**Diane Roy**
Vice President, Regulatory Affairs

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

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

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

June 13, 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)**

**2017 Price Risk Management Plan**

FEI is submitting to the British Columbia Utilities Commission (the Commission) for approval the 2017 Price Risk Management Plan (2017 PRMP). Within the 2017 PRMP, FEI hereby requests to extend the term and adjust hedging price targets for the medium term fixed-price hedging strategy already approved by the Commission as per Order E-10-16 dated June 17, 2016. Also included is a request for approval for a longer term fixed-price hedging strategy based on pre-defined market price targets. These requests are based on consideration of the current gas market price environment and FEI's customer research.

FEI has provided a confidential version of the 2017 PRMP, and requests confidentiality pursuant to Section 18 of the Commission's Rules of Practice and Procedure regarding confidential documents, established by Order G-1-16. A public version of the Application is also provided which has redacted the sensitive details of FEI's hedging strategy as FEI believes that this market sensitive information should be protected and not publicly disclosed in order to preserve and not impair FEI's ability to negotiate and obtain favorable commercial terms for any future natural gas hedging. The confidential version will be provided to the stakeholders involved in the February 24, 2017 Price Risk Management Workshop conducted by FEI. FEI requests these stakeholders keep the details of the hedging strategy confidential.

A Draft form of Order relating to the extension of the medium term fixed-price hedging request is provided in Appendix C and a Draft form of Order relating to the longer term fixed-price hedging request is provided in Appendix D.

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

Sincerely,

**FORTISBC ENERGY INC.**

Diane Roy

Attachments

# FortisBC Energy Inc.

# 2017 Price Risk Management Plan

June 13, 2017

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# EXECUTIVE SUMMARY

FortisBC Energy Inc. (FEI) is submitting to the British Columbia Utilities Commission (the Commission) the 2017 Price Risk Management Plan (2017 PRMP). The 2017 PRMP includes requests for approval to extend and refine the current price risk management strategy outlined within the approved 2015 Price Risk Management Application (2015 PRM Application) as recommended within the 2017 Price Risk Management Annual Report (2017 Annual Report). It also includes a request for approval to implement longer term hedges if certain market price targets are reached.

On December 23, 2015, FEI filed with the Commission the 2015 PRM Application. The 2015 PRM Application included recommendations by FEI for price risk management strategies, which included the request for approval for the implementation of a medium-term (i.e. three-year) hedging strategy based on pre-defined market price targets and maximum volume limits and the implementation of enhancements to FEI's quarterly commodity rate setting mechanism. The Commission Panel (Panel) approved the 2015 PRM Application in Order E-10-16 and Letter L-15-16 on June 17, 2016, with the exception of extending the hedging horizon beyond March 2019. The Panel directed FEI to file an annual report providing an update on approved hedging strategies as well as providing relevant commentary on the effectiveness of enhancements to the commodity rate setting mechanism. FEI submitted the 2017 Annual Report on April 27, 2017.

As discussed in the 2017 Annual Report, the current price environment continues to provide 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. Market prices continue to be low and near break-even cost for producers. An extension of the medium-term hedging strategy beyond Winter 2018/19 to Summer 2020 that includes locking in up to half 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. To further enhance FEI's current medium-term hedging strategy, FEI is requesting approval for adjustments to the winter term hedging price targets to account for seasonality in market prices as well as the one-year term hedging price targets based on the changes to the winter term hedging price targets. Adjusting the winter hedging targets positions FEI to be able to capture low winter prices and keep overall commodity rates low for customers.

FEI recommends continuing with the approved rate setting enhancements form the 2015 PRM Application. In its decision on the 2015 PRM Application, the Panel directed FEI to include an evaluation of the option of increasing the acceptable Commodity Cost Reconciliation Account (CCRA) deferral account balance limit to +/- $200 million to manage CCRA during periods of extreme volatility if FEI wished to extend the hedging program. FEI has evaluated increasing the CCRA deferral account limit and, given FEI's other existing rate setting mechanisms, believes there is no need or benefit to increasing the CCRA deferral account limit.

To maintain low prices beyond the medium-term hedging strategy three-year horizon, FEI is also requesting approval for implementing longer term hedges with terms up to five years if certain price targets are reached. Like the medium-term program currently in place, this longer-term hedging plan is also an opportunistic strategy to capture low market prices, which are now available further out in time, and improve the likelihood of maintaining a low commodity rate for customers for a longer period of time.

During March 2017, FEI enlisted the services of Sentis Research (Sentis) to conduct a customer survey to help FEI determine customers' preferences for stability and tolerances for rate or bill changes. The results indicate that the majority of customers saying they definitely or probably would make some changes to their household behavior to offset natural gas bill increases of 25 percent or more. Customers also indicated they would prefer that FEI make smaller, more frequent adjustments to the commodity rate, rather than less frequent but possibly larger adjustments. To ensure a more stable natural gas bill, the majority of customers surveyed would be willing to pay a small premium. The survey results are consistent with FEI's price risk management tools and the recommendations for approval in the 2017 PRMP.

# 1. INTRODUCTION

This FEI 2017 PRMP includes requests for approval relating to the recommendations provided in FEI's 2017 Annual Report, submitted to the Commission on April 27, 2017, as well as FEI's 2015 PRM Application. It also includes other requests relating to longer term price risk management. The following sections provide background information relating to the 2015 PRM Application and the Annual Report to provide context for the requests within the 2017 PRMP.

## 1.1 *2015 PRICE RISK MANAGEMENT APPLICATION*

On December 23, 2015 FEI submitted to the Commission the 2015 PRM Application which included the following objectives:

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

These objectives continue to be applicable for this 2017 PRMP.

The 2015 PRM Application included requests for approval relating to specific price risk management tools and strategies for customers who receive commodity supply from FEI. These included 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 25 percent of the FEI commodity supply portfolio;
    b) Execute hedges when forward AECO/NIT market prices are at or [redacted] for up to 50 percent of the FEI commodity supply portfolio;
    c) Maximum hedging for any term is 50 percent 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[1] 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 per GJ, applicable to rate increases or decreases, provided the deferral account balance is maintained within a reasonable range:

[1] Winter term includes November to March, summer term includes April to October and one-year term includes November to October or April to March.

i. Implementing a commodity rate change cap, plus or minus $1.00 per 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 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 per 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 commodity rate change was an increase, the CCRA WACOG for year two would need to be lower than the CCRA WACOG for year one).

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

In terms of the hedging percentages, the FEI commodity supply portfolio includes the gas purchases FEI requires for its commodity portfolio and excludes any supply provided to FEI by natural gas marketers per the Customer Choice Program. The commodity supply portfolio is determined within the FEI Annual Contracting Plan (ACP) each year. For simplicity, FEI defined the hedging terms as including winter, summer or one-year terms and not including hedging for individual months.

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

FEI recognized 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 in the future. FEI suggested that the strategies be reviewed through an update report on an annual basis to discuss how the strategies have worked so far and if any refinements need to be made.

## 1.2 COMMISSION PANEL DECISION

The Panel approved the PRM Application in Order E-10-16 (for hedging) and Letter L-15-16 (for rate setting) dated June 17, 2016. In its decision, the Panel accepted that FEI's current portfolio of comprehensive price risk management strategies and tools are working well from the perspective of managing volatility, sending appropriate market signals and managing the CCRA deferral account balances within a reasonable range. It also noted that the development of effective price risk management tools is an iterative process and the application of these tools will continue to evolve as market conditions change[2].

The Panel's decision to approve the three-year hedging strategy was made with consideration to the low-price commodity environment which existed at the time FEI submitted its 2015 PRM Application[3]. FEI notes in the 2015 PRM Application that this low price environment, where market natural gas prices are near their lowest levels in over a decade, 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. The 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.

In its decision, the Panel denied any extension of the hedging horizon beyond the three years ending with the Winter 2018/19 term. The Panel noted that its concern with extending the program beyond three years is not whether capturing hedging opportunities is appropriate in the current environment, but whether it is appropriate to apply a similar methodology in a higher pricing environment than exists today[4]. The Panel states that there is no evidence on the record attempting to define exactly what a "low-price market environment" is and at what price point a low-price market environment ceases to exist and there is a shift from a risk view to a market view. Therefore, the Panel stated that if FEI wishes to make any change to the term, the price targets or the methodology as outlined in its 2015 PRM Application, it must do so by a formal application.

In its decision, the Panel approved FEI's proposal to keep the CCRA deferral account range at +/-$60 million (after tax) in keeping with FEI's recommendations[5]. However, the Panel considered there to be potential benefit to examining the option of increasing the maximum amount of the CCRA deferral account as a practical solution to control volatility over the longer term. In the event that FEI seeks to extend the hedging program, the Panel expects FEI to include in its application a review of the effectiveness of the approved strategies as compared to

[2] Commission Order E-10-16 dated June 17, 2016, page 12.
[3] Commission Order E-10-16 dated June 17, 2016, page 24.
[4] Commission Order E-10-16 dated June 17, 2016, page 24.
[5] Commission Order E-10-16 dated June 17, 2016, page 27.

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 discusses increasing the deferral account limit in Section 4.

In its decision, the Panel directed FEI to file an annual report providing an update on the approved hedging strategies as well as providing relevant commentary on the effectiveness of enhancements to the commodity rate setting mechanism. The following items should be included in each annual report:

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

FEI was directed to file the annual report concurrently with its annual contracting plan which is typically filed at the beginning of May each year. A copy of the report was also to be provided to all participants of the 2015 PRM Application proceeding, redacted if necessary. Once it had been filed, the need for further process would be assessed by the Commission and, if required, a formal process determined. FEI submitted the Annual Report to the Commission on April 27, 2017.

## 1.3 *CLARIFICATION OF HEDGING IMPLEMENTATION*

Following the Panel decision, in a letter dated February 21, 2017, FEI sought clarification from the Panel that the hedging implementation plan is rolled over each year during the hedging horizon such that year 1 now becomes April 2017 to March 2018 and year 2 becomes April 2018 to March 2019. In its letter dated February 28, 2017 the Panel confirmed that the hedging implementation as laid out in FEI's letter is consistent with the Panel's directives contained in Order E-10-16 and accompanying decision.

## 1.4 *2017 ANNUAL REPORT RECOMMENDATIONS*

FEI made a number of recommendations within the 2017 Annual Report but did not make any requests for approval relating to the recommendations at that time. FEI is now asking for approval relating to these items within this 2017 PRMP. These recommendations included the following items:

- Extend the hedging horizon out beyond Winter 2018/19 to Summer 2020;
- Adjust the winter term hedging price targets to account for the seasonality in market prices;
- Adjust the one-year term hedging price targets based on the changes to the winter term hedging price targets;
- Continue with the approved rate setting enhancements; and
- Consider a longer term hedging strategy with terms up to ten years.

The first recommendation was extending the medium-term hedging strategy horizon out to 2020 in order to position FEI to capture any favourable market pricing opportunities in the next three years to meet the price risk management objectives. As discussed in Section 3.1.1, forward market prices remain low for several years out and there is no certainty on how long this will last. FEI may have a limited opportunity to capture low market prices and keep rates low and more affordable than in the past for customers.

The second recommendation included adjusting the winter hedging price targets to account for the seasonality in market prices. This will position FEI to capture low winter prices as well as low summer prices to keep overall commodity rates low for customers. If the hedging targets are not adjusted, FEI may miss out on opportunities to capture low market prices for winter terms, when market price spikes and volatility are typically higher.

The third recommendation includes adjusting the hedging price targets for one-year terms, given the increases in the hedging price targets for the winter terms.

The fourth recommendation is to continue with the approved rate setting enhancements. Any further refinements or improvements may come over time once FEI has gained experience with their use and FEI is able to assess the impacts on commodity rate volatility reduction.

The fifth recommendation is to consider extending the hedging strategy beyond the three-year hedging horizon to take advantage of the current low market prices further out in time. This could include hedges with terms spanning up to ten years to capture the low market AECO/NIT or Station 2 forward market prices, which may not remain at current low levels. This would help capture low market prices and costs further out in time for customers as well as reduce the impacts of any potential future market price volatility on commodity rates. While the current hedging program achieves these objectives for up to three years out, it does not achieve them beyond this period.

FEI notes that these recommendations are not fundamental changes or additions but rather refinements to FEI's existing price risk management strategies, which were supported by stakeholders and have been approved by the Commission.

# 2. REQUESTS FOR APPROVAL

With this 2017 PRMP, FEI is requesting Commission approval to extend the hedging horizon and adjust some of the hedging price targets of the existing medium-term hedging program, as well as approval for longer term hedging, all in the interests of meeting the 2017 PRMP objectives. Each of these requests is listed below, followed by a discussion of the supporting reasons in Section 3.

## 2.1 *MEDIUM-TERM HEDGING PROGRAM REFINEMENTS*

FEI is requesting Commission approval for refinements to the medium-term opportunistic hedging program for customers who receive commodity supply from FEI. These changes include adjustments to the winter and one-year term hedging price targets to account for seasonal market pricing, and extending the hedging horizon. For simplicity, FEI has defined the hedging terms as including whole winter, summer or one-year terms and not included hedging for individual months. FEI is seeking approval of the following under its medium-term hedging program:

a) For summer terms, execute hedges when forward AECO/NIT market prices are:
   i. at or below [redacted] for up to 25 percent of the FEI commodity supply portfolio;
   ii. at or below [redacted] for up to 50 percent of the FEI commodity supply portfolio;
b) For winter terms, execute hedges when forward AECO/NIT market prices are:
   i. at or below [redacted] for up to 25 percent of the FEI commodity supply portfolio;
   ii. at or below [redacted] for up to 50 percent of the FEI commodity supply portfolio;
c) For one-year terms, execute hedges when forward AECO/NIT market prices are:
   i. at or below [redacted] for up to 25 percent of the FEI commodity supply portfolio;
   ii. at or below [redacted] for up to 50 percent of the FEI commodity supply portfolio;
d) The price targets listed above apply to each winter or summer term or one-year term within the three-year horizon of November 2017 to October 2020.

As in the 2015 PRMP Application, the maximum hedging for any term is limited to 50 percent of the FEI commodity supply portfolio. Hedges can include fixed price financial swaps or physical fixed price purchases. No hedges would be executed if the hedge price targets listed above are not reached.

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

The hedging requests listed in a) to c) above are based on the hedging implementation plan for year 1. FEI requests approval for the following portfolio percentage limits with regard to the hedging implementation plan within the three-year hedging horizon.

e) Execute hedges according to the following implementation limits:

[redacted]

f) Execute hedges according to the following weekly hedging implementation limits:

[redacted]

This implementation plan allows for the hedges to be implemented over a period of time rather than all at once to balance capturing the low prices with reducing the risk of potential hedging costs.

Prior to November 2017, year 1 includes November 2017 to October 2018, year 2 includes November 2018 to October 2019 and year 3 includes November 2019 to October 2020. In April 2018, once any hedging opportunity for summer 2018 has ended, year 1 becomes November 2018 to October 2019 and year 2 becomes November 2019 to October 2020. In April 2019, year 1 becomes November 2019 to October 2020. This approach is consistent with that discussed in FEI's letter to the Panel seeking clarification that the implementation plan is rolled over each year during the hedging horizon.

FEI intends to submit its next annual report by May 1, 2018 to determine the effectiveness of the hedging program and, if warranted, request approval for the extension of the hedging horizon beyond October 2020 and any adjustments to hedging price targets.

FEI recognizes that its medium-term hedging strategies are appropriate in the current market price environment but may not be applicable if market conditions change significantly in the future. FEI suggests that the strategies continue to be reviewed through an update report on an annual basis to discuss how the strategies have worked so far and if any refinements need to be made.

## 2.2 *LONGER TERM HEDGING*

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

a) Execute hedges when forward AECO/NIT market prices are at or below [redacted] for up to 25 percent of the FEI commodity supply portfolio for terms up to five years within the hedging horizon of November 2017 to October 2023;

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

[redacted]

Hedges can include fixed price financial swaps or physical fixed price purchases at AECO/NIT or Station 2. No hedging is executed if the hedging price target listed above is not reached.

The hedging price target for the longer term hedges is the same as those for the one-year terms under the medium-term hedging strategy at [redacted] for up to 25 percent of the portfolio. This is because the longer term hedges would not be individual summer or winter terms but rather terms of greater than one year.

The hedging term may be less than five years if, for example, hedging to 50 percent has already been completed for some near terms per the medium-term hedging program. If FEI has already hedged 50 percent of the Winter 2017/18 term, it would not then implement another 25 percent for that same term under the longer term hedging strategy, if the hedging price targets were reached, such that the total hedging for Winter 2017/18 was 75 percent. FEI could instead implement the longer term hedge starting after the Winter 2017/18 term, with a term beginning with April 2018.

FEI has included a hedging horizon ending October 2023 in order to allow for the potential situation where the effective start date of the five-year hedge may be after November 2017. It also takes into consideration the required time to implement hedges after a Commission decision on this Application.

This longer term hedging strategy is an extension of the medium-term hedging strategy with the objective of capturing low market price opportunities for customers. As will be discussed in Section 6, forward AECO/NIT market prices have decreased significantly in recent years, not only for the short and medium term, but also for the longer term. However, opportunities to capture low market prices may not last indefinitely. This hedging strategy is also more favourable than other longer term price risk management options that could be available to FEI, as discussed in Section 5.

FEI believes that consideration of implementing hedges of terms more than five years and up to ten years in length is appropriate in the current market price environment and would help achieve the objectives for a longer period of time. However, FEI recognizes that its current opportunistic hedging strategy for up to three years out is newly approved, and that the Commission and/or stakeholders may not, at this time, be supportive of extending hedging to include terms of up to ten years. While FEI believes that the ten-year longer term hedging request would help to meet the 2017 PRMP objectives and has provided reasons for the request in the following sections, FEI is recommending a maximum five-year hedge term at this time.

# 3. REASONS FOR THE REQUESTS

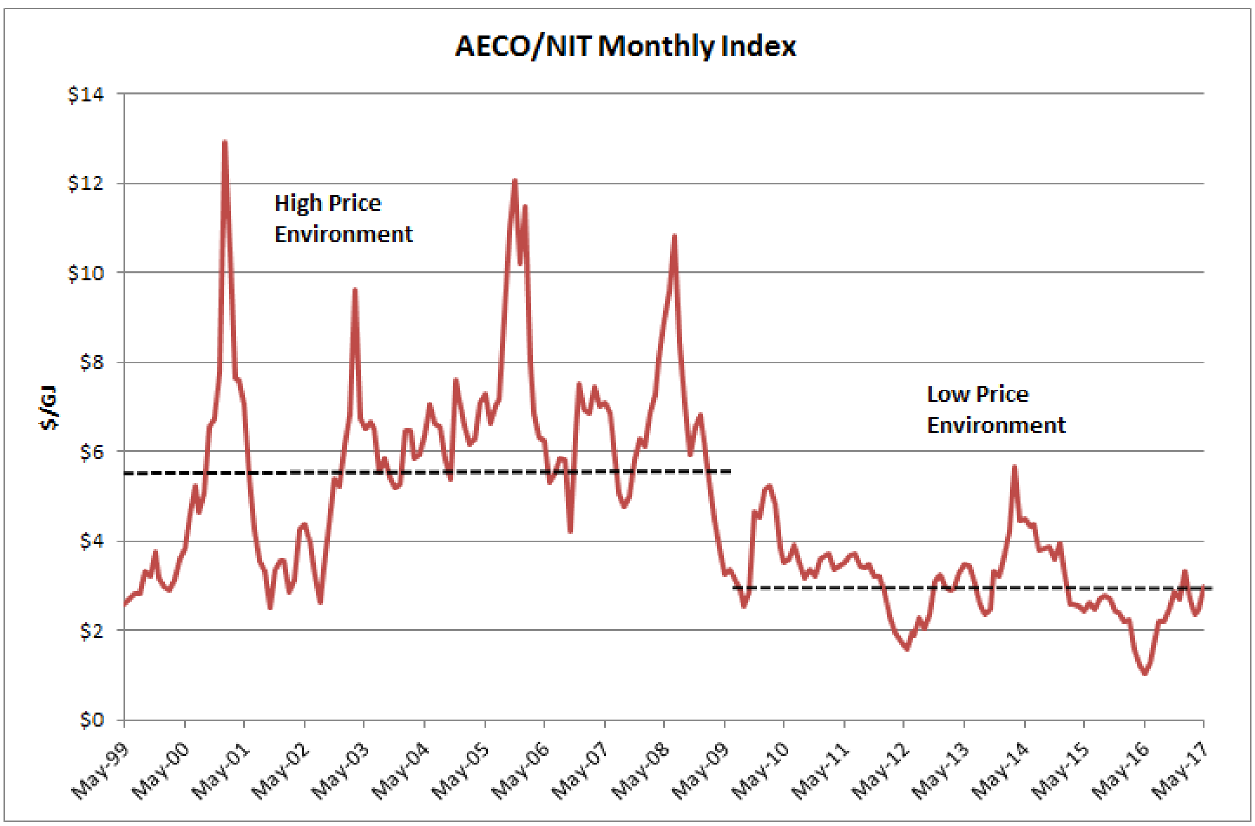
This section describes the reasons for the requests for approval. An overview of the market price environment is provided first, followed by a discussion of FEI's recent customer research.

## 3.1 *MARKET PRICE ENVIRONMENT*

### 3.1.1 Low Price Environment

The natural gas market price environment continues to remain low but with the potential for price volatility. A low priced environment is one where market prices fall to near historical lows and natural gas producer break-even cost levels. Section 3.1.1 of the 2015 PRM Application describes this low market price environment by discussing historical market prices, producer break-even costs and coal-to-gas fuel switching levels for power generators. For the AECO/NIT market, this is where market prices are near or below about $2.50 per GJ but with occasional price spikes above $4.00 per GJ. The following figure shows historical AECO/NIT market prices, showing the difference between the current low market price environment and the higher market price environment before the shale gas era began in 2009.

**Figure 1: Historical AECO/NIT Market Prices**




Prior to the shale gas era, market prices averaged close to $6.00 per GJ and price volatility was high with market prices spiking above $8.00 per GJ several times over the ten-year period. During the shale gas era since 2008, market prices have typically traded between $2.00 per GJ and $4.00 per GJ, averaging about $3.00 per GJ. Price volatility has continued with price spikes up to above $5.00 per GJ on two occasions and price dips below $2.00 per GJ on two occasions.

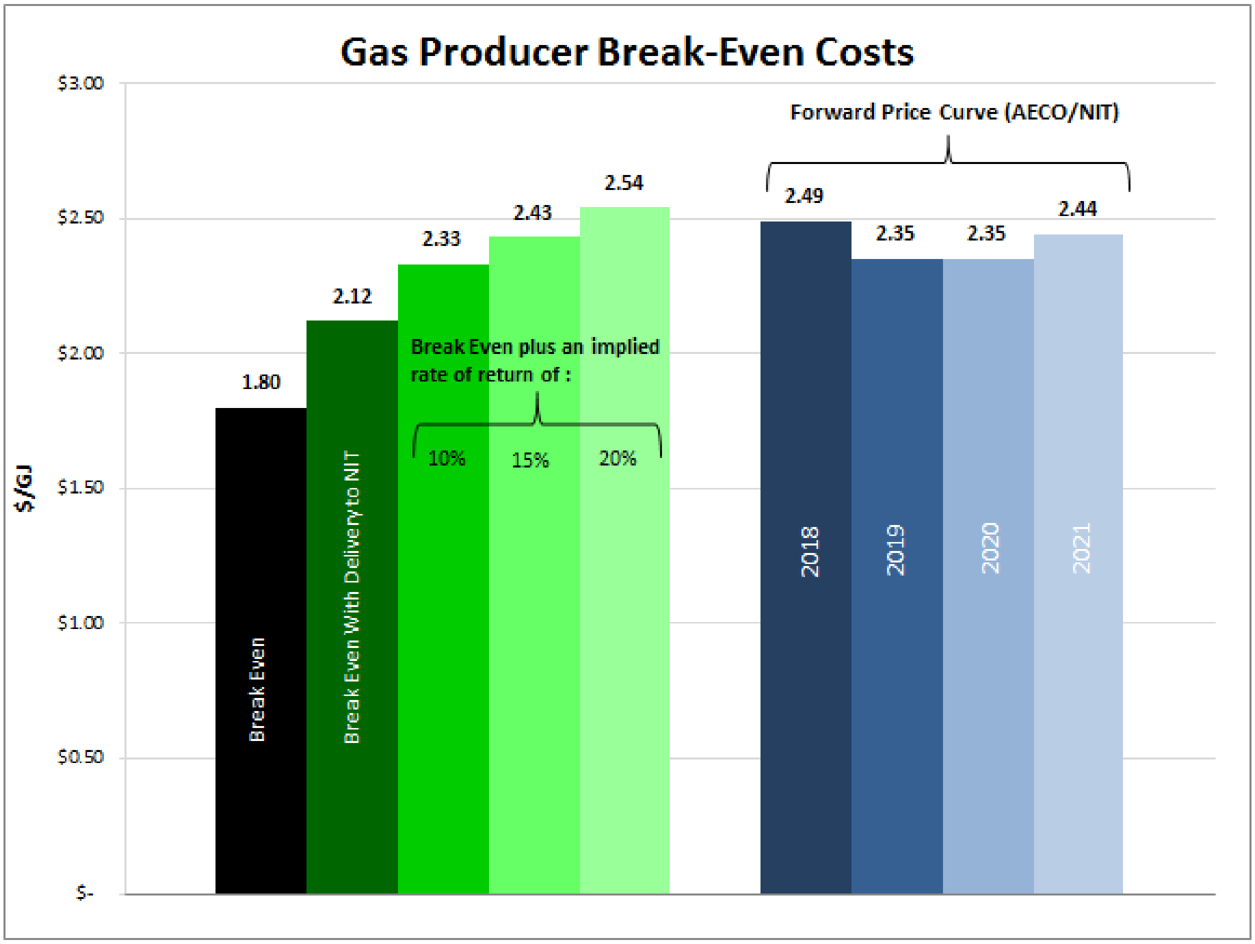
### 3.1.2 Producer Break-Even Costs

In May 2016, record gas storage levels coming out of the warm Winter 2015/16 combined with pipeline constraints limiting gas flow out of Alberta to eastern markets caused AECO/NIT market prices to fall below $1 per GJ. These price levels were not sustainable, however, as they were below gas producer break-even costs. As a result of these low market prices, gas producers in North America cut back on their production levels. These cut backs in supply combined with increased gas demand in the U.S. for power generation, liquefied natural gas (LNG) exports and pipeline exports to Mexico brought gas storage levels back closer to historical levels and market prices increased from near $1 per GJ in mid-2016 to near $3 per GJ in early 2017.

The following figure shows a recent update of a comparison of the break-even costs for some major gas producers in the Western Canadian Sedimentary Basin (WCSB)[6] to June 1, 2017 forward AECO/NIT market prices.

[6] Source: TD February 2017, based on low-cost Montney gas producers' break-even costs and June 1, 2017 forward gas prices.

**Figure 2: Gas Producer Break-Even Costs and Forward Market Prices**




The previous figure indicates that some major gas producers require market prices between $2.33 and $2.54 per GJ to break even and earn a reasonable rate of return. Market prices below these levels are not expected to be sustained for a long period of time as producers will cut back on production at these price levels. As Figure 1 shows, AECO/NIT market price dips below $2 per GJ are infrequent and short-lived.

FEI notes that some gas producers have hedges in place that protect a percentage of their production from low market prices. However, at the current time, these hedge percentages are low and most producers are still exposed for the majority of their portfolio to downward market price movements, meaning that they will typically adjust production output in response to low market prices. On average, as of May 2017, producers have hedged 15 percent of their total production in 2017 and only 5 percent in 2018[7].

[7] Source: TD Gas Producer Hedges 2017-2018 (May 2017).

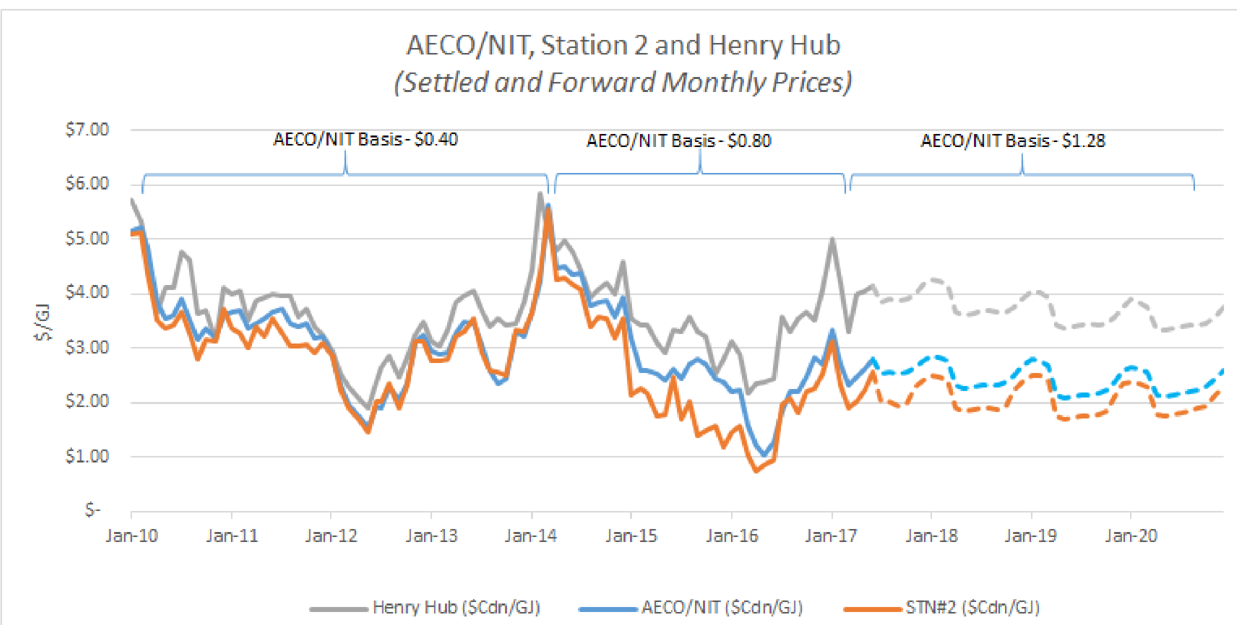
### 3.1.3 Forward Market Prices

Forward AECO/NIT market prices have fallen over the past few years as less natural gas supply from the WCSB is required for eastern U.S. and Canadian markets due to the growth in gas supply and pipeline connections from the Marcellus and Utica shale regions.

As a result, TransCanada Pipeline Limited (TCPL) has experienced declining gas shipper contracting on its Mainline system from the WCSB to eastern markets. In 2016, TCPL attempted to encourage shipper contracting by lowering its Mainline toll. However, at that time, shipper enrolments were not significant enough for TCPL to be able to provide the reduced toll due to shippers not wanting to contract for a ten-year term. In March 2017, after further negotiations with potential gas shippers, TCPL announced the successful conclusion of a long-term, fixed-rate open season with 27 shippers signed up for service. The National Energy Board (NEB) has granted TCPL approval to use a streamlined regulatory process and expects to have a final decision released by late September 2017 for service to start in November 2017. Also, owners of the Alliance pipeline are assessing interest in expanding its capacity to transport natural gas from the WCSB to Chicago starting November 2020. The result is that the AECO/NIT basis, or discount, to Henry Hub could tighten in the future with the increase in shipping contracts and outlets for WCSB gas supply to markets. However, currently the AECO/NIT basis continues to remain wide, providing low and favourable market prices for gas buyers such as FEI.

The following figure shows the historical settled and forward monthly prices for AECO/NIT, Station 2 and Henry Hub out to 2020 as of June 1, 2017. The basis between AECO/NIT and Henry Hub has increased over the last few years and now averages about $1.28 per GJ in the forward prices. Station 2 prices trade at a further discount of about $0.37 per GJ to the AECO/NIT forward prices.

**Figure 3: Settled and Forward Monthly Prices as of June 1, 2017**



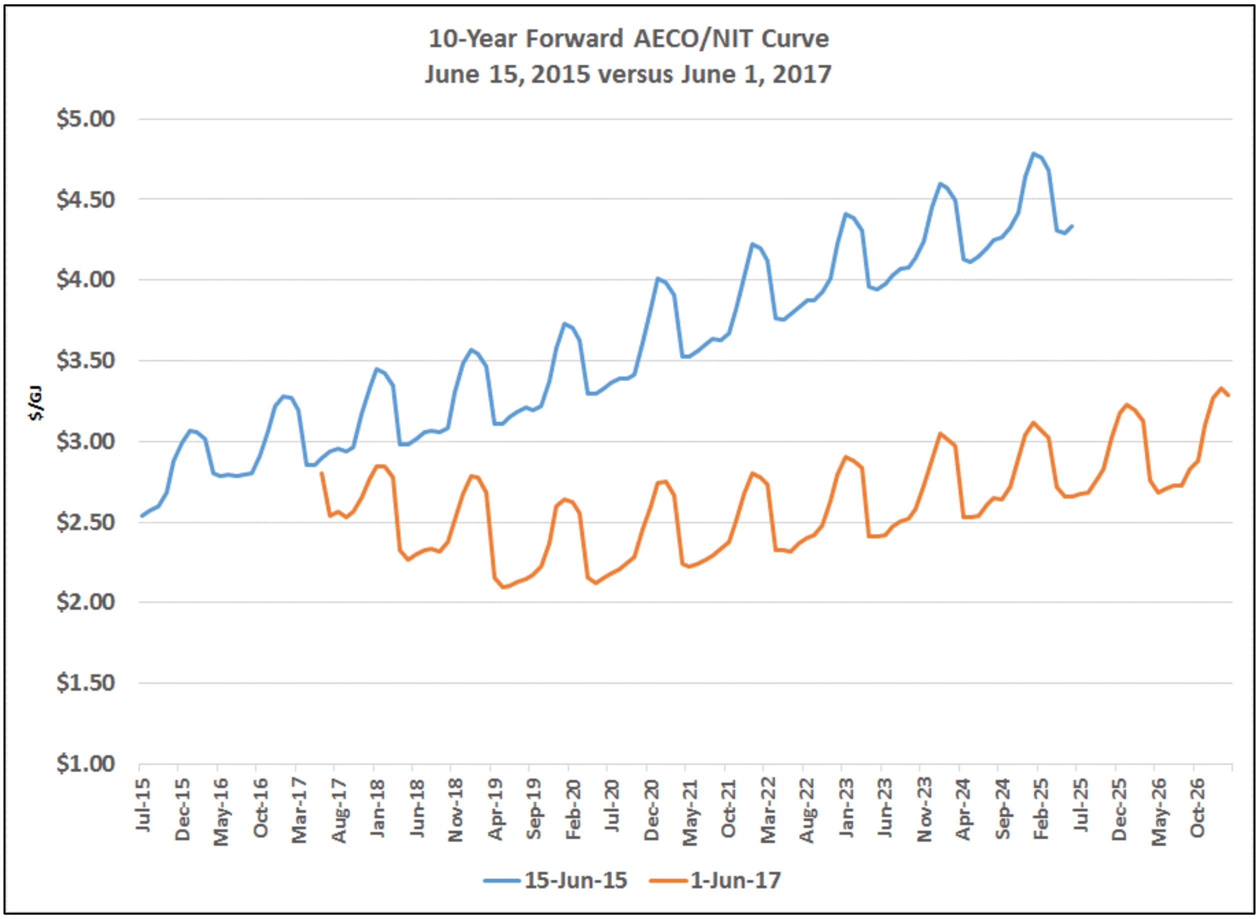
The following table shows the recent AECO/NIT forward market prices relative to the proposed hedging targets for each winter and summer term out to summer 2020.

[redacted]

[redacted]

Forward market prices for AECO/NIT for terms further out in time (i.e. beyond 2020) have also fallen in recent years. This is due to the factors described above which include less certainty for demand for WCSB supply due to increases in Marcellus and Utica supply and uncertainty regarding LNG exports from western B.C given the delays in project final investment decisions (FIDs). The following figure shows a comparison in the AECO/NIT forward price curve from June 15, 2015 versus June 1, 2017.

**Figure 4: 10-Year Forward AECO/NIT Market Price Curve**



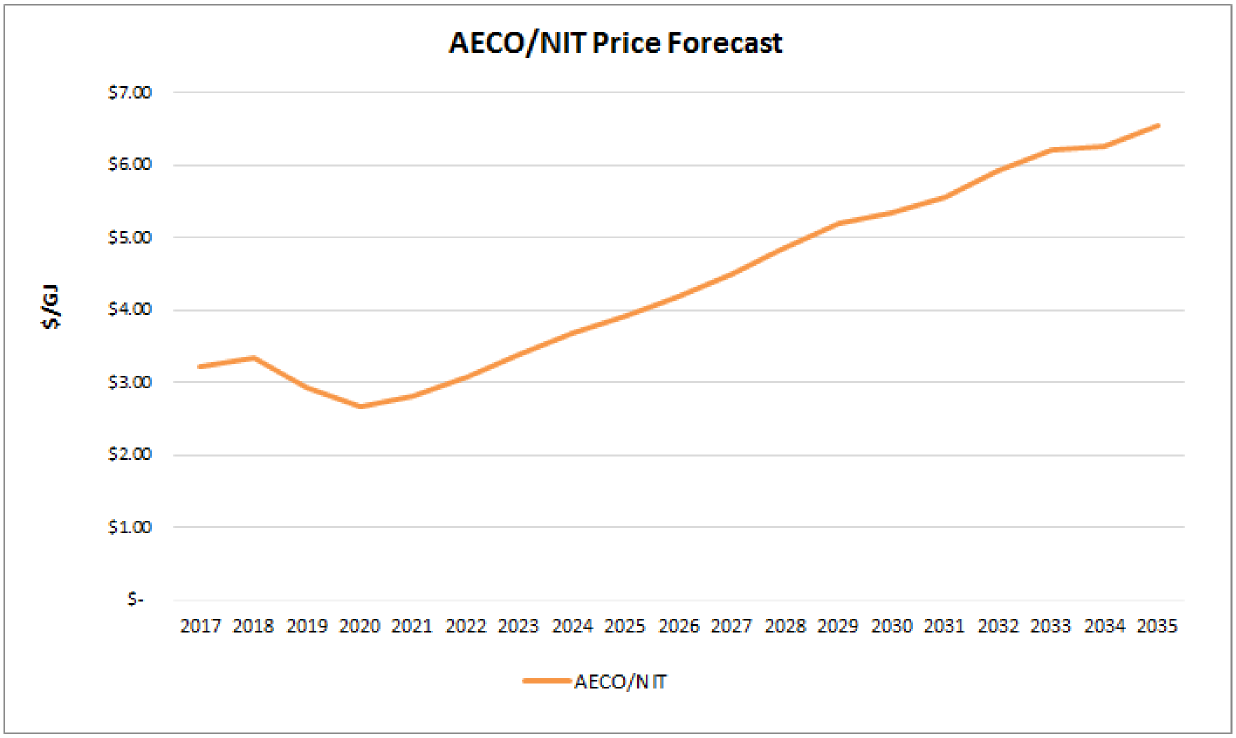

Forward market prices for terms out ten years are closer to producers' break-even costs than they have been in the past. Therefore, forward prices are not expected to fall much further from these levels, at least for a sustained period of time, without gas producers making adjustments to supply. However, forward prices could increase in the future if, for example, there is more significant gas demand for WCSB supply due to TCPL Mainline contracting approvals, expansions on Alliance or more certainty regarding the timing of LNG exports from western Canada.

### 3.1.4 Market Price Forecast

In addition to looking at gas producer break-even costs and forward market prices, FEI has also reviewed market price forecasts to provide some comparison to forward prices and an indication of potential future market prices.

The latest Wood Mackenzie price forecast for AECO/NIT has prices slightly increasing for 2017 and 2018 but beginning to drop in 2019 and 2020 before starting to increase beyond 2020. The forecasted drop in prices in the medium-term is due to a number of pipeline projects coming online in 2019 which will primarily release new supply from the Marcellus and Utica shale plays and decrease prices and demand for western gas. After 2020, gas prices are forecasted to rise again as increased demand absorbs excess supply. Additional demand is expected to be driven by increased power generation and industrial demand (as Alberta begins to phase out coal plants and replace them with natural gas and renewables), but more significantly with LNG exports and U.S. exports to Mexico. The following figure shows the long-term price forecast in nominal dollars for AECO/NIT.

**Figure 5: Wood Mackenzie AECO/NIT Price Forecast**[8]




Comparing the forward market curve (Figure 4) and the AECO/NIT price forecast presented above, it appears that the forward market curve is undervalued. The forward market price curve for the next 10 years has an average price of $2.62 per GJ compared to $3.43 per GJ for the AECO/NIT price forecast. This could mean a limited opportunity to capture low AECO/NIT prices if they increase in the future.

## 3.2 *CUSTOMER SURVEY*

During March 2017, FEI enlisted the services of Sentis to conduct a customer survey. The objectives of the survey were to help determine the importance of customers' gas bills in relation to other household bills, customers' tolerances for bill changes in the current low price environment and what, if any, premium customers are willing to pay for more bill stability. The results would help FEI determine if its current price risk management tools to meet the objectives are sufficient based on customers' tolerances and preferences, or if more tools are required now or in the future. A summary report of the survey results is provided in Appendix A.

[8] Source: Wood Mackenzie – AECO/NIT Price Forecast (May 2017)

The survey indicates that customers generally have less concern over natural gas bills than other household expenditures such as gasoline, groceries, electricity, and auto insurance[9]. However, the results indicate that customers appear fairly sensitive to increases to their gas bill. The majority of customers surveyed indicated that they would definitely or probably make some changes to their household behavior to offset bill increases of 25 percent or more[10]. Customers also indicated they would prefer that FEI make smaller, more frequent adjustments to the commodity rate, rather than less frequent but possibly larger adjustments[11].

The responses in the survey point to a willingness by many customers to pay a small premium for bill stability. The survey indicates that 62 percent would be willing to pay a small premium for bill stability while 31 percent indicated they would not be willing to pay a premium and 7 percent were uncertain[12]. The survey results show that, on average, residential customers would be willing to pay up to 3.6 percent each month and small commercial customers would be willing to pay up to 4.6 percent each month for greater stability in their natural gas bill[13]. This translates into an average of about 15 to 20 percent premium on the commodity rate component of the bill[14].

FEI has considered whether this cost premium is consistent with the potential cost of FEI's current opportunistic hedging strategy. By hedging near the low end of market prices in the current price environment, FEI does not expect any hedges to be significantly out-of-the-money and believes there is a also the likelihood of hedging gains rather than costs over time. Therefore, FEI expects that any potential premium in gas costs arising from the hedging program would likely be lower than the average customer premium tolerances as indicated in the survey. At the time that FEI filed its 2017 Annual Report and the filing of this 2017 PRMP, the hedges that FEI had implemented to date were 'in-the-money' or in a financial gain, rather than cost, position.

The survey results suggest to FEI that, at this time, no further price risk management tools beyond FEI's existing tools, mechanisms and opportunistic hedging strategy are required to meet the interests of customers. If the market price environment were to change, such as market prices were significantly higher along with more price volatility, FEI would consider more customer research to help determine if customers' concerns or tolerances for gas rates or bills has changed and consider other price risk management tools or strategies, which are discussed in Section 5.

[9] Appendix A page 23 – Concern About Price Increases
[10] Appendix A page 30 – Impact of Natural Gas Bill Increases on Behavior
[11] Appendix A page 33 – Cost of Gas Rate Adjustment Preferences
[12] Appendix A page 28 - 62% of All Residents includes 19% that "Like it" and 43% that state "It's ok"
[13] Appendix A page 27 – Residential customers willing to pay 3.6% and Commercial customers willing to pay 4.6% a month
[14] 3.6% to 4.6% of total bill per GJ ($8.74/GJ) equals $0.31/GJ to $0.40/GJ, which divided by commodity rate component per GJ ($2.05/GJ) is about 15% to 20%.

# 4. INCREASING THE ACCEPTABLE CCRA DEFERRAL ACCOUNT BALANCE LIMIT

FEI's 2015 PRM Application recommended maintaining the CCRA deferral account balance within a reasonable range of +/-$60 million in order to mitigate challenges for FEI in terms of the timing of refunding or recovering significant dollar amounts from customers and impacts to FEI's balance sheet and potentially its credit rating and borrowing capacity. This range has worked well in the past, providing a balance of helping to mitigate short-term market price volatility with refunding surpluses or collecting deficit amounts from customers in a timely manner. In its decision on the 2015 PRM Application, the Panel directed FEI to include an evaluation of the option of increasing the acceptable CCRA deferral account balance limit to +/-$200 million to manage CCRA during periods of extreme volatility if FEI wished to extend the hedging program.

The following sections provide results from FEI's simulation modelling of the impacts on the commodity rate during a period of extreme price volatility, specifically the market price spike from 2000-2001 (Extreme Price Spike), using current rate setting guidelines. The price spike from that period represents a significant, but short-lived, market price increase that occurred during a generally low gas price environment. Through the model simulation, FEI has found that commodity rate increases and decreases as well as the magnitude of CCRA deferral balances would be limited because of the $1.00 per GJ rate change cap and quarterly rate setting mechanisms. These mechanisms effectively limit the magnitude of the deferral account balance such that it is not required to widen it from its current level. More discussion of the conclusions is provided in Section 4.1.3.

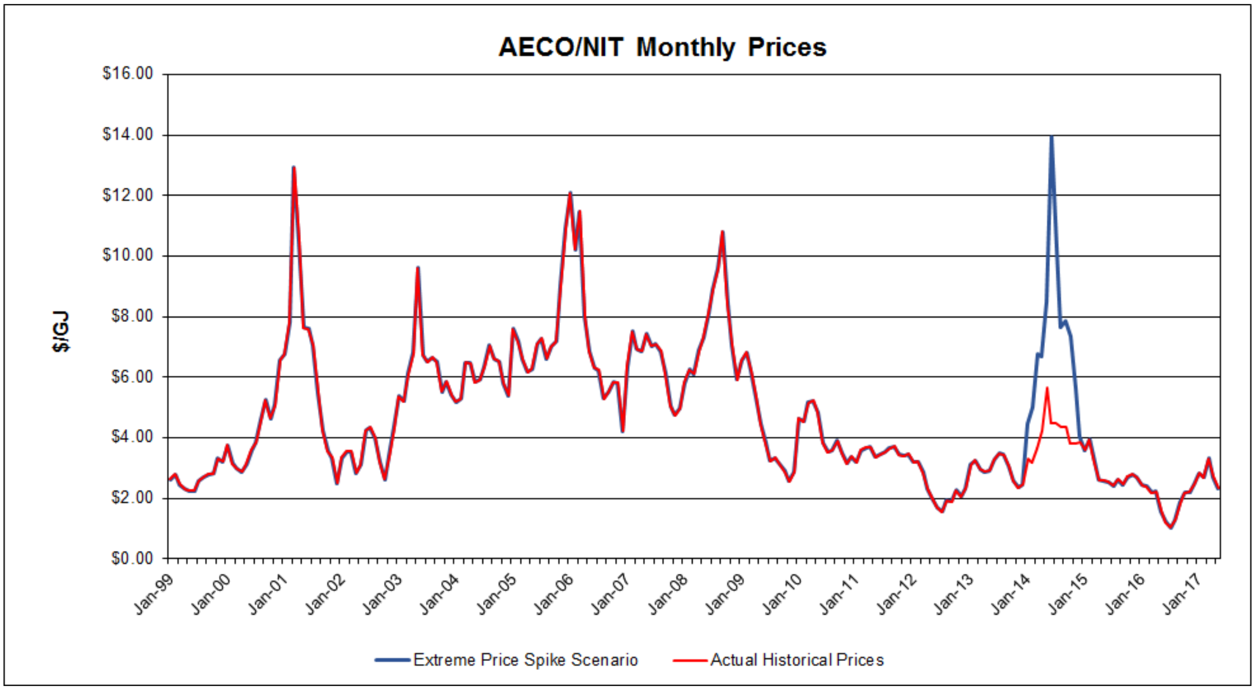
### 4.1.1 Simulation of the Extreme Price Spike Scenario

The Extreme Price Spike of 2000-2001 was caused by the California energy crisis and resulted in the high FEI Gas Cost Recovery Account (GCRA) deferral account balance deficit of about $180 million (before tax) by the end of 2000. It was because of this event that FEI moved from annual to quarterly commodity rate setting in order to improve managing deferral account balances.

FEI has simulated the extreme price volatility scenario by including the Extreme Price Spike into a model with more recent market prices so that FEI could apply its current rate setting mechanisms (which were not in place in 2000-2001). The AECO/NIT market prices from the Extreme Price Spike period of August 2000 to September 2001 were used in place of the actual November 2013 to December 2014 market prices to simulate the price spike.

The following figure shows the historical market prices with the Extreme Price Spike scenario (represented by the blue line) overlaid in 2013 and 2014.

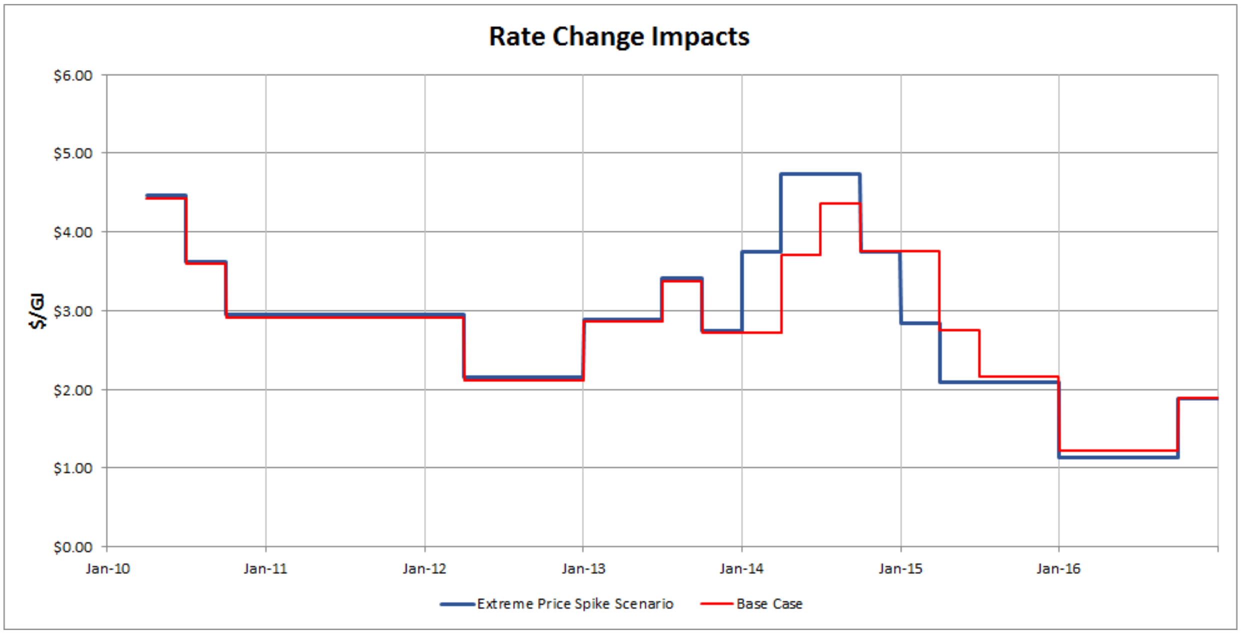
1 **Figure 6: Simulation of Market Prices for Extreme Price Spike Scenario**




2

3 The following figure shows the impacts on the commodity rate of simulating the Extreme Price
4 Spike scenario using the current rate setting mechanisms including quarterly rate reviews, the
5 rate change trigger of 5 percent and +/- $0.50 per GJ and the $1 per GJ rate change cap. For
6 this scenario, the deferral account balance was not limited in any other way so the deferral
7 balance could be observed under the Extreme Price Spike condition. The base case
8 (represented by the red line) shows the rate impacts based on the simulation of actual historical
9 and forward prices since 2010. The blue line represents the impacts to the rate based on the
10 inclusion of the Extreme Price Spike modeled into 2013-2014.

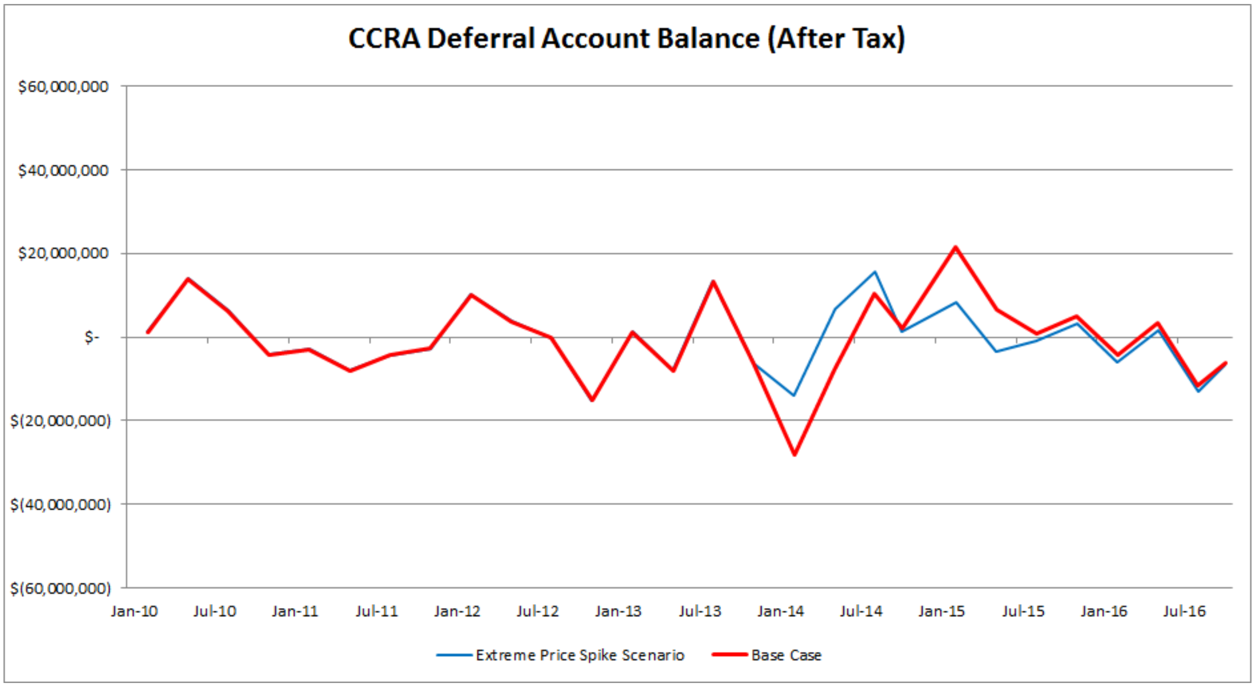
**Figure 7: Rate Impacts from Extreme Price Spike Scenario**




The previous figure shows that rates were marginally higher than the base case during the Extreme Price Spike scenario and for a longer duration, two quarters instead of one quarter. The reason that the rate increases were not more significant is because the $1.00 per GJ rate change cap was used for two consecutive quarters and, by the third quarter, the market prices were coming down and rate decreases were then implemented.

The following figure shows the CCRA deferral account balances for the base case and the Extreme Price Spike scenario.

**Figure 8: CCRA Deferral Account Balance (After Tax)**




The previous figure shows that, with no other modifications to the existing rate setting mechanisms, the CCRA deferral balance for the Extreme Price Spike scenario was similar to the Base Case due to rates being marginally higher and for a longer duration during the Extreme Price Spike period. Therefore, even the existing level of the CCRA deferral account balance would not have come into play as a limiting factor under this scenario.

### 4.1.2 Impacts on Credit Facilities

Another consideration when assessing the increase to the deferral account limit is the impact to FEI's credit facilities. As FEI discussed in the February 2017 workshop with stakeholders (discussed in Section 7), larger deferral accounts require FEI to arrange for increased credit facilities ahead of time in order to have appropriate borrowing capacity on hand should it be needed to manage the larger deferral account balances. Credit facilities can be difficult to arrange when credit market disruptions occur, such as during the financial crisis of 2008, and so would need to be put in place before any market events occur, given that these events are usually unpredictable, and then maintained on an ongoing basis. This would require more monitoring of credit facilities by FEI as well as increased financing costs to accommodate the higher levels of credit. FEI does not recommend increasing credit facilities and financing costs to accommodate a higher CCRA deferral limit above the current level.

### 4.1.3 Recommendation

The results presented in the previous sections do not support increasing the CCRA deferral balance beyond the current limit of +/-$60 million. The simulation of Extreme Price Spike shows that the current CCRA deferral account balance limit would likely not be exceeded given the current rate setting mechanisms in place. Although higher CCRA Deferral balances may occur if a market price spike event began when the CCRA balance is already at the maximum of the reasonable range, this probability is reduced if deferral account balances are managed such that they do not build to significant levels. A combination of quarterly rate setting, a trigger of +/- $0.50 per GJ and the $1.00 per GJ rate cap for up to two quarters in a row works to manage market events like the Extreme Price Spike scenario, within current the CCRA deferral balance range. In addition, the $1.00 per GJ rate change cap helps temper larger rates changes due to sudden extreme price spikes that may have otherwise led to rate shock for customers.

Increasing the CCRA deferral account above the current range of +/-$60 million could remain a tool for consideration in extreme circumstances after other rate setting tools have been applied or considered and further measures are required.

# 5. ALTERNATIVE PRICE RISK MANAGEMENT TOOLS

Currently, FEI's price risk management portfolio includes several components. Physical resources, such as the use of natural gas storage and market price hub and supply diversity, help mitigate short-term market price volatility and ensure security and diversity of supply. FEI's quarterly rate setting mechanism and deferral account balances help to provide some smoothing effect to rates and ensure timely recovery or refund of costs from or to customers. On an optional basis, the natural gas marketers' fixed rate offerings provided under the Customer Choice program enable customers who want more commodity rate certainty to lock in their rates for terms up to five years. And those customers preferring more stability in their monthly gas bills can sign up for the Equal Payment Plan (EPP). Currently, about 3 percent of eligible customers are enrolled with natural gas marketers under Customer Choice and about 30 percent of eligible customers are enrolled in the EPP.

For customers receiving commodity supply from FEI, these price risk management tools provide some shorter-term rate or bill volatility reduction. However, hedging provides more effective price risk management for the medium and longer term. This is because hedging, unlike the other tools, affects underlying market prices and their impacts on FEI's gas costs, which ultimately flow through to customers in commodity rates. The use of deferral accounts, while effective in reducing some short-term rate volatility, merely shift gas costs to other periods where they will ultimately need to be recovered or refunded from customers through rate changes. FEI's response to Commission Scope A, Information Request (IR) 1.1.1 for the 2015 PRM Application provided a summary table of the alternative price risk management tools available to FEI. This table included the degree to which the various alternatives mitigate volatility and their limitations. The table is reproduced in Appendix B and has been updated to also include the proposed longer-term hedging tool and increasing the deferral account during periods of extreme market price volatility.

As noted in the table in Appendix B, hedging mitigates market price volatility for a portion of the supply portfolio. By targeting low market prices near gas producer break-even costs, FEI reduces the risk of customers not benefitting if market prices fall while allowing customers to benefit from improved rate stability and lower, more affordable rates (than in the past).

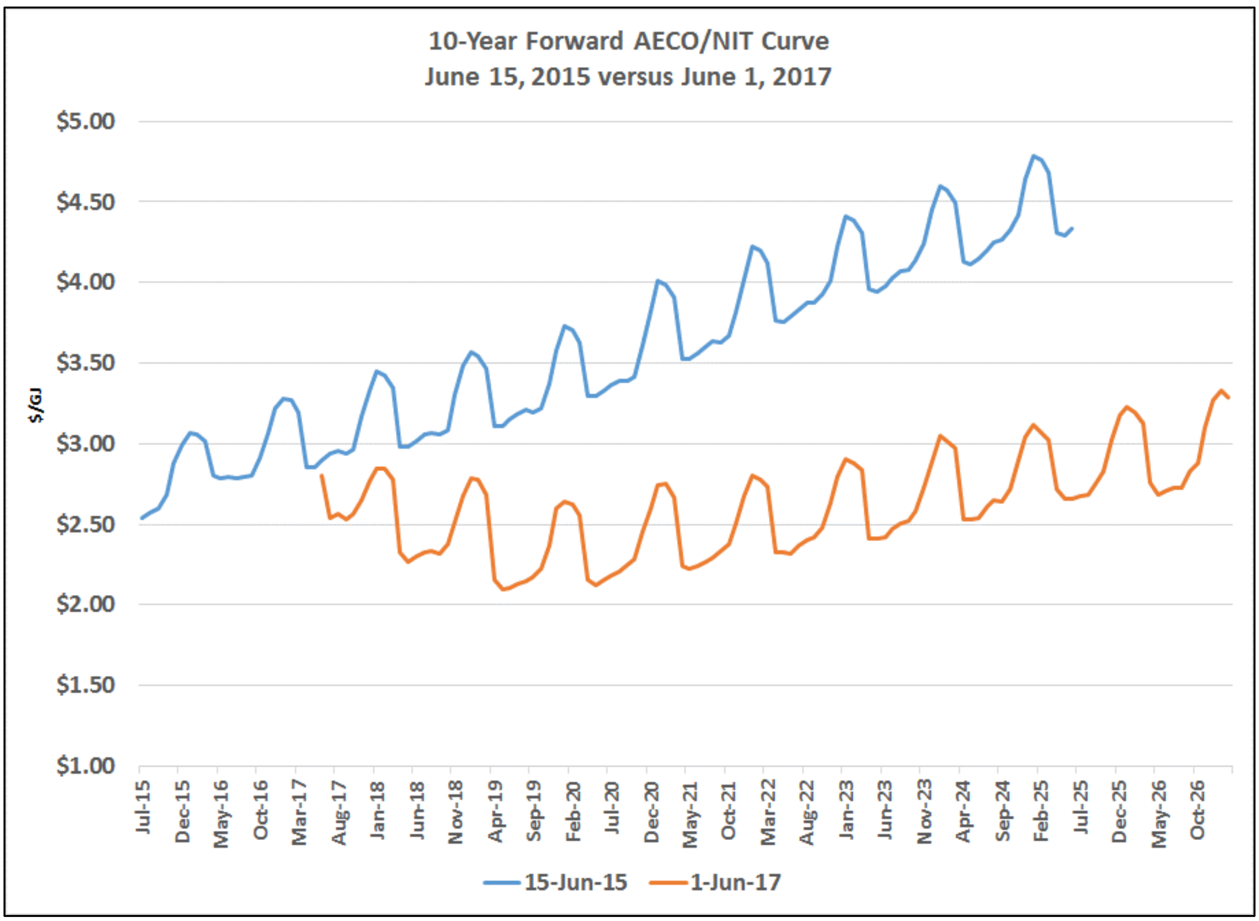
While the opportunistic hedging strategy is appropriate in the current low market price environment, other price risk management tools should be considered if market price conditions were to change. These could include call options and costless collars (included in the potential financial tools section of the alternatives in Appendix B). If market prices were to move higher than current levels and market price volatility increase, call options or costless collars can provide a balance of mitigating some market price volatility at a low cost. FEI discussed call options as part of a defensive hedging strategy in Section 3.1.3 of the 2015 PRM Application. FEI will continue to monitor market conditions and the potential effectiveness of these instruments and may propose these in the future.

# 6. LONGER TERM PRICE RISK MANAGEMENT

In Section 4 of the 2015 PRM Application, FEI discussed alternatives for managing longer term price risk. These alternatives could include long term hedges, investing in reserves and Volumetric Production Payments (VPPs). Given the recent significant decrease in longer term forward AECO/NIT prices to near producer break-even cost levels and the greater complexity associated with investing in reserves or VPPs relative to long term hedges, FEI is only recommending longer term hedges to meet the price risk management objectives at this time.

As discussed in Section 3.1, longer term market prices have dropped significantly over the past few years and many terms further out in time are trading at lower price levels than near terms. As of June 1, 2017 the average market AECO/NIT price for November 2017 to October 2026 was about $2.62 per GJ. Figure 4 provides a comparison of the AECO/NIT forward price curve from June 15, 2015 versus June 1, 2017 and is provided again below to support the following discussion.

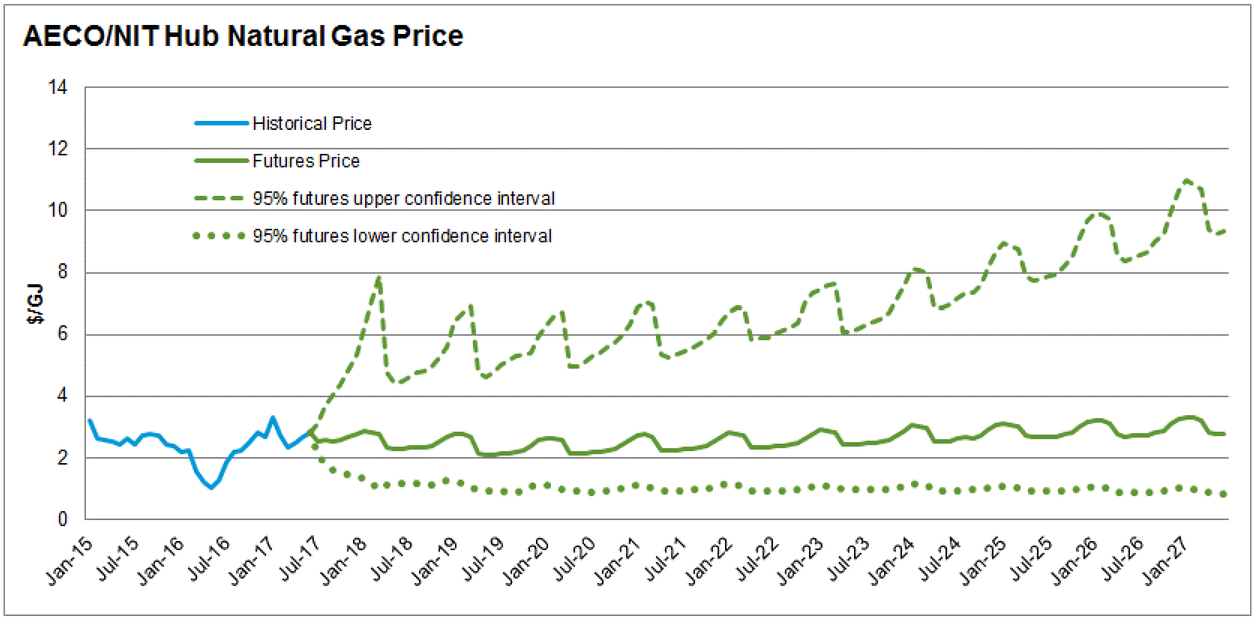
**Figure 9: 10-Year Forward AECO/NIT Market Price Curve**




[redacted] Locking in a portion of the FEI supply portfolio with fixed prices at these levels would provide a significant opportunity to help meet the objectives and improve commodity rate stability for a longer period of time. A long term hedging transaction would also be less complex and require less due diligence than entering into a VPP agreement or investing in reserves.

The following figure shows the AECO/NIT forward market price probability range as of June 1, 2017 for ten years out. It shows that downside price movements are limited, given gas producer break-even costs discussed in Section 3.1.2, with greater potential upside price moves.

**Figure 10: AECO/NIT Price Probability Range**




FEI believes that a ten-year hedge would provide longer term price risk management than FEI's current price risk management tools but, as discussed in Section 2.2, FEI is only seeking approval to implement hedges with terms of up to five years at this time. FEI's rate setting mechanism, physical tools and medium-term hedging program help to reduce short- to medium-term price and rate volatility but do not provide any long-term mitigation. FEI considers its price risk management objectives should cover the short, medium and long term.

Investing in reserves and VPPs are other potential longer term price risk management tools and strategies. These types of arrangements would typically extend beyond ten years out to twenty or thirty years. As discussed in the FEI 2014 Price Risk Management Review Report[15], managing the risks associated with investing in reserves would be of paramount importance to FEI. These risks could include those relating to drilling, completing, and operating wells and would differ from typical regulated utility assets. This type of transaction would not provide the same degree of price certainty as a hedging or fixed price purchase strategy but would provide cost-based supply for a longer period of time. FEI suggests that long term fixed price hedges better suit FEI's risk profile and field of expertise.

[15] 2014 Price Risk Management Review Report, Page 36, Section 5.1.4 Investment in Natural Gas Reserves.

Longer term hedging could take the form of financial swaps or fixed-price physical purchases. There are some important considerations for each one. Fixed-price physical purchases provide long-term security of supply as well as providing a hedge. FEI could purchase this supply at either AECO/NIT or Station 2. Due to the smaller market size and liquidity at the Station 2 market, FEI expects that it would be more difficult to secure a long-term fixed price purchase at Station 2 compared to AECO/NIT. While a long-term purchase at AECO/NIT may be more feasible, FEI must consider that a purchase at this hub for 25 percent of the commodity portfolio would cover all of FEI's supply requirements at AECO/NIT (with the remaining supply of 75 percent at Station 2). If FEI's customer load requirements decline from current levels in ten years and FEI has already entered into a fixed-price purchase for 25 percent of the commodity portfolio, FEI would have excess supply at AECO/NIT which it would be required to sell off. Therefore, longer-term purchases at Station 2, if possible, would be preferred over purchases at AECO/NIT.

Alternatively, FEI could enter into fixed price swaps at AECO/NIT for terms of up to five years (there is currently no active hedging market for Station 2 prices). As most of FEI's Station 2 and AECO/NIT physical supply is purchased based on the AECO/NIT monthly prices, there is no concern with the potential issue of being over-hedged, especially given FEI is only targeting hedging up to 50 percent of the supply portfolio. However, a longer term hedge would use up most or all of the hedging limit in terms of potential credit exposure for some counterparties, thereby reducing the number of remaining counterparties available for the medium-term hedging strategy implementation. If necessary, FEI could add more counterparties to its current pool of Canadian banks.

# 7. STAKEHOLDER CONSULTATION

FEI hosted a price risk management workshop on February 24, 2017 for Commission staff and stakeholders that were involved in FEI's 2015 price risk management workshops. In this workshop, FEI provided background information regarding the 2015 PRM Application and Panel decision, hedging and rate setting enhancement implementation and a gas market update. FEI also sought feedback regarding increasing the CCRA deferral account balance limit and question themes for the customer survey. FEI discussed recommendations which included extending the hedging horizon out to October 2020 and consideration of adjusting the hedging targets to reflect the seasonal summer and winter pricing. FEI also discussed the currently low forward market prices out ten years and how this opportunity to capture low market prices could be limited. None of the stakeholders in the workshop expressed any concerns with FEI's proposals. One stakeholder commented that not having seasonal hedging targets may result in FEI hedging summer terms but not winter terms, leaving FEI exposed to potential market price spikes in the winter periods.

In this workshop, FEI discussed increasing the commodity deferral account balance limit to up to +/-$200 million during periods of market price volatility. Commission staff suggested that FEI simulate a worst case scenario, such as the extreme events of 2000-2001 or 2005 when price and rate volatility was at its highest, and how FEI would mitigate this risk.

One stakeholder who was not able to attend the workshop provided feedback after the workshop and made the following comments:

- Low income and poverty-level customers have low/zero rate change tolerance and fluctuations in rates can result in financial choices between basic needs like rent and food; and
- Low income customers are looking for stability with regards to rates and bills but wouldn't be prepared to pay a premium.

# 8. REVIEW PROCESS

FEI believes that the requests for approval relating to the currently-approved medium-term hedging program for extending the hedging horizon and adjusting the winter and one-year term hedging price targets should be approved without an extensive review process. This is because these requests are not fundamental changes to the currently-approved hedging program but are merely extensions and refinements to the strategy that was approved by the Commission and supported by stakeholders. Furthermore, as shown by the prices in Table 1, market prices for some terms are currently below the hedging price targets and market prices for other terms are getting closer to the hedging price targets with the decrease in market prices in recent weeks. It is possible that market prices may reach the hedging price targets for most, if not all, of the hedging terms in the coming weeks. Therefore, FEI respectfully requests an expeditious review of these adjustments to the medium-term hedging program so that FEI is in a position to capture any market opportunities for terms from Winter 2017/18 out to Summer 2020 in the interests of meeting the objectives for customers.

FEI recognizes that the request for approval for longer term hedge terms up to five years is outside the scope of the current hedging program and may require a more extensive review by the Commission. However, the review of this request should not delay the requests relating to the approved medium-term hedging strategy. As discussed in this 2017 PRMP, FEI notes that the opportunity to capture favourable market prices through longer term hedging may not last indefinitely given the potential for gas marketplace developments regarding more demand for WCSB supply in the future.

For these reasons, FEI has provided separate draft orders as Appendix C – Draft Order for Medium-Term Hedging Request and Appendix D – Draft Order for Longer Term Hedging Request.

# Appendix A

# CUSTOMER SURVEY SUMMARY REPORT

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# FortisBC Customer Volatility Tolerances & Preferences

**Prepared for:**

Walter Wright, Senior Research & Evaluation Analyst

**June 2, 2017**

FORTIS BC™

6th Floor, 543 Granville Street, Vancouver, BC V6C 1X8

sentisresearch.com

Adam DiPaula | 604.566.8912 | adipaula@sentisresearch.com

Mary Bacica | 604.566.8913 | mbacica@sentisresearch.com

# Contents

# Background, Objectives & Methodology

# Background & Objectives

- The price of natural gas has fluctuated significantly over the past two decades. Going forward, the expectation is that demand for natural gas will increase and the supply growth will slow, resulting in higher natural gas prices and volatility in the future. In 2015, FortisBC Energy Inc. (FortisBC) submitted the Price Risk Management Plan (PRMP) to the BC Utilities Commission (BCUC) which was largely based on customer research FortisBC conducted with Sentis Research in 2012. The objectives of the PMRP include:
  - Mitigating market price volatility to support rate stability
  - Capturing opportunities to provide customers with more affordable rates
- To achieve these objectives, FortisBC proposed three strategies after completing the research:
  - Implement a medium-term fixed-price hedging strategy
  - Have a commodity rate change cap of $1/GJ, applicable to both rate increases and decreases, provided the deferral account balance is maintained within a reasonable range
  - Consider having a 24-month rather than a 12-month price outlook to determine the commodity rate
- FortisBC recognizes that if market conditions change significantly in the future, the proposed strategies may no longer be applicable. Hence, the organization needs to review on an annual basis how the strategies have worked so far and identify any refinements that may be needed.
- FortisBC commissioned Sentis Research to design and conduct a research study with its residential and small commercial customers to aid the organization with the following business objectives:
  - To ensure that FortisBC's price risk management strategy meets the needs of various customer classes
  - To measure customer attitudes in an environment of rising prices and to understand what degree of natural gas bill/rate fluctuation is acceptable
  - To determine the willingness of customers to pay directly or indirectly for greater bill/rate stability
- This report contains the detailed findings from this research study, and where possible and relevant, references findings from the 2012 PRMP research study.

# Methodology

- For this study, a total of 857 online surveys were conducted with FortisBC residential customers and 167 with FortisBC small commercial customers.
- Residential customers were sourced from an online panel provider. Targeted oversampling was conducted to ensure an adequate base size of low income households. A total of 99 residential customers fall into the low income category.
- Small commercