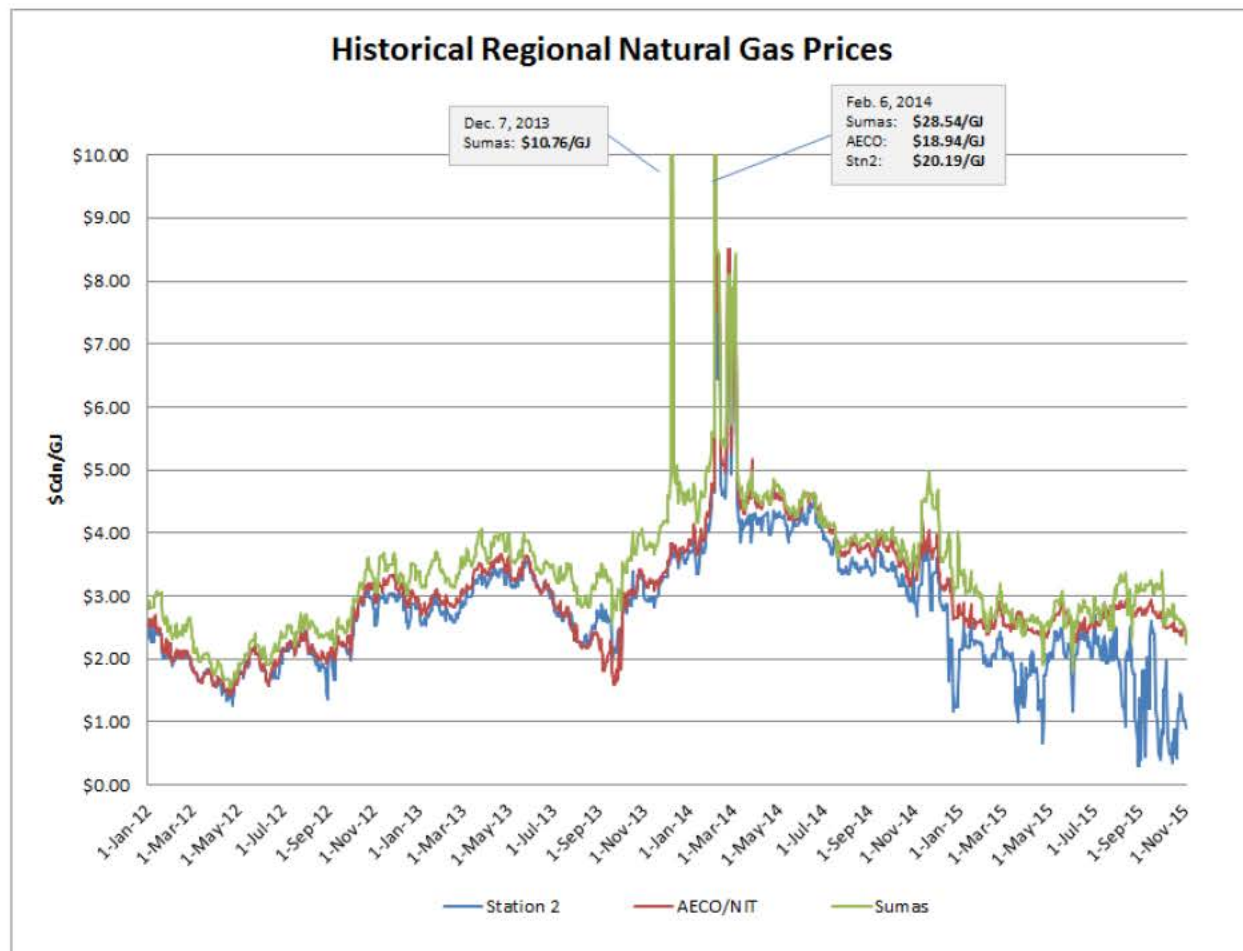
3.1.2 Market Price Volatility

Price volatility continues in the natural gas marketplace despite the abundance of shale gas. This is because supply and demand balances can change quickly in response to various market factors. For example, as recently as winter 2013/14, market gas prices spiked due to the winter polar vortex, with regional Station 2 and AECO/NIT daily spot prices climbing to near \$20/GJ and Sumas reaching \$28/GJ.

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Figure 6: Historical Regional Market Prices

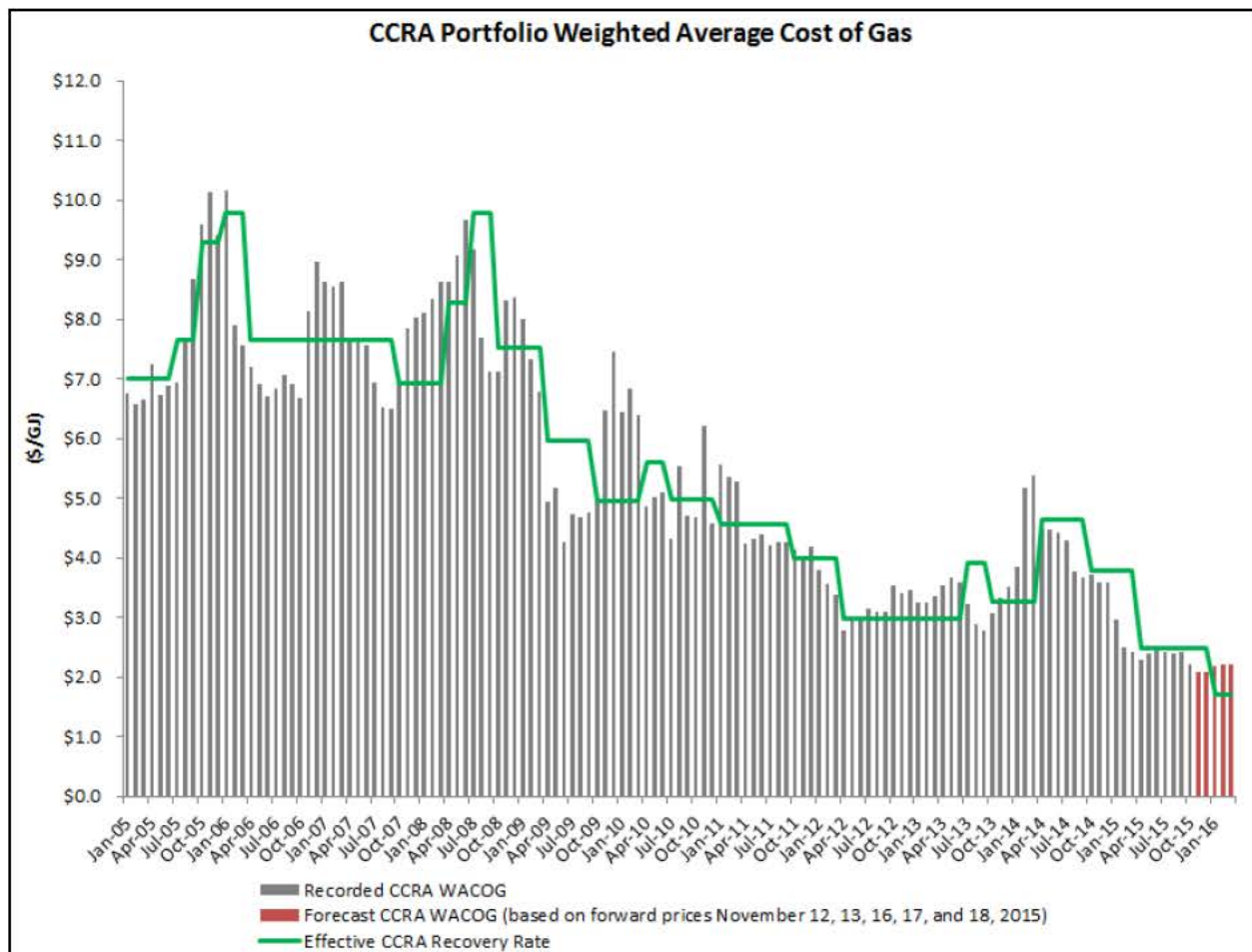


This market price volatility has had an impact on FEI's gas costs and commodity rates during the last few years. The following figure shows FEI's historical CCRA WACOG and commodity recovery rates. Note that during the winter 2013/14 market price spikes, FEI's commodity rate rose from \$3.27/GJ to \$4.64/GJ by April 2014, an increase of \$1.37/GJ. This is because FEI's WACOG increased as market prices went up and also because FEI's commodity deferral account balance was in a significant deficit position and needed to be recovered from customers. FEI's commodity rate effective January 1, 2016 is \$1.719/GJ and is below the current WACOG due to the deferral account surplus that has built up towards the end of 2015.

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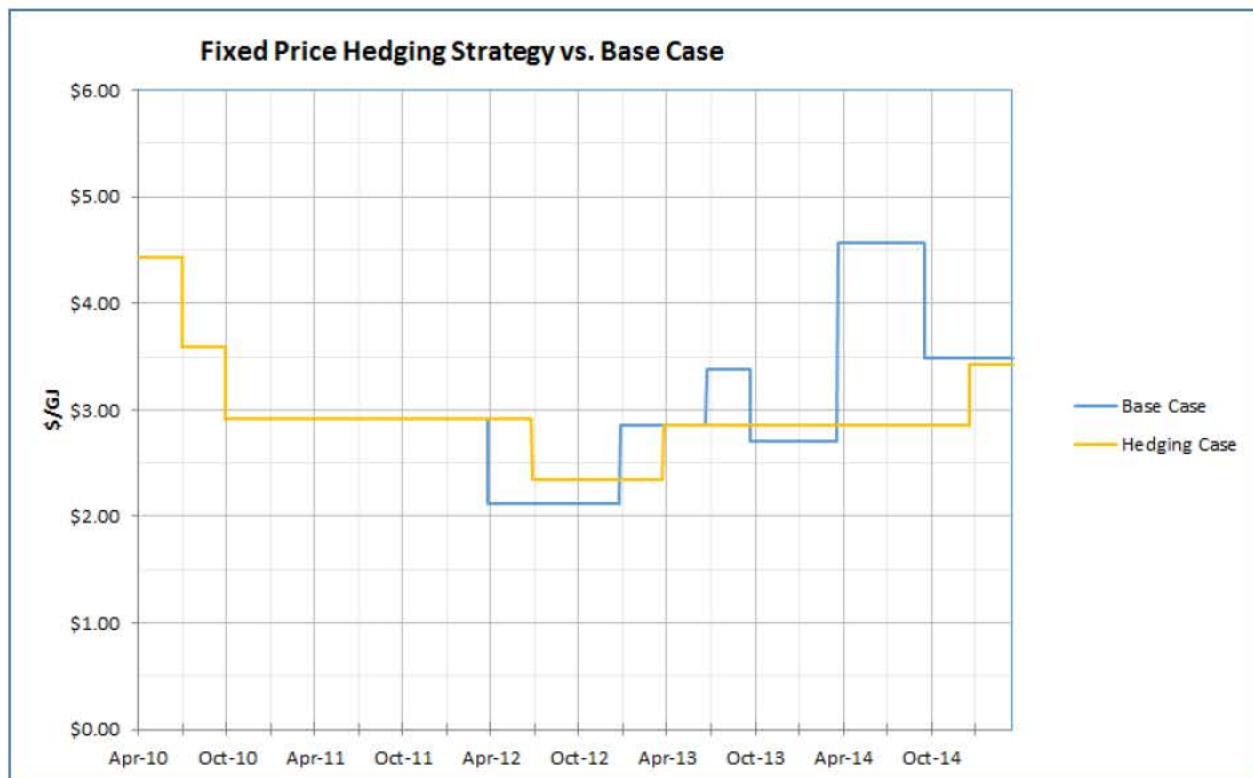
Figure 7: Historical FEI CCRA WACOG and Commodity Rate



The above figure shows that, even in recent periods with abundant shale gas supply, market prices have continued to remain volatile and FEI's CCRA WACOG and commodity rate has fluctuated significantly.

During the stakeholder workshops, FEI explored the impacts of medium-term hedging strategies on commodity rates through the simulations performed by Aether. The simulations were performed for a historical five year "test period" from April 2010 to March 2015. The simulations showed that a fixed-price hedging strategy could reduce the impact of market price volatility when compared to the current base case strategy without the use of hedging. In this simulation, a target price of \$3.25/GJ was used for summer periods and \$3.75/GJ for winter periods. The volume hedge limit was 50% of the commodity supply portfolio. The hedging strategy resulted in fewer commodity rate changes, kept the commodity rate in a narrower band and also avoided the significant increase in the base case commodity rate due to the winter 2013/14 market price spike event. It is also worth noting that during 2012 the hedging strategy did not result in the lowest rate when compared to the base case.

Figure 8: Hedging Strategy vs. Base Case Rate Simulation



FEI recognizes, as was pointed out in the workshops, that any hedging strategy will work well with perfect hindsight market knowledge. However, as FEI noted in the Review Report, stakeholder workshops and Workshop Summary Report, price risk management strategies are not being proposed to “beat the market” but rather capture opportunities to lock in prices that are favourable relative to historical market price levels. As discussed above, the proposed hedging price targets are certainly favourable relative to historical price levels. The hedging price targets are also close to FEI’s WACOG of about \$2.00/GJ effective January 1, 2016 as noted in Figure 7. The FEI commodity rate effective January 1, 2016 that has been approved by the Commission is \$1.719/GJ. This rate, however, includes the impacts of the surplus deferral account balance of about \$49 million (before tax) that has built up prior to January 1, 2016 and does not reflect FEI’s underlying cost of gas. If the hedges are executed, this would help keep FEI’s cost of gas close to current levels and near the lowest it has been in a decade.

3.1.3 Stakeholder Support for Medium-Term Fixed-Price Hedging

FEI explored stakeholder interest in medium-term hedging strategies in the workshop process. In the workshops, FEI asked the stakeholders if they agreed with the principle of capturing low market prices with hedging and then if they agreed with the proposed hedging price targets and hedging percentages. Some stakeholders, in particular those representing low-income customers, believed that FEI should capture low market price opportunities, if they occurred,

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with medium-term hedging, such as fixed price swaps or purchases, for a portion of the portfolio.

The representative for the Commercial Energy Consumers Association of British Columbia (CEC) stated that it supported capturing opportunities and agreed that these opportunities come along periodically and FEI has the knowledge and expertise to capture them. The CEC representative suggested the volume hedged should be below the 50% maximum proposed for a single hedging price target to balance potential hedging costs with rate stability.

The British Columbia Public Interest Advocacy Centre representing the British Columbia Old Age Pensioners' Organization, Active Support Against Poverty, Disability Alliance BC, Council of Senior Citizens' Organizations of BC, and the Tenant Resource and Advisory Centre *et al.* (BCOAPO) also agreed that FEI should be capturing opportunities, as long as the price target is set low enough so customers don't miss out if commodity prices drop further. Given this feedback, FEI has proposed two hedging price targets with a maximum percentage hedging limit of 50% of the commodity supply portfolio. Therefore, the remaining 50% of the portfolio, or more if less than 50% of the portfolio ends up being hedged, would be subject to market price movements.

While there was stated support from some stakeholders in the workshop for capturing market price opportunities, there was no stated support from stakeholders for the strategy of limiting market price increases or price spikes with low-cost call options. FEI believes that this defensive hedging strategy with call options can provide low-cost price spike insurance for customers, especially if market conditions change such that market prices were higher and price volatility continued. FEI will continue to monitor market conditions and the potential effectiveness of these instruments and may propose these in the future.

The results of the recent customer research are consistent with the objective of this medium-term hedging strategy of providing more rate stability. Apart from the feedback provided during the 2015 workshops, FEI's latest customer research, conducted in 2012, revealed the following:

- Most customers prefer some rate stability to help with household budgeting and limit surprises;
- Most customers don't want to be locked into a fixed rate, and
- Customers are willing to accept smaller rate decreases if rate increases are limited.

3.1.4 Forward Market Prices Compared to Hedging Price Targets

In order to provide a comparison of forward market prices relative to the hedging price targets, the following table shows recent forward market prices for AECO/NIT for summer and winter terms for the next three years.

Table 1: Forward AECO/NIT Market Prices as of December 1, 2015 (in \$Cdn/GJ)

<u>Term</u>	<u>Price</u>
Nov 15-Mar16	\$2.35
Apr16-Oct16	\$2.30
Nov16-Mar17	\$2.71
Apr17-Oct17	\$2.60
Nov17-Mar18	\$3.05
Apr18-Oct18	\$2.76
Nov18-Mar19	\$3.20
Apr19-Oct19	\$2.93

As of the date of these forward market prices, none of these forward market prices are at or below the proposed hedging price targets. The proposed hedging, if approved, would not be executed unless the forward market prices dropped to these hedging price targets.

3.1.5 Potential Hedging Costs or Gains

As noted in Section 3.1.2, the objective of the proposed hedging strategy is to mitigate rate volatility and enable FEI to capture opportunities to keep costs low for customers. However, as with any hedging program, there may be hedging gains or costs depending on where market prices ultimately settle relative to the hedged prices. FEI has provided some examples here.

As discussed in Section 3.1.1, it appears the potential for market prices to fall significantly for a sustained period of time is limited. However, market prices could fall further. As shown in Figure 2 in Section 3.1.1, current market expectations indicate that the prices could move between about \$1.50/GJ and over \$6.00/GJ at different times over the next few years. If the downside risk for market prices is about \$1.50/GJ as shown in Figure 2 and the proposed hedging strategy is executed at the first price target for [REDACTED] of the supply portfolio (i.e. [REDACTED]), then the impact of the potential hedging cost on the commodity rate would be limited to about [REDACTED] (or about [REDACTED] million per year). If [REDACTED] of the hedging is executed at the second hedging price target, then the potential hedging cost is about [REDACTED] (or about [REDACTED] million per year).

Figure 2 can also be used to estimate the impact of the potential hedging gain. For the example presented here, it is assumed that the potential upside for market prices is about \$4.50/GJ in the next year based on the range in the figure. If the proposed hedging strategy is executed at the first price target for [REDACTED] of the supply portfolio, then the impact of the potential hedging gain on the commodity rate would be a savings of about [REDACTED] (or about [REDACTED] million per year). If [REDACTED] of the hedging is executed at the second hedging price target, then the impact on the commodity rate is potential savings of about [REDACTED] (or about [REDACTED] million per year), representing a total savings of about [REDACTED] per year for a typical residential customer.

While there is no certainty regarding the hedging gains or costs given the volatility of market prices in response to variable market conditions, these examples provide an illustration of the

1 potential hedging outcomes. Based on the current market price environment as discussed in
2 the previous sections, FEI believes there to be more upside market price risk than downside
3 risk. However, it is important to keep in mind the other potential benefits of the hedging strategy
4 which include reducing the number of commodity rate changes and mitigating the impacts of
5 market price volatility and spikes by reducing the magnitude of rate changes.

6 **3.1.6 Station 2-AECO/NIT Basis Strategy**

7 FEI's gas contracting strategy, as discussed within the FEI 2015/2016 Annual Contracting Plan,
8 includes locking in the forward price differential, or basis, between Station 2 and AECO/NIT
9 market prices. Recently, Station 2 market prices have dropped relative to AECO/NIT market
10 prices due to over-supply and lack of market outlets for the Station 2 gas. This has provided
11 FEI with an opportunity to capture favourable basis levels relative to historical basis levels in
12 order to provide value for customers in terms of reducing gas costs and reduce Station 2 to
13 AECO basis risk.

14 This strategy to mitigate Station 2-AECO/NIT basis differential risk is complementary to the FEI
15 hedging strategy proposed within this application. The hedging strategy, if executed, will lock in
16 forward AECO/NIT prices while the basis strategy will lock in the difference between AECO/NIT
17 and Station 2 prices, effectively locking in Station 2 prices at low levels for customers.

18 **3.2 RATE SETTING MECHANISM ENHANCEMENTS**

19 The workshop process revealed that stakeholders believe that the current FEI quarterly rate
20 setting and deferral account mechanism is working as intended. The current mechanism
21 provides appropriate market price signals to customers and appropriately manages the deferral
22 account balance within a reasonable range. However, there was also some agreement that
23 enhancements could be made to the rate setting mechanism that would meet the objectives and
24 benefit customers. These include implementing a commodity rate change cap and adding
25 criteria for when to consider using a 24-month versus 12-month prospective period when setting
26 rates.

27 FEI's current commodity rate setting mechanism includes several components. They are
28 defined within the Commission Guidelines for Setting Gas Recovery Rates and Managing the
29 Gas Cost Reconciliation Balance⁴ and the revisions approved in 2011⁵. The main components
30 include the following:

- 31 • a review and potential adjustment of rates on a quarterly basis;
- 32 • a rate change trigger mechanism of +/- 5%;
- 33 • a minimum rate change threshold of +/- \$0.50/GJ;

⁴ Commission Letter L-5-01 dated February 5, 2001.

⁵ Commission Letter L-40-11 dated May 19, 2011.

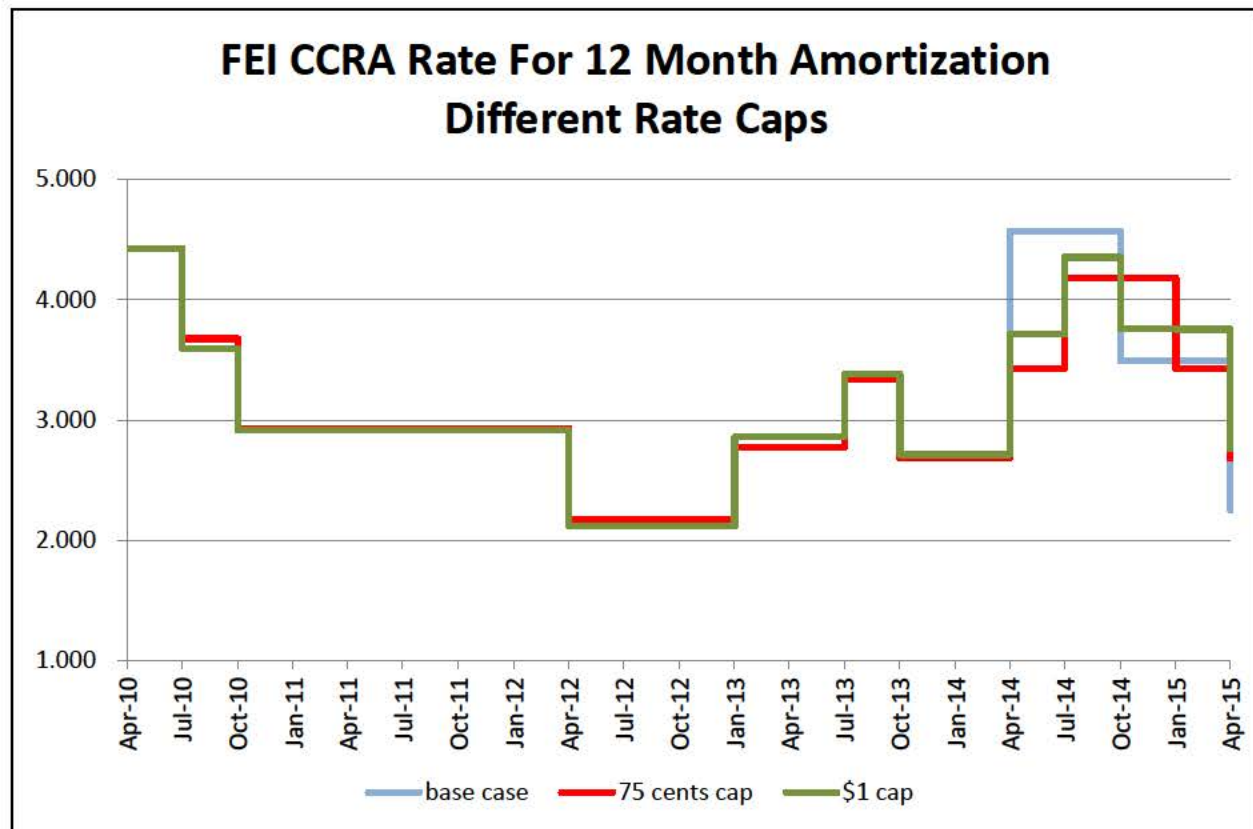
- typically a 12-month prospective period for rate setting; and
- consideration of full circumstances including a 24-month outlook period for forward gas costs and the amortization of deferral account balances.

3.2.1 Commodity Rate Change Cap

As discussed in the workshops, FEI is proposing to implement a commodity rate change cap of \$1.00/GJ so that the amount the commodity rate can increase or decrease is limited. This limit would likely come into play during a short-term market event, such as a cold winter that temporarily increases gas demand and drives up market prices. This was the case in winter 2013/14, as described in Section 3.1.2. Because of this cold winter and the resulting low US and Canadian gas storage levels, market prices increased causing FEI's commodity rate to increase from \$3.27/GJ effective October 1, 2013 to \$4.64/GJ effective April 1, 2014. As storage levels recovered during the rest of 2014 and gas production continued to grow, FEI's commodity rate decreased from \$4.64/GJ to \$2.49/GJ effective April 1, 2015 (as shown in Figure 7 in Section 3.1.2). This was because FEI's WACOG decreased but also because the sudden drop in market prices caused FEI's commodity deferral account surplus to build more quickly than expected.

During the stakeholder workshops, FEI reviewed two different commodity rate change caps based on the simulations conducted by Aether. These included a \$0.75/GJ cap and a \$1.00/GJ cap. The results, compared to the base case without the proposed rate setting enhancements, for the five-year test period of April 2010 to March 2015 are presented in the following figure.

Figure 9: Commodity Rate Scenarios with Different Change Limits



The simulation results show that both the \$0.75/GJ and \$1.00/GJ rate change limits would have reduced the magnitude of the April 1, 2014 rate increase. The figure shows that the period of time that the rates were increased was reduced with the \$1.00/GJ change cap as compared to the \$0.75/GJ change cap. The \$1.00/GJ rate change cap seems to provide a good balance of limiting the rate increase as well as the duration of the rate increase. During periods of less market price volatility the rate change cap had no impact.





























FEI recognizes that a rate change limit can work well in a market with significant short-term price increases and decreases as it can reduce significant swings in the commodity rate during periods of short-term market price volatility. However, in periods of more sustained market price increases, this strategy may not work as well as the rate increases under the change cap may not keep up with increasing market prices. This could lead to under-recovery of gas costs through customer rates and inflate deferral account limits to unacceptable levels. Therefore, FEI submits that this rate change cap be used only two consecutive times, provided that the rate changes subject to the cap have been in the same direction, after which time the rate change cap would not be used. The cap is removed for the third consecutive quarter if the rate change is in the same direction. An underlying principle of this rate setting strategy is that deferral account balances must be maintained within a reasonable range. The following table provides several examples of various situations in which the rate change cap may or may not be applied. For example, in Scenario1, the rate change cap would be applied to two consecutive rate

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increases and then would be removed for the third increase. In Scenario 3, the rate change cap would be applied to the two consecutive rate increases but it would not be removed for the following rate decrease since the decrease ends the string of consecutive increases. In Scenario 9, the two consecutive decreases followed by the initial increase means that the third consecutive decrease has the cap removed.

Table 2: Commodity Rate Change Scenarios and Application of the Cap

	Consecutive Quarters			
	Quarter No. 1	Quarter No. 2	Quarter No. 3	Quarter No. 4
Scenario 1	 Increase - Cap in effect	 Increase - Cap in effect	 Increase - NO Cap	
Scenario 2	 Increase - Cap in effect	 Increase - Cap in effect	 No change - Cap not applicable	
Scenario 3	 Increase - Cap in effect	 Increase - Cap in effect	 Decrease - Cap in effect	
Scenario 4	 Increase - Cap in effect	 No change - Cap not applicable	 Increase - Cap in effect	
Scenario 5	 Increase - Cap in effect	 No change - Cap not applicable	 No change - Cap not applicable	
Scenario 6	 Increase - Cap in effect	 No change - Cap not applicable	 Decrease - Cap in effect	
Scenario 7	 Increase - Cap in effect	 Decrease - Cap in effect	 Increase - Cap in effect	
Scenario 8	 Increase - Cap in effect	 Decrease - Cap in effect	 No change - Cap not applicable	
Scenario 9	 Increase - Cap in effect	 Decrease - Cap in effect	 Decrease - Cap in effect	 Decrease - NO Cap

3.2.1.1 Stakeholder Support for Commodity Rate Change Cap

During the workshop process, there was some support expressed for the rate change cap by stakeholders. BCOAPO supported the rate change cap proposal as their client group values rate stability which helps with managing monthly household budgets. CEC also supported the concept of a rate change cap as it helps smooth the commodity rate but suggested that having a percentage change cap, rather than a fixed change cap, would better meet the objectives. The BC Non-Profit Housing Association noted that utility bills can represent 18-20% of a low income customer's expenses and these customers simply cannot afford large rate/bill increases. Therefore, they expressed support for a commodity rate ceiling or rate cap program for low income groups.

3.2.2 Criteria for Clarification of When Consideration be Given Commodity Rate Proposals Beyond 12-Month Outlook

The current rate setting guidelines include consideration of full circumstances, including the appropriateness of any rate proposals over a 24-month timeframe. However, the guidelines do not provide or include specific criteria or metrics. During the workshop process, it was discussed that clearer rules and criteria for considering the 24-month outlook period approach may be helpful to the Commission in the event FEI recommends applying the 24-month outlook when setting commodity rates. FEI recommends the following criteria to help the Commission with any future considerations of rate proposals beyond the 12-month outlook, while maintaining the objective of managing deferral account balances within a reasonable range:

- When a commodity rate change is indicated using a standard 12-month prospective period;
- When there is a difference of \$0.75/GJ or more between the average CCRA WACOG for year one versus year two of the 24-month prospective period; and
- The direction of the commodity rate change indicated using a standard 12-month prospective period is opposite to the direction of the CCRA WACOG for year two compared to the CCRA WACOG for year one (for example, if the indicated commodity rate change was an increase, the CCRA WACOG for year two would need to be lower than the CCRA WACOG for year one).

Note that FEI is not requesting approval to change this rate setting guideline but is rather providing some clarity regarding the criteria for the guideline.

FEI believes that quarterly rate setting and the current thresholds work reasonably well in providing rate smoothing for customers and appropriate price signals. The simulations presented by Aether in the workshops showed that using a 24-month period for rate setting can result in unacceptable deferral account balance levels, making them difficult for FEI to manage. However, FEI believes that it would make sense in particular situations, such as when the projected gas costs caused by an event for 12 months out are significantly different than those for the following 12 months. In this case, the 24-month period may help to mitigate rate volatility and keep the commodity rate more stable for a longer period of time while managing the deferral account balance within a reasonable range.

An example using the information from the April 1, 2014 commodity rate adjustment will help illustrate this scenario. When reviewing the forward gas costs and accumulated deferral balances in February 2014 to increase the commodity rate effective April 1, 2014, FEI looked at setting commodity rates over the next 24 months, rather than just the next 12 months. This was because, while forward prices were higher than FEI's then current commodity rate out to March 2015, they were much lower for the April 2015 to March 2016 period. The difference in the gas costs for the first 12 months versus the second 12 months was about \$0.85/GJ. Setting the commodity rate based on the 24-month cost outlook would lessen the required commodity rate increase effective April 1, 2014 and also reduce the risk of setting the rate too high and then having to reduce it as early as October 2014. It would also keep the projected deferral account

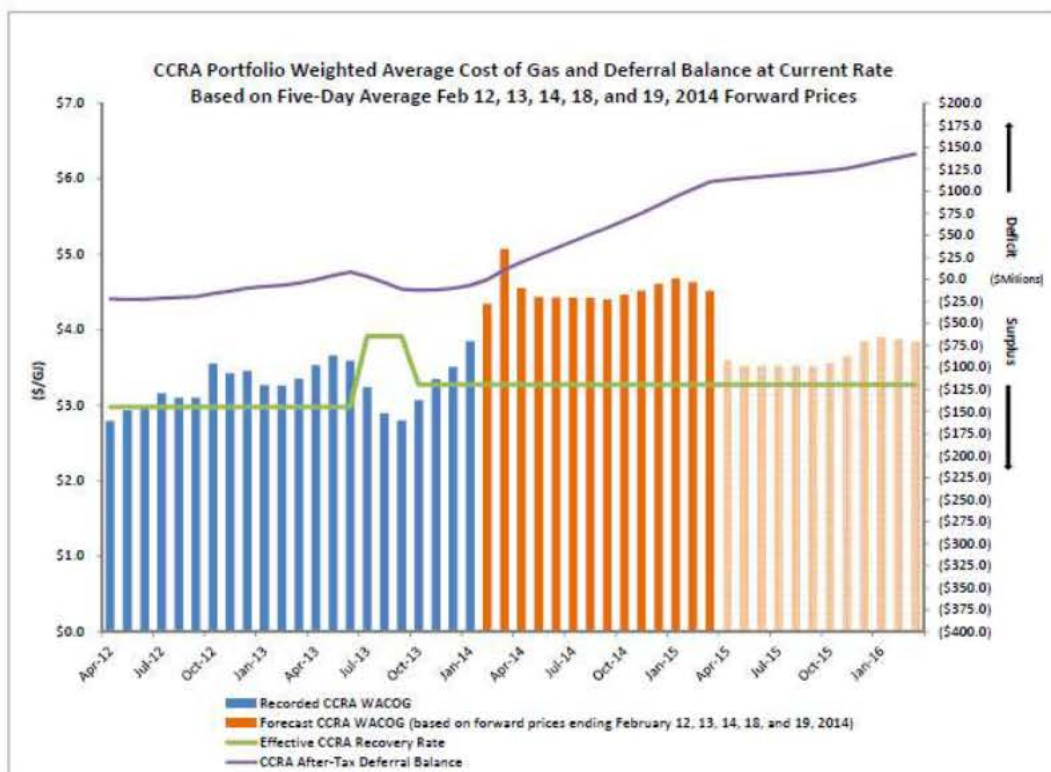
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balance within a reasonable range during the 24-month period. The following figures illustrate the commodity rate setting considerations.

In Figure 10, FEI's residential commodity rate (Effective CCRA Recovery Rate) effective October 1, 2013 was \$3.272/GJ. Market prices for the next 12 months averaged higher than FEI's commodity rate, due to the cold winter 2013/14 and low gas storage levels, resulting in higher projected gas costs (Forecast CCRA WACOG). Without a rate increase, FEI's deferral account balance was projected to climb to a deficit of over \$100 million by March 2015 and to almost \$150 million by March 2016, indicating that a rate increase was required.

Figure 10: FEI Forward Gas Costs and Deferral Balances with \$3.272/GJ Commodity Rate

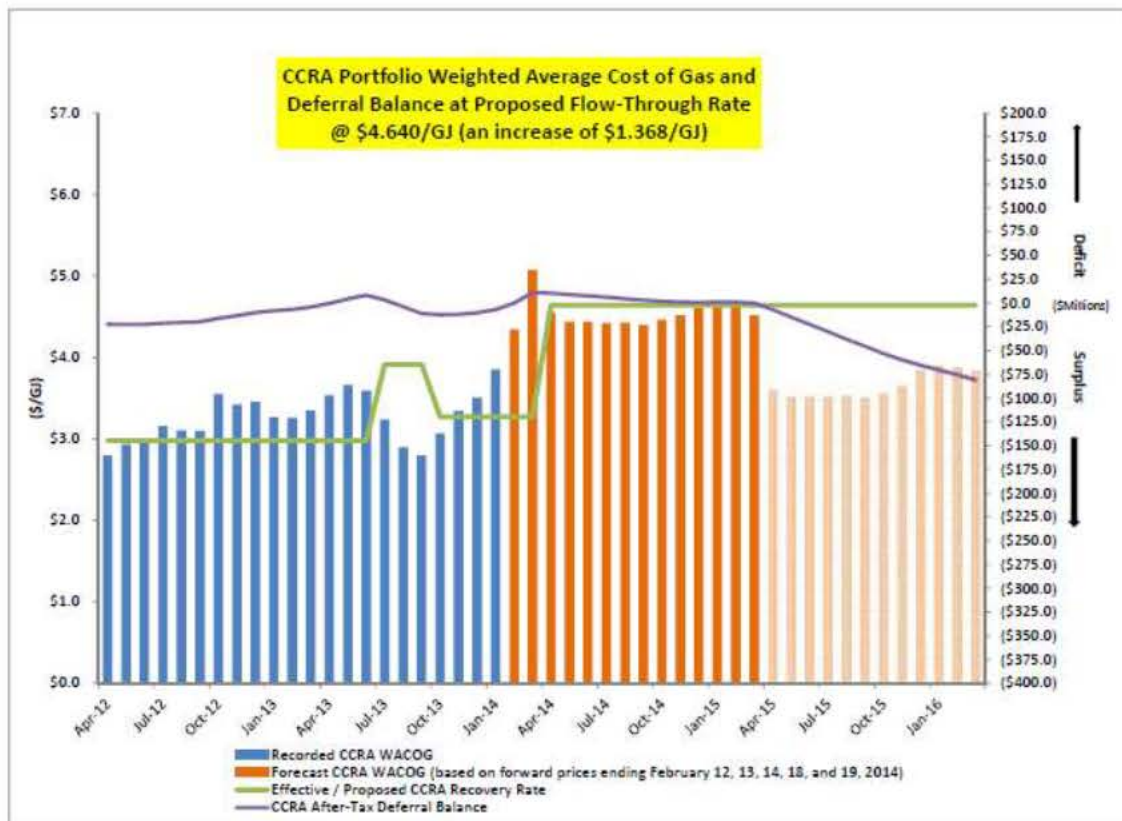


When looking at recovering the projected gas costs and the accumulated deferral balance over the next 12 months, the projected commodity costs indicated a rate increase to \$4.64/GJ. In this case, because of the significant drop in forward gas costs after March 2015, the deferral account balance would increase to a surplus of almost \$75 million by March 2016, triggering a rate decrease. This is illustrated in Figure 11 below.

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1 **Figure 11: FEI Forward Gas Costs and Deferral Balances with \$4.64/GJ Commodity Rate**



2

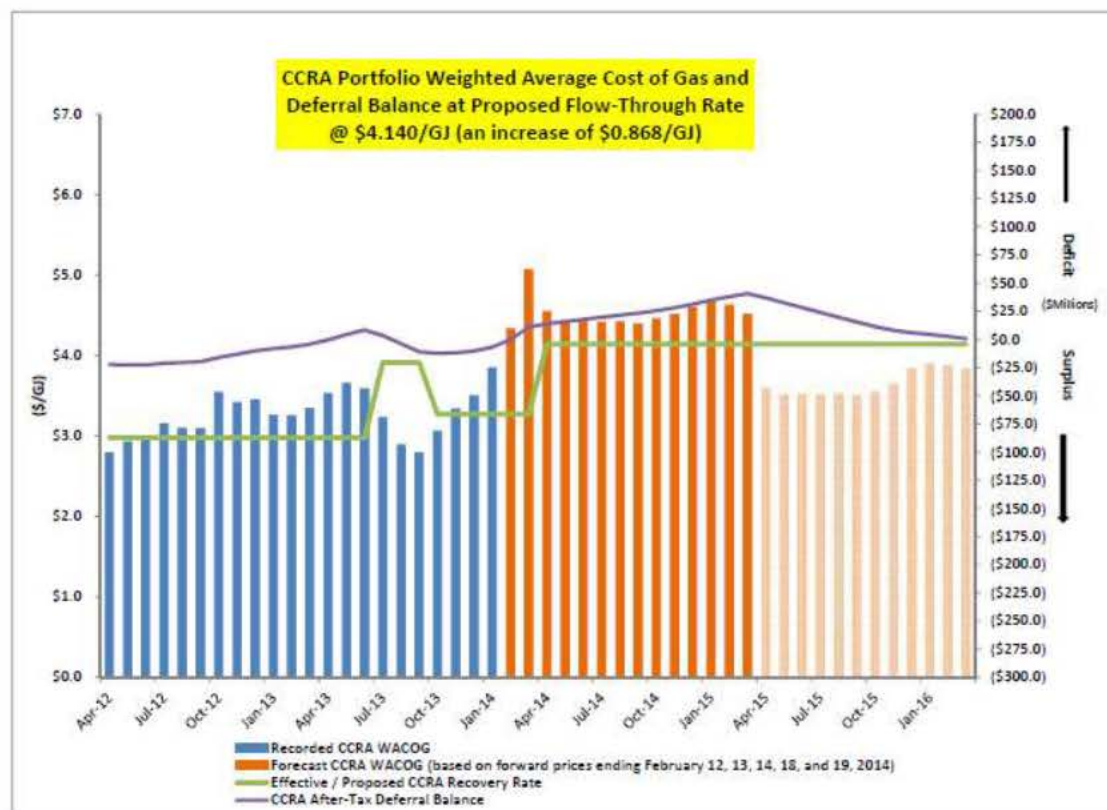
3 However, by amortizing projected gas costs and the deferral balance over 24 months, the

4 indicated commodity rate increase is reduced to \$4.14/GJ and, based on the forecast forward

5 prices at the time, the potential for having to change rates again in the following quarters is

6 reduced. Furthermore, the forecast deferral account balance is projected to remain within a

7 reasonable range during the twenty four month period. This is illustrated in Figure 12.

Figure 12: FEI Forward Gas Costs and Deferral Balances with \$4.14/GJ Commodity Rate


FEI believes that consideration of amortizing projected gas cost and deferral account balances over the 24-month period is consistent with the rate setting guidelines. It could also help with mitigating future commodity rate volatility and managing deferral account balances within an acceptable range.

3.2.3 Rate Setting Enhancements Application to Other Utilities

Commission Letter L-40-11 (dated May 19, 2011) regarding the rate setting guidelines notes that the Guidelines have generally been adopted by other natural gas and propane utilities in British Columbia. However, in terms of commodity rate setting, it is important to note that each utility has its own unique rate structures and so applying all of the guideline components and attributes to other utilities may not make sense. For example, Pacific Northern Gas Ltd. (PNG) does not have a commodity rate like FEI which includes only gas commodity costs. The PNG commodity charge includes gas commodity costs as well as costs related to natural gas storage and gas transportation service on the Spectra system. Furthermore, propane utilities will typically have higher and more volatile underlying commodity costs than those of gas utilities given the nature of the crude oil and propane markets. This means that rate change thresholds or rate change caps that apply to regional gas utilities may not be appropriate for propane utilities.

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1 Therefore, FEI believes that the commodity rate setting enhancements it is proposing are
2 applicable to FEI and may not be applicable to other utilities – this will depend on their rate
3 structure and individual circumstances.

4 ***3.2.3.1 Support for Criteria for 24-Month Rate Setting Period Consideration***

5 During the workshop process, Commission staff commented that clearer rules and criteria for
6 considering the 24-month rate setting period approach would be helpful to the Commission in
7 the event FEI recommends applying the 24-month outlook, as opposed to the 12-month outlook,
8 when setting commodity rates. Commission staff mentioned that additional criteria could
9 include metrics around market price volatility or magnitude of the rate change. Commission
10 staff concurred that the objective of managing deferral account balances was one of the
11 considerations the Commission would consider in setting rates and that objective was
12 consistent with the rate setting guidelines. Commission staff mentioned that a dramatic spike in
13 gas prices could increase deferral account balances and that the Commission would then
14 consider the deferral account balances along with other objectives to set rates when such an
15 event occurs. Therefore, FEI believes the recommended clarification section to be included in
16 the Guidelines, provided in the draft Letter in Appendix E, provides criteria that will be useful to
17 the Commission in the FEI commodity rate setting process.

4. LONGER TERM TOOLS AND STRATEGIES

In the Review Report, FEI discussed longer term price risk management options in light of the Commission decision in 2011 suggesting that FEI explore alternatives for managing longer term price risk. During the workshop process, the topic of longer term tools and strategies was discussed. FEI sought the stakeholders' opinions on several longer term options for managing longer term price risk. The alternatives discussed in the workshops included long term purchases or hedges, investing in reserves and Volumetric Production Payments (VPPs). During this workshop, FEI described these alternatives and noted that some other jurisdictions had, or were considering, investing in natural gas reserves to secure long term supply and provide greater rate stability for their customers.

At this point, FEI plans to continue to explore longer term price risk management tools and strategies. If FEI wishes to implement a specific strategy, it will submit an application for approval to the Commission. Therefore, FEI is not making any requests for approval for managing longer term price risk at this time.

5. REVIEW PROCESS

FEI believes that an abbreviated review process is warranted for this application. Considerable discussion of FEI's existing price risk management tools and the various price risk management options occurred during the workshop process in order to provide better understanding and determine stakeholders' interest in the alternatives. This enabled FEI to provide stakeholders with background information, help answer questions and discuss issues and determine which alternatives had support and which did not. For example, while some stakeholders supported FEI capturing low market price opportunities with hedging, if they occurred, there was no support from stakeholders for limiting market price increases with low-cost call options at this time. Simulations, with input from the stakeholders, were also presented to see the potential impacts of the various tools and strategies on commodity rates. The feedback provided in this workshop process has helped FEI to refine its application and requests for approval.

BCOAPO notes in its Workshop Support letter, provided in Appendix B, "that a pre-application workshop series such as this can only lead to a more effective regulatory process once the application is filed".

The CEC states, in its letter included in Appendix C, "that the PRM workshops offered by FEI have significant merit as part of the regulatory process in preparation for a utility regulatory filing, in that they will enable the utility to obtain useful input and understanding before it is locked into a particular solution".

6. SUMMARY

Due to the abundance of shale gas supply in North America, market natural gas prices are near their lowest levels in over a decade. Despite this, significant price volatility continues in the gas marketplace in response to short-term supply/demand imbalances. The current price environment provides FEI with the opportunity to help meet the price risk management objectives of mitigating market price volatility to support rate stability and capturing favourable prices to provide customers with more affordable rates. A medium-term hedging strategy that includes locking in up to half of the commodity supply portfolio with fixed price purchases or swaps, if pre-defined price targets are reached, would help keep FEI's commodity rate at low and favourable levels relative to historical values. The workshop process revealed that some stakeholders, in particular those representing low-income customers, believed that FEI should capture low market price opportunities, if they occurred, with medium-term hedging, such as fixed price swaps or purchases, for a portion of the portfolio.

The workshop process also revealed that stakeholders and FEI agree that the current FEI quarterly rate setting and deferral account mechanism is working as intended. However, there was also some agreement that enhancements could be made to the rate setting mechanism that would meet the objectives and benefit customers. These include implementing a commodity rate change cap and providing the Commission with criteria for when to consider using a 24-month versus 12-month outlook when setting rates.

Therefore, FEI is requesting Commission approval for the following:

1. Implementation of a medium-term fixed-price hedging strategy, which includes locking in prices, based on two pre-defined price targets, for up to 50% of the FEI commodity supply portfolio;
2. Implementation of a commodity rate change cap of \$1.00/GJ to FEI's quarterly commodity rate setting mechanism; and
3. Criteria for consideration of using a 24-month outlook over the 12-month period in specific situations to maintain deferral account balances within a reasonable range.

FEI recognizes that the rate setting enhancement and medium-term hedging strategies are appropriate in the current market price environment but may not be applicable if market conditions changed significantly. FEI suggests that the strategies be reviewed on an annual basis to determine how the strategies have worked so far and if any refinements need to be made.

FEI believes that the current gas market price environment also warrants consideration of longer term tools and strategies to meet the price risk management objectives. These could include long term purchases or hedges, investing in reserves and VPPs. At this point, FEI plans to continue to explore longer term price risk management tools and strategies. If FEI wishes to implement a specific strategy, it will submit an application for approval to the Commission.

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- 1 Therefore, FEI is not making any requests for approval for managing longer term price risk at
2 this time.
- 3 FEI believes that an abbreviated review process is warranted for this application. Considerable
4 discussion of FEI's existing price risk management tools and the various price risk management
5 options occurred during the workshop process in order to provide better understanding and
6 determine stakeholders' interest in the alternatives. This enabled FEI to provide stakeholders
7 with background information, help answer questions and discuss issues and determine which
8 alternatives had support and which did not. The feedback provided in this workshop process
9 has helped FEI to refine its requests for approval in the application.

Appendix A

FEI WORKSHOP SUMMARY REPORT (WITHOUT APPENDICES)



FORTISBC ENERGY INC.

Price Risk Management Workshop Summary Report

October 27, 2015

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- Appendix F** Commission Reply Letter to FEI Stakeholder Consultation Process Letter
- Appendix G** Workshop Terms of Reference
- Appendix H** BCPIAC Letter to FEI Regarding the Workshop Process

FORTISBC ENERGY INC.**PRICE RISK MANAGEMENT WORKSHOP SUMMARY REPORT**

1. INTRODUCTION AND BACKGROUND

This report provides an update on developments regarding price risk management of FortisBC Energy Inc (FEI) and, in particular, the recently held stakeholder workshop process. The workshops were conducted during the first half of 2015 to obtain stakeholder feedback regarding FEI's review of its price risk management activities, strategies and options as discussed within its 2014 Price Risk Management Review Report (Review Report). The following sections describe the Review Report, relevant background information and the consultative workshop approach taken by FEI in order to achieve more fulsome discussions with stakeholders and obtain their feedback. In addition to the stakeholders, staff from the British Columbia Utilities Commission (BCUC staff) attended as observers.

This report does not include requests for approval relating to any FEI price risk management strategies from the British Columbia Utilities Commission (Commission). It is intended to provide background information and act as a framework for any specific requests for approval that FEI submits to the Commission subsequent to this report.

FEI would like to note that it provided a draft version of this Workshop Summary Report to the workshop participants and BCUC staff prior to submitting it to the Commission. This was to provide the stakeholders with an opportunity to note any comments or concerns about FEI's description of the workshop discussions and put forward any suggested changes. While not all participants provided comments, several participants stated that the Workshop Summary Report does a good job of summarizing the information presented and the discussions held in the workshops. FEI also provided workshop participants with the opportunity to comment on the individual workshop meeting notes after each workshop session (the workshop notes are provided in Appendices A through D).

1.1 2014 PRICE RISK MANAGEMENT REVIEW REPORT

On October 20, 2014, FEI submitted the Review Report to the Commission. The Review Report included recommendations by FEI for price risk management strategies that help meet the primary objectives in the interests of core sales customers who purchase their commodity supply directly from FEI. The primary objectives stated in the Review Report included the following:

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

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PRICE RISK MANAGEMENT WORKSHOP SUMMARY REPORT



1 During the 2011 review of FEI's price risk management objectives and strategy, the
2 Commission and stakeholders agreed that moderating the volatility of natural gas prices is a
3 reasonable goal for FEI.¹

4 In the Review Report, FEI emphasized the benefit of expanding its price risk management
5 beyond its current activities. The Review Report includes recommendation for more
6 comprehensive price risk management by FEI in light of the recent and potential changes in the
7 natural gas marketplace, customer preferences in terms of rate and bill stability, assessments
8 by independent risk management consultants and what other utilities do. The recommendations
9 included the strategies for mitigating market price volatility and also positioning FEI to capture
10 any favourable future market price movements to help preserve lower, more affordable
11 commodity rates for customers. These recommendations included the following:

- 12 • Continue to use the current price risk management tools, such as rate setting and
13 deferral account mechanism, supply contracting strategies and the optional Customer
14 Choice program;
- 15 • Implement a medium-term (i.e. 3-year horizon) hedging program; and
- 16 • Consider longer term strategies, such as long term fixed price purchases, investing in
17 reserves and Volumetric Production Payments (VPPs).

18
19 FEI did not recommend providing alternative commodity rate offerings to customers on an
20 optional basis as is currently done under the Customer Choice program.

21 The Review Report and workshop consultation process are, in part, a result of directives coming
22 from Commission Order G-120-11 and the accompanying Reasons for Decision, both dated
23 July 12, 2011. In that decision, the Commission denied FEI's proposed Price Risk Management
24 Plan effective April 2011 – October 2014. However, the Commission encouraged FEI to
25 consider alternative means of augmenting the existing tools used to manage natural gas price
26 volatility. In particular, the Commission acknowledged that while existing tools, such as deferral
27 accounts, provide some smoothing, they do not affect or help manage the underlying
28 commodity prices. The Commission also acknowledged that other than the Customer Choice
29 commodity unbundling program, the existing rate setting mechanism may not be effective in
30 dealing with longer periods of considerable price volatility should they occur in the future.
31 Therefore, FEI should explore alternatives to manage long term price risk. The Commission
32 also suggested that if FEI still believed that further steps to manage market gas price volatility
33 and rate stability are required, FEI should explore new commodity rate alternatives. The
34 Commission stated that it had not "closed the door" on hedging and would reconsider it if market
35 conditions changed.

36 FEI did not make any specific request for approval within the Review Report. The Review
37 Report was intended to provide a framework for discussing the recommendations with BCUC
38 staff and stakeholders, and FEI recommended a workshop approach to achieve this. FEI hoped

¹ Commission Order G-120-11, Appendix A, page 22.

FORTISBC ENERGY INC.**PRICE RISK MANAGEMENT WORKSHOP SUMMARY REPORT**

1 that a consultative approach with stakeholders would lead to a better understanding of the
2 objectives and strategies and help formulate plans which are responsive to changing market
3 conditions and which meet the objectives in the interest of customers.

4 FEI believes that this consultative process enabled a more fulsome discussion of the issues,
5 better understanding by stakeholders of FEI's current price risk management activities and
6 tools, such as the rate setting and deferral account mechanism, and provided a better
7 understanding of the various stakeholders' priorities in terms of their customers' interests. The
8 workshop process has enabled FEI to refine some potential strategies to meet the objectives
9 which were supported by some stakeholders within the workshops.

10 **1.2 BACKGROUND**

11 The following section provides some background information to help set the context for the
12 recommendations within the Review Report in 2014 and the subsequent stakeholder
13 consultative process in 2015.

14 In 2010 and 2011, the Commission reviewed FEI's price risk management objectives and
15 strategies. The Commission established the review in light of the significant changes in the
16 natural gas marketplace that began in 2008, in particular the increase in natural gas supply due
17 to the development of shale gas reserves, and the objective of competitiveness in the context of
18 B.C. energy objectives as set out in the *Clean Energy Act (CEA)*. In 2010, the Commission
19 established a panel and a proceeding to review the objectives and hedging strategies within the
20 FEI 2011-2014 Price Risk Management Plan (PRMP) dated January 27, 2011 (the Review).
21 The Review included a written public hearing process which involved interveners including the
22 Commercial Energy Consumers Association of British Columbia (CEC) and the British Columbia
23 Public Interest Advocacy Centre (BCPIAC). The Review focused on the objectives of the
24 hedging program, its performance over its last few years and the FEI proposed enhancements
25 to the hedging strategy.

26 The results of the Review and the Commission decision were provided in Commission Order G-
27 120-11 dated July 22, 2011. The Commission determined that the need for the objective related
28 to the competitiveness of natural gas with other energy sources had not been established. The
29 Commission also concluded that promoting the use of natural gas over electricity was not
30 consistent with government policy objectives and *CEA*. The Commission acknowledged that
31 moderating the volatility of natural gas prices is a reasonable goal and that reducing the risk of
32 regional price disconnections should be part of that goal. However, the Commission did not
33 accept the FEI 2011-2014 PRMP (with the exception of Sumas basis hedging), which included
34 the proposed enhanced hedging strategy. In its decision, the Commission concluded that,
35 based on historical results, in its view, hedging was not the most cost-effective approach in
36 mitigating market price volatility. The Commission's view was that short term price volatility
37 could be managed through the use of existing mechanisms such as gas cost deferral accounts,
38 the Equal Payment Plan and the Customer Choice Program. However, in the Commission's
39 view, other than the fixed commodity rate offerings provided by natural gas marketers, these

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mechanisms may not be effective in managing longer periods of price volatility should they occur in the future. Therefore, FEI was encouraged to explore alternatives that would help manage potential longer periods of persisting price volatility.

The Commission also emphasized choice for customers in FEI's assessment of alternatives for price risk management. FEI was encouraged to explore alternative commodity rate offerings for customers and those willing to elect for rate certainty should also be the ones to benefit or incur the cost burden. The Commission recognized the potential for higher gas prices and volatility in the future, particularly given the potential for increased natural gas demand arising from LNG exports from Canada and the U.S. and economic recovery. The Commission acknowledged that downward market price movements are limited while upward price movements could be greater. Furthermore, the Commission urged the FEU to explore new alternatives to reduce the impacts of market price volatility should FEU believe that it is warranted.

Since this Commission Review, FEI has taken a number of actions in developing its price risk management strategies in light of the Commission's directives. These have included the following:

- Research in 2012 regarding FEI's customers' preferences in terms of rate and bill changes and alternative optional commodity rate offerings;
- Independent consultant review of FEI's price risk management tools and strategies and recommendations for enhancement at the end of 2013 and beginning of 2014;
- Submission of the Review Report in October 2014 which included a review of FEI's current and available price risk management tools and strategies;
- Discussions with BCUC staff regarding the Review Report and approach for stakeholder consultation during 2014;
- The implementation of strategies outlined within the FEI Annual Contracting Plans, such as reducing supply exposure to Huntingdon and Sumas price risk and locking in the basis differential between AECO/NIT and Station 2 prices, and
- Engaging stakeholders in workshop discussions during 2015 to help determine potential strategies to meet the objectives going forward.

1.3 PROPOSED CONSULTATIVE APPROACH

In the October 20, 2014 Review Report submission, FEI proposed that the report act as a framework for discussion with stakeholders, from which specific requests for approval could be developed. FEI hoped that a consultative approach with stakeholders would lead to a better understanding of the objectives and potential strategies and help formulate stakeholder-supported plans which are responsive to changing market conditions and which meet the interests of customers.

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1 On January 20, 2015, FEI submitted a letter to the Commission requesting approval to record all
2 costs paid to stakeholders for participating in the Consultation Process in FEI's gas cost flow-
3 through accounts. This request was made in response to the concerns expressed by some
4 stakeholders that they would not be able to participate in the workshop process without funding.
5 In this letter FEI also sought confirmation that the BCUC staff will actively participate in the
6 consultation process. This letter is provided in Appendix E. In its reply letter on January 30,
7 2015, the Commission advised that the request for recovery of costs incurred for consultation
8 could be made at the time of filing a price risk management application. The letter also noted
9 that BCUC staff would not be active participants in the Consultation Process beyond providing
10 education, background and understanding of price risk management tools and strategies. For
11 this reason, references to "stakeholders" and "stakeholder-supported" in this report do not
12 include BCUC staff. However, in its letter, the Commission did acknowledge the potential
13 benefits of stakeholder consultation prior to an application, including greater regulatory
14 efficiency, better understanding of issues and a better informed application. The Commission
15 letter is provided in Appendix F. FEI believes that the workshops conducted in 2015 did achieve
16 some of these benefits.

17 FEI expects to review the participant workshop funding requests and submit them for approval
18 to the Commission once an application for approval of further price risk management strategies
19 is filed with the Commission. This is consistent with the Commission's letter regarding the
20 consultation process dated January 30, 2015.

2. STAKEHOLDER WORKSHOPS

FEI held four stakeholder workshops during the first half of 2015. This section describes the workshop objectives, work plan, stakeholders involved, details of the topics discussed in each workshop as well as stakeholder feedback.

2.1 WORKSHOP OBJECTIVES

The objectives of the workshops were to educate stakeholders on FEI's existing price risk management tools and strategies and discuss options for enhancing its price risk management, provide relevant background information and gather stakeholder feedback regarding FEI's proposed price risk management objectives and strategies and identify areas of concern. This would help FEI define or validate its price risk management objectives and determine if there was any stakeholder support for any of its recommendations. If there was support, FEI planned to request Commission approval to implement any stakeholder-supported strategies in a future application.

2.2 STAKEHOLDER CONSULTATION WORK PLAN

The work plan included four workshops during the first half of 2015. These would be followed by FEI submitting a Workshop Summary Report to the Commission to summarize the discussions and any stakeholder-supported recommendations. Following that, FEI planned to submit specific requests for approval, if any, to the Commission.

The first workshop provided background information relating to FEI's past price risk management and education regarding FEI's current rate structure and existing price risk management tools, including the commodity rate setting and deferral account mechanism. During this workshop, FEI also discussed the workshop objectives and the Terms of Reference for the workshops. The details of each of the workshop sessions are provided in Section 2.4.

The second workshop included discussion around the objectives of price risk management as well as alternatives for enhancing FEI's current price risk management. This workshop included a roundtable exercise where stakeholders were broken up into groups to discuss the objectives and reported back to the larger group. BCUC staff did not participate in the roundtable exercise. The proposal to conduct various rate setting and medium-term hedging simulations was also discussed in the workshop.

In order to confirm the simulations approach prior to the simulation work starting by the consultant, FEI held a conference call with stakeholders and BCUC staff on April 14, 2015.

FEI used the consulting services of Aether Advisors, LLC (Aether) to conduct the various rate setting and hedging simulations. The results of these simulations were presented and discussed in the third workshop.

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The fourth and final workshop circled back to the objectives and included feedback from stakeholders on proposed price risk management strategies, which included enhancements to the rate setting mechanism and medium-term hedging strategies. Longer-term tools and strategies were also discussed.

Table 1: Stakeholder Consultation Work Plan

Date	Topic	Objectives
February 24, 2015	Working Group, framework and current tools and activities	Discuss the Working Group objectives, roles and Work Plan. Discuss price risk management framework and background information. Develop understanding of current price risk management tools and activities.
March 30, 2015	Objectives and alternatives	Discuss objectives of price risk management. Discuss alternatives and recommendations.
May 28, 2015	Implementation simulation	Presentation by consultant of impacts of medium-term recommendations on commodity rates, including various scenarios.
June 18, 2015	Strategies and parameters	Discuss specific price risk management strategies and implementation parameters in terms of objectives. Discuss long term strategies.
October 27, 2015	Workshop Summary Report	FEI submits Workshop Summary Report to the Commission.
To be determined	Requests for approval	FEI submits specific requests for approval to the Commission.

2.3 PARTICIPATING STAKEHOLDERS

Workshop participants included FEI staff, BCUC staff as well as various stakeholders. FEI attempted to include a group of stakeholders that represented a variety of customer groups. The stakeholders included representatives with interest in FEI's price risk management tools and strategies and the impacts on commodity rates. FEI recognized that those that may have an interest in these discussions include parties that are affected by how FEI sets the commodity rate and those that have customers who can migrate from transportation-only service back to the utility bundled commodity service. The stakeholders were chosen based on the following criteria:

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- They have attended FEI's previous price risk management workshops or participated in the review of previous price risk management plans.
- They represent customers that are impacted by FEI's price risk management activities.
- They have key industry knowledge.

Two stakeholders who were involved in the review of FEI's previous price risk management program in 2011 are CEC and BCPIAC.

BCUC staff clarified their role as one limited to providing information and clarification in the workshops. In the clarification/information provider role, Commission staff could ask clarifying questions and was available to inform the group of applicable regulatory information such as applicable legislation, orders, decisions, regulatory process information.

The workshop participants included the following groups, although some members were not present at all the workshops:

- FEI staff
- BCUC staff
- CEC
- BCPIAC
- Absolute Energy
- Access Gas Services Inc.
- AltaGas Ltd.
- Cascadia Energy Ltd.
- Shell Energy North America (Canada) Inc.
- Independent Energy Consultants
- BC Non-Profit Housing Association
- BC Ministry of Energy and Mines
- BC Ministry of Social Development & Social Innovation
- Sentinel Energy
- Linda Dong Associates

2.4 WORKSHOP DETAILS

The following sections describe in more detail the topics that were discussed in each workshop and the feedback received from stakeholders. The presentations and workshop meeting notes

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are provided in Appendices A through H. It should be noted that the workshop meeting notes were circulated to workshop participants following each workshop to provide them with an opportunity to review the meeting notes to ensure they appropriately represented the discussions in the workshops.

2.4.1 Workshop #1

The initial workshop, held on February 24, 2015, provided education and background, focusing on the existing price risk management tools and activities, including how FEI sets its rates, as well as the Review Report recommendations. FEI reviewed its existing price risk management tools, including the quarterly rate setting and deferral account mechanism, natural gas storage arrangements and supply contracting strategies, such as purchasing a mix of daily and monthly priced supply and purchasing supply at multiple locations. FEI also provided an overview of the workshop objectives, participant roles, and workshop process timeline, and the draft work plan. The Terms of Reference, which outlined the scope, process, roles and timelines for the workshops, was distributed prior to the workshop (see Appendix G). FEI also described its previous price risk management history, going back to the Commission decision in 2011 regarding FEI's 2011-2014 Price Risk Management Plan in order to provide some context for stakeholders.

FEI reviewed with participants FEI's current business model framework and bill structures for different customer groups. In terms of existing price risk management tools and activities, FEI described its current physical gas contracting strategies, such as using natural gas storage and a mix of monthly and daily priced supply. FEI noted that while it is not able to directly hedge Station 2 market prices (due to lack of liquidity and financial market players at Station 2), it is able to lock in the Station 2-AECO/NIT discount or premium when purchasing gas supply at Station 2 prior to each winter or summer season in accordance with the Annual Contracting Plan. As far as rate setting, FEI described the current guidelines, commodity rate setting thresholds and the 12-month versus 24-month deferral account amortization. FEI also discussed optional products for customers to help manage their rate and bill volatility such as the Customer Choice program and the Equal Payment Plan.

During this workshop, there was some discussion regarding the deferral account amortization period and how the rate setting guidelines provide some discretion in terms of when the 24-month amortization could be used. BCUC staff noted that the Commission received submissions from natural gas marketers who did not support departing from the established rate setting thresholds when FEI last requested flexibility and consideration of the 24-month outlook and the Commission determined that there was not a compelling reason to depart from the standard 12-month outlook. FEI noted that gas marketers serve about 5% of the commodity sales customers and that if other stakeholders are in favour of more flexibility and consideration of the 24-month outlook in the commodity rate setting, in order to provide more stability in commodity rates, then they should provide support for this to the Commission. BCUC staff also noted that more clarification in terms of the criteria to be used when evaluating the 24-month amortization would be helpful for the Commission.

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In discussing the Review Report recommendation for medium-term hedging, it was suggested by CEC that the hedging costs will outweigh the benefits to customers. FEI explained that there can be a cost for hedging, like an insurance cost, which should be evaluated against the benefits, such as greater rate volatility reduction and helping preserve low commodity rates for customers. However, the objectives of price risk management should be determined first before discussion of which strategies will be used and how they could perform. FEI noted that any opportunistic price risk management strategies would not be designed to “beat the market” but rather capture opportunities to lock in prices that are favourable relative to historical market price levels or FEI commodity rates. Any price triggers would be predefined and determined with stakeholder input. FEI noted that being positioned to respond to market conditions or capture opportunities if they arise could benefit customers.

2.4.2 Workshop #2

In the second workshop on March 30, 2015, FEI reviewed the Review Report recommendations as well as historical FEI commodity rates compared to market gas prices. However, the primary focus of this workshop was on the price risk management objectives. FEI reviewed the Price Risk Management objectives from the 2011 review of FEI’s Price Risk Management Plan, as well as results from customer research.

FEI presented the objectives of price risk management as discussed within the Review Report. These included mitigating market price volatility to support rate stability and capturing opportunities to provide customers with more affordable and competitive rates. The objectives should be met in a cost effective manner. This provided a starting point for further discussions regarding objectives with the stakeholders.

In order to gather feedback from the different stakeholder groups, FEI broke the stakeholders into smaller groups for discussion of the objectives. The three groups included the gas marketers (Group 1), the BC Non-Profit Housing Association and government ministries (Group 2), and CEC and BCPIAC (Group 3). BCUC staff did not participate.

Group 1 had mixed opinions amongst the various gas marketers but some believed that some rate stability for customers is important. Some marketers would generally support a medium-term hedging program as long as it is transparent and mechanical with predefined strategies and targets. One gas marketer suggested that a lot of their customers want variable rates so if FEI uses hedging, marketers should be allowed to offer variable pricing products as well.

Within Group 2, the Ministry of Energy and Mines stated that the government is neutral about competitiveness, but favours any fuel switching that reduces greenhouse gas emissions. The BC Non-Profit Housing Association noted that utility bills can represent 18-20% of a low income customer’s expenses and these customers simply cannot afford large rate/bill increases. Therefore, they are in favour of rate stability with some variability (i.e. not completely fixed rates as under the Customer Choice model). They would like to see a commodity rate ceiling or rate cap program for low income groups.

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Group 3 stated that they would like to see rate stability for low income customers for household budgeting purposes, even if this means not always getting the lowest possible commodity rate. One member of the group stated that the main focus of the objectives should be to provide long-term low cost and to smooth price and rate volatility out with existing tools. This group believed that capturing low market price opportunities is acceptable but FEI would need to provide evidence that there are cost-benefit advantages for the customers.

During this workshop FEI also presented the current commodity rate setting and deferral account mechanism and asked if stakeholders thought that enhancements could be made to the FEI commodity rate setting mechanism. It was suggested by stakeholders that some areas for enhancing the commodity rate setting to increase rate stability could include the following:

- Allowing the deferral balance to fluctuate more;
- Have a deferral account balance buffer at the end of 12 months so the 12 month target for the deferral account balance is a surplus; and
- Cap the amount of commodity rate increase in any one quarter - for example, a \$1/GJ maximum increase for those lower income customers who wanted to opt in to such a program.

Stakeholders expressed no interest in automatically setting the commodity rate at a predetermined date in a particular quarter each year.

It was suggested by one stakeholder that conducting a survey to find out customers' bill change tolerance levels would help in determining rate setting objectives and mechanism enhancements. FEI noted that it has conducted surveys and focus groups in 2012 and previously in 2005 which provided some insights into customers' preferences for rate stability and bill change tolerances. FEI believes that customer research is important in determining customers' preferences but does not think more customer research would be valuable at this time. The workshop stakeholders provided representation from various customer groups and so indirectly indicate customers' preferences. Furthermore, it would not be useful or productive to explore the same level of detail that was discussed in the workshops with customers directly given customers' general level of understanding of how rates are set. If current market conditions change significantly, FEI could do more customer research at that time.

The components of medium-term hedging were presented and examples of several financial hedging instruments were provided. FEI described that there are several aspects to a hedging program which could include defensive hedging, to protect against rate increases, and opportunistic hedging which could use options and/or fixed price swaps or purchases to capture favourable price levels. FEI noted that developing a hedging program that is based on customer tolerances would require more customer research and analysis. However, capturing market price opportunities could be done without customer research. For example, the price target could be based on consideration of historical commodity rates, market prices, and gas producer break-even costs.

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1 Due to time limitations, the other topics planned for discussion in this workshop were not
2 discussed. These included long-term tools and strategies, optional commodity rate offerings,
3 price risk management in other jurisdictions and the gas market update. These were instead
4 discussed in Workshop #4.

5 At the conclusion of this workshop FEI noted that the next workshop would be focused on
6 simulating various price risk management tools and strategies so that FEI could determine the
7 impact on customer rates and the incremental benefit/cost relative to what FEI currently does
8 today. CEC suggested that FEI “backcast” when conducting various strategy simulations to see
9 how different strategies would have worked in past price environments compared to what FEI
10 already did. FEI incorporated this approach into the simulations that were conducted for the
11 third workshop.

12 **2.4.3 April 14th Conference call**

13 In order to confirm the simulations approach prior to the simulation work starting, FEI held a
14 conference call with workshop stakeholders and BCUC staff on April 14, 2015. During this
15 conference call, FEI discussed its approach and assumptions for the simulation work to be
16 conducted by Aether. This was to ensure FEI provided another opportunity for stakeholder
17 input and feedback before Aether began the simulation work. In this conference call, FEI
18 discussed the proposed approach, which included simulating various rate setting and hedging
19 strategies and comparing them to a base case using historical market pricing data from April
20 2010 to March 2015. FEI noted the simplifying assumptions such as using a constant
21 commodity portfolio volume per day as well as a constant monthly/daily pricing mix and Station
22 2/AECO-NIT supply mix.

23 FEI then discussed the proposed rate setting simulations which included changing the deferral
24 account balance amortization period from 12 months to 24 months. One of the gas marketers
25 suggested FEI also consider a shorter period than 12 months and so FEI include a 3-month
26 amortization period in the simulations.

27 FEI also discussed the proposed medium-term hedging strategies that would be simulated.
28 These included programmatic as well as dynamic hedging strategies with both fixed price swaps
29 and option instruments. Programmatic hedging involves layering in hedges at predefined times
30 regardless of the market prices. Dynamic hedging involves implementing hedges when certain
31 conditions are met, such as reaching market price targets. A programmatic hedging approach
32 does not take into account changes in market price conditions while dynamic hedging is more
33 responsive to changes in the market price environment.

34 There were no objections to the approach or assumptions or proposed simulation strategies
35 from stakeholders in the conference call. FEI then discussed the approach and strategies with
36 Aether so they could begin the work in preparation for the next workshop.

2.4.4 Workshop #3

In workshop #3 Aether presented the modelling approach and rate setting and hedging simulations to the group. The simulations included the stakeholder feedback FEI had received in the conference call and previous workshops. The simulations helped stakeholders understand the commodity rate impacts of various strategies and which ones reduced rate volatility and at what potential cost. This also helped stakeholders assess which strategies might best achieve the objectives.

The modelling approach included the model assumptions and inputs and outputs of the model. Aether then presented the base case commodity rate simulation compared to historical market prices. The base case essentially re-created the FEI historical commodity rate from April 2010 to March 2015 without any of the previous hedges in place and subject to the simplifying assumptions described earlier.

2.4.4.1 Rate setting and Deferral Account Mechanism Simulations

Aether then described and presented the following commodity rate setting and deferral account mechanism scenarios:

- **Scenario #1 – Longer deferral account amortization (24 months)**

This scenario showed the effect of amortizing the deferral account over a time horizon of 24 months, compared to the base case of 12 months. This had the effect of delaying the changes in the commodity rate compared to the base case.

- **Scenario #2 – Shorter deferral account amortization (3 months)**

This scenario showed the effect of amortizing the deferral account over a time horizon of 3 months, compared to the base case of 12 months. This resulted in significantly greater quarterly changes in the commodity rate compared to the base case.

- **Scenario #3 – Increasing deferral account limit (+/- \$70 million)**

This scenario showed the effect of raising the level for the deferral account from +/- \$50 million to +/- \$70 million before a rate change occurred. This had the effect of smoothing the commodity rate a little bit more than in the base case, but it was not a material change.

- **Scenario #4 – Targeting deferral account surplus (\$20 million)**

In this scenario, when the deferral account surplus exceeded +/- \$70 million, the deferral account was re-set to amortize to a surplus of \$20 million. If the deferral balance was between \$70 million surplus and \$50 million deficit, there was no rate change. If the deferral account deficit was over \$50 million at the end of the 12 month forecast period, the deferral account was re-set to amortize to \$0. This smoothed the rate movement up and down compared to the base case, but it was not a material change.

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1 • **Scenario #5 – Setting rate change on a specific date (e.g. October 1st each year)**

2 This scenario shows the effect of retaining the current rate mechanism except for re-
3 setting the rate each October 1st regardless of the level in the deferral account. The
4 current commodity rate setting structure was retained for all other quarters. This had
5 almost no discernable impact on the commodity rate compared to the base case.

6 • **Scenario #6 – Commodity rate change cap (limit of \$1.00/GJ change)**

7 This scenario showed the effect of limiting the amount the commodity rate could change
8 in any quarter to \$1.00/GJ. This looked similar to the base case, except in 2014 and
9 2015 when the commodity rate had less up and down movement compared to the base
10 case due to the high market price volatility at that time.

11
12 In its summary Aether noted that the rate setting and deferral account mechanism impacts when
13 and how customers rates change but does not impact overall gas costs which are eventually
14 recovered from customers. Aether discussed that the most significant change from the base
15 case was to change the amortization period from 12 months to 24 months or 3 months. The
16 simulations that had the least impact over the test period were:

- 17 • Setting the commodity rate on a specific date
- 18 • Increasing the deferral account balance limit to +/- \$70 million
- 19 • Targeting a deferral account surplus of \$20 million

20
21 With regard to the Scenario #6 simulation, Aether noted that during the period of sharply rising
22 prices, such as in 2014, the \$1/GJ change cap slowed the rate at which the commodity rate
23 rose and reduced the overall magnitude of the rate changes during the period compared to the
24 base case.

25 In terms of Scenario #1, the BCUC staff commented that clearer rules and criteria for
26 considering the 24-month amortization period approach would be helpful to the Commission in
27 the event FEI recommends applying the 24-month outlook, as opposed to the 12-month outlook.
28 BCUC staff mentioned that additional criteria could include metrics around market price volatility
29 or magnitude of the rate change. FEI believes that while the current 12-month amortization
30 period model works well, the 24-month amortization model could also be considered and
31 applied during specific circumstances, such as when there is a significant difference in the gas
32 cost outlook for 12 months versus 24 months. Criteria could include the difference between the
33 gas cost outlook for years one and two as well as maintaining the deferral account balance
34 within a reasonable range for 24 months.

35 It was suggested by some stakeholders that, in general, the current rate setting mechanism is
36 working well, providing a good balance of market price signals and rate stability for customers.

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**2.4.4.2 Medium-Term Hedging Strategy Simulations**

Aether then presented the medium-term hedging strategies, beginning with three programmatic hedging simulations. These included the following:

- **Scenario #1 – Purchasing fixed price swaps**
- **Scenario #2 – Purchasing \$1 out-of-the-money (OTM) call options**
- **Scenario #3 – Purchasing \$1 OTM costless collars**

These instruments (fixed price swaps and options) were chosen in the modelling because they are very commonly used for hedging purposes in the natural gas market place and also because they have been used by FEI in its previous hedging programs. Aether modelled the instruments and scenarios separately, rather than in combination, so that it would be easier to see the effects of each instrument on the commodity rate.

Aether's modelling included three different percentages for hedging targets, 25%, 50% and 75% of the portfolio hedged, and layered in forward hedges in a programmatic manner as opposed to hedging the entire portfolio at one time.

The programmatic hedging results indicated that the greater the percentage hedged the greater the impact on the commodity rate compared to the base case. The fixed price swap hedges resulted in fewer rate changes than the base case for the 25% hedging scenario. However, due to declining market prices during the test period the fixed price hedges had a greater opportunity cost than the costless collars and the call options. The costless collar performed slightly better than the fixed price swaps in terms of costs but did not compare favourably to the base case due to the market prices declining below the floor prices of some of the costless collars. The calls performed better than the costless collars in terms of cost because the opportunity costs were limited to the average premium cost of approximately ten percent of the underlying market prices.

One stakeholder asked about the amount of the call option premium costs used during the test period. It was noted that they varied from a few cents up to about \$0.50/GJ, depending on the time of implementation. FEI pointed out that, in the current low market price environment, call option premiums are low relative to historical values and are trading about \$0.13/GJ or only a few percent of the underlying commodity prices.

FEI had previously used a largely programmatic hedging approach in its hedging programs as had many other utilities. While this approach worked well during period of rising market prices, it does not work as well, in terms of hedging costs, during periods of significantly falling market prices, as occurred during the shale gas boom from 2009 to the present time. Because of this, many utilities have moved to a more dynamic approach which is more responsive to changing market price conditions.

Aether next presented the simulation results for the dynamic hedging strategies. Aether noted that, for the dynamic hedging scenarios, there are several elements that can be used to adapt

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hedging for different market conditions. These include the volume to be hedged, pace of hedging, instruments used to hedge and tenor of hedging. Aether modelled two main strategies for the dynamic hedging simulations and assumed a 50% portfolio hedged target for each:

- **Scenario #1 – Accelerated fixed price hedging**

This scenario simulates accelerating fixed price hedging when the forward market price is at or below \$3.50/GJ; otherwise no hedging occurs.

- **Scenario #2 – Call options hedging**

This scenario included purchasing call options when the forward market price is \$4.00/GJ or higher and when the call premium can be purchased for 10% or less of the market price; otherwise no hedging occurs.

The results for the dynamic fixed price hedging strategy simulation showed that it has a greater benefit if more hedging is done at lower market prices. The combination of not purchasing or locking in prices above a certain price and accelerating purchases at low target prices reduced the commodity rate even below the base case. Aether noted that the one caveat to the dynamic fixed price hedging strategy is not to set the target price so low that hedges cannot be executed.

One stakeholder noted that the \$3.50/GJ target fixed price swap hedge price worked well with perfect hindsight and suggested that a current target would have to be much lower given the overall decline in market prices over the test period. FEI agreed and discussed that a hedge target price of somewhere between \$2/GJ and \$3/GJ might make more sense given how low market prices have gone in the past, where market prices are currently, gas producer break-even costs and other market-based factors such as coal-to-gas switching price levels (further discussion in Workshop #4).

The findings for the dynamic out-of-the-money call options strategy demonstrated that acquiring options only when market prices are at higher levels is a strategy to cap rates and otherwise let the commodity rate move up and down with the market. The caveat for this strategy is to not set the premium target price so low that call options cannot be executed.

Overall, the dynamic hedging strategy simulation results indicated that accelerated hedging is attractive to do when prices are low and the use of call options is an attractive strategy to cap prices when call option premium costs are low.

Aether concluded the simulations discussions with some thoughts about incorporating the rate setting mechanism and hedging strategy into a well-defined plan. The first step is determining what rate setting mechanism to use to balance the two objectives of rate stability and providing price signals to customers. The second step is to determine the customer risk tolerance for the amount that rates or bills could move, which will then shape the hedging strategy. The third step is to define a hedging program that (i) is consistent with customers' risk tolerances, (ii) can be adapted for different market conditions and (iii) is easily validated and transparent.

2.4.5 Workshop #4

For the final workshop the main focus of the discussion revolved around circling back to the price risk management objectives and proposed rate setting and medium-term hedging strategies to help meet the objectives. In order to help provide the context for the potential hedging strategy price targets, a brief gas market update and overview of other jurisdictions that use hedging was provided. Longer-term tools and strategies were also discussed.

2.4.5.1 Price Risk Management Objectives

FEI re-presented the price risk management objectives that had been presented in the second workshop and which included the following:

- Mitigate market price volatility to support rate stability.
- Capture opportunities to provide customers with more affordable and competitive rates.

Given the Commission's views regarding the competitiveness objective in the 2011 review of FEI's objectives, FEI could adjust the second objective above as follows:

- Capture opportunities to provide customers with more affordable rates.

FEI believes that the objectives should be met in a cost effective manner in order to provide value for customers. FEI believes that these objectives are still valid and that they are supported by some of the stakeholders. Given the previous workshop discussions and simulation results, FEI provided more detailed metrics for the objectives. These included the following:

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

FEI notes that these metrics are applicable in the current low market price environment to achieve the objectives and some of them would need to be adjusted if market price conditions changed significantly.

BCUC staff concurred that the objective of managing deferral account balances was one of the considerations the Commission would consider in setting rates and that objective was

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consistent with the rate setting guidelines. BCUC staff mentioned that a dramatic spike in gas prices could increase deferral account balances and that the Commission would then consider the deferral account balances along with other objectives to set rates when such event occurs.

CEC stated that it did not agree with some of the objectives' metrics. These included reducing the magnitude and/or frequency of rate changes, limiting the impact of significant price spikes (e.g. above \$4/GJ) and continuing to manage deferral account balances (e.g. within +/- \$50 million band). CEC suggested that one of the objectives should focus on balancing the trade-off between cost and rate smoothing/stability. For the objective of limiting the impact of significant price spikes, CEC suggested that the rate smoothing provided by the rate setting mechanism takes care of this.

One stakeholder asked if FEI had conducted any surveys to see if customers want monthly commodity rate setting, as opposed to quarterly rate setting, since they viewed FEI's commodity rate as lagging behind the market by three months. FEI stated that changing rates on a monthly basis would likely be administratively challenging and might not be a cost effective or efficient option. BCUC staff agreed that departing from quarterly to monthly rate-setting would be administratively challenging given current available staffing resources. FEI's previous customer research, conducted in 2012, did not delve into customer preferences for monthly versus quarterly rate setting but did reveal the following:

- Most customers prefer some rate stability to help with household budgeting and limit surprises;
- Most customers don't want to be locked into a fixed rate;
- Customers are willing to accept smaller rate decreases if rate increases are limited, and
- Low understanding of gas bill and gas markets provides challenges with optional rate offerings.

FEI's previous customer research conducted in 2005 provided more insight into the amount of annual bill changes customers could tolerate.

2.4.5.2 Proposed Rate Setting Mechanism Enhancements

FEI then presented its recommended enhancements to the existing rate setting mechanism. These enhancements were based on the feedback received in the previous workshops and from the simulations. FEI noted that the enhancements are based on balancing the three main components of commodity rate setting, which include the magnitude of the rate changes, the frequency of the rate changes and managing the deferral account balance within acceptable limits. The proposed rate setting strategy included the following:

- Commodity rate setting reviews to remain quarterly
- +/- 5% and +/- \$0.50/GJ rate change threshold to continue

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- 1 • Default deferral balance amortization remains at 12 months
- 2 • Use 24-month deferral balance amortization under certain specific situations based on
- 3 the following criteria:
- 4 ○ A market event lasting between 8 and 16 months
- 5 ○ Market price deviation averaging more than \$0.75/GJ before and after the event
- 6 • Introduce a new quarterly rate change cap of \$0.75/GJ (only to be used for two quarters
- 7 in a row after which time there would be no change cap)

8 FEI believes that quarterly rate setting and the current thresholds work well in providing rate
 9 smoothing for customers and appropriate price signals. The simulations showed that using a
 10 24-month deferral account balance amortization period can result in unacceptable deferral
 11 account balance levels, making them difficult for FEI to manage. However, FEI believes that it
 12 would make sense in particular situations, such as when the projected gas costs for 12 months
 13 out are significantly different than those for the following 12 months. In this case, the 24-month
 14 amortization period may help to keep the deferral account balance within a reasonable range.
 15 FEI notes that a condition for implementing the \$0.75/GJ rate change cap would be that the
 16 deferral account balance is maintained within a manageable range.

17 During the discussion of whether or not to use a 24-months deferral account amortization
 18 period, some stakeholders suggested that FEI should reduce rate volatility while some
 19 suggested that FEI should not reduce rate volatility because the FEI commodity rate is
 20 supposed to be a variable commodity rate. FEI pointed out that its commodity rate has never
 21 been a purely variable rate but it is a semi-variable rate due to the quarterly rate setting, use of
 22 deferral accounts, physical gas resource contracting practices and, in the past, hedging
 23 programs. What FEI is proposing now with its recommendations does not represent a change
 24 to this semi-variable rate approach.

25 In terms of rate setting, CEC suggested that FEI should have a more flexible model and make
 26 rate decisions based on the information available at the time. FEI should use a rule-based
 27 system with flexibility. FEI reiterated that it is trying to manage balancing flexibility in the rate
 28 setting mechanism with providing the Commission enough criteria to make informed rate
 29 decisions.

30 BCPIAC supported the rate change cap proposal of \$0.75/GJ as their client group values
 31 stability which helps with managing monthly household budgets.

32 CEC supported the rate change cap as it helps smooth the commodity rate but suggested that
 33 having a fixed rate change cap does not meet the objectives.

34 FEI noted that if gas market price conditions were to change significantly from where they are
 35 today and revert back to a pre-shale gas price range of \$6-\$7/GJ, then the rate setting criteria
 36 proposed here may have to be revisited and adjusted. It is difficult to come up with rate setting
 37 rules and criteria that are applicable in all circumstances.

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2.4.5.3 Proposed Medium-Term Hedging Strategies

FEI proposed an integrated hedging strategy which included capturing forward market price opportunities to help maintain low commodity rates (opportunistic hedging) and limiting the impact of higher market prices and price spikes on commodity rates (defensive hedging). Capturing forward market price opportunities included the following components:

- Price targets for winter and summer terms – for example, \$2.75/GJ for winter and \$2.50/GJ for summer (based on AECO/NIT market hub)
- 3-year hedging horizon
- Maximum hedging percentage of 50% of the commodity supply portfolio

Limiting the impacts of higher market prices included the following components:

- \$1 OTM call options with low premium costs
- Maximum annual call options premium costs limited to \$10 million (less than 3% of the overall commodity supply portfolio cost)
- Call premium maximum of \$0.17/GJ
- Maximum hedging percentage of 50% of the commodity supply portfolio

In the workshop, FEI asked the stakeholders if they agreed with the principle of capturing low market prices with hedging and then if they agreed with the proposed hedging price targets and hedging percentages. CEC stated that it supported capturing opportunities and agreed that these opportunities come along periodically and FEI has the knowledge and expertise to capture them. CEC suggested the volume hedged should be below the 50% maximum proposed to balance potential hedging costs with rate stability.

BCPIAC also agreed that FEI should be capturing opportunities, as long as the price target is set low enough so customers don't miss out if commodity prices drop further.

One stakeholder asked about the bill impact to customers on a monthly basis for the call options strategy with premiums capped at a maximum of \$0.17/GJ. Assuming 50% of the portfolio was hedged with call options, the maximum bill impact for an average residential customer would be about \$0.64 per month ($\$0.17/\text{GJ} \times 90 \text{ GJ/year} / 12 \text{ months} \times 50\% \text{ of the portfolio} = \$0.64/\text{month per customer}$).

While there was stated support from some stakeholders in the workshop for capturing market price opportunities, there was no stated support from any stakeholders for the strategy of limiting market price increases or price spikes with low-cost call options. FEI believes that stakeholders feel the rate setting mechanism and proposed rate change cap provide this protection. FEI believes that this defensive hedging strategy with call options can provide low-cost price spike insurance for customers, especially if market conditions change such that

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1 market prices were higher and price volatility continued. FEI will continue to monitor market
2 conditions and the potential effectiveness of these instruments.

3 ***2.4.5.4 Long-Term Tools and Strategies***

4 In this last workshop, the topic of longer term tools and strategies was discussed. FEI sought
5 the stakeholders' opinions on several longer term options for managing longer term price risk.
6 As noted in the first workshop, the Commission decision in 2011 suggested that FEI explore
7 alternatives for managing longer term price risk. The alternatives discussed in the workshop
8 included long term purchases or hedges, investing in reserves and Volumetric Production
9 Payments (VPPs). During this workshop, FEI described these alternatives and noted that some
10 other jurisdictions had, or were considering, investing in natural gas reserves to secure long
11 term supply and provide greater rate stability for their customers.

12 The balance of risk versus cost for investing in reserves was discussed with stakeholders in the
13 workshop. Investing in reserves can result in more risk in terms of gas production certainty and
14 there would likely be greater execution costs, in addition to the capital and operating costs,
15 compared to long term purchases, as these arrangements are complex and would require
16 significant due diligence by the buyer. These additional costs could include consultant review
17 costs and legal costs, for example, and require greater time for review by stakeholders and the
18 Commission if an application was filed. The benefits to utility ratepayers could include long-term
19 supply certainty, increased gas rate stability, and a potential net present value benefit compared
20 to market purchases over the long term.

21 BCUC staff asked FEI if long-term investment in reserves is a strategy that is suitable for all
22 price environments or if it is more appropriate in certain price environments. FEI believes that
23 the current gas market price environment is suitable for investing in reserves as producers have
24 worked to bring down the cost of production in the last few years and there's an abundance of
25 gas available and some producers would prefer to have some of their supply dedicated to a
26 specific deal or market. In five to ten years from now, producers may have more certainty in
27 demand, such as from LNG exports or other industrial projects, and so may be less willing to do
28 these types of arrangements. The fact that more utilities are exploring these types of long term
29 arrangements suggests that the timing may be appropriate.

30 The BCUC staff also asked about the objective of long term competitiveness and noted that this
31 was previously rejected by the Commission in 2011 as a valid price risk management objective
32 and that the Commission's view was that competitiveness should be dealt with as part of a
33 return on equity or cost of capital proceeding. FEI responded that they were aware of this view
34 of the Commission but believe that the competitiveness objective is important for the utility and
35 customers over the long run, regardless of which proceeding or application it falls under.
36 Nevertheless, FEI has removed the 'competitiveness' part of its second objective as discussed
37 in Section 2.4.5.1.

38 CEC believes there are opportunities for utilities to invest in reserves in North America. This is
39 because there are significant quantities of gas being pushed back into the west from the east

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- 1 due to the Marcellus shale play and so western gas producers need outlets and markets for
- 2 their supplies. CEC expressed its support for FEI capturing potential long-term opportunities,
- 3 noting that successful investment depends on where it is located and when it is done. CEC
- 4 suggested there may be options that have less risk and more certainty in terms of supply. CEC
- 5 suggested that it would be appropriate for the regulated utility FEI, as opposed to its parent
- 6 company Fortis Inc., to invest directly in reserves.

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**3. SUMMARY**

FEI believes that this workshop process to review its price risk management objectives and alternatives, as outlined in the Review Report, was both informative and productive. It enabled a more fulsome discussion of stakeholder issues and concerns and has provided FEI with more clarity regarding which tools and strategies have support from some of the stakeholders to meet the objectives. BCPIAC notes the value and usefulness of the workshops in its letter to FEI dated September 24, 2015 (included in Appendix H).

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

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

FEI recognizes that the objectives should be met in a cost effective manner in order to provide value for customers.

While there may be different opinions amongst stakeholders on how to best achieve these objectives, there was some support expressed for FEI's rate setting mechanism enhancements. For example, while stakeholders generally agreed that the current commodity rate setting mechanism was working well, there was some stakeholder support for enhancing the existing mechanism with a commodity rate change cap of \$0.75/GJ. This would help to mitigate large commodity rate increases during periods of significant market price volatility, like those which occurred as recently as winter 2013/14. There was also some support for the use of a 24-month deferral account amortization period when setting commodity rates under certain situations, provided that FEI could provide more clarity regarding the criteria for when this would be used instead the 12-month amortization period. These enhancements would help with the objective of mitigating market price volatility to support rate stability, while still providing customers with market price signals.

There was also some support for FEI's proposed medium-term hedging strategies. Some stakeholders, in particular those representing low-income customers, believed that FEI should capture low market price opportunities, if they occurred, with medium-term hedging, such as fixed price swaps or purchases, for a portion of the portfolio. Market price targets could be based on consideration of how low market prices have gone in the past, where market prices are currently, gas producer break-even costs and other market-based factors such as coal-to-gas switching price levels. This strategy would help with meeting both of the objectives of mitigating market price volatility to support rate stability and capturing opportunities to provide customers with more affordable rates. Furthermore, any potential hedging costs may be limited given that market prices are already at low levels.

FEI recognizes that these rate setting enhancements and medium-term hedging strategies are appropriate in the current market price environment but may not be applicable if market

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1 conditions changed significantly. FEI suggests that the strategies be reviewed with
2 stakeholders on a periodic basis, such as annually, to discuss how the strategies have worked
3 so far and if any refinements need to be made.

4 There was also some stakeholder support for FEI further exploring longer term price risk
5 management alternatives, such as investing in reserves. These longer term strategies could
6 help meet the objectives and also provide FEI with greater security of supply in its portfolio.

7 This workshop feedback will be valuable to FEI in enhancing of its current price risk
8 management strategies and activities to meet the objectives in the interests of customers. FEI
9 next intends to submit to the Commission specific applications for approval based on the
10 stakeholder support described in this report and indicated during the workshops. FEI believes
11 that any applications submitted to the Commission based on the discussions and feedback from
12 the workshops should require a more limited review process than if the workshops and
13 discussions had not taken place. The role of the workshops was to determine if any further
14 price risk management strategies were warranted and supported by stakeholders, making the
15 review process more efficient and less costly for customers.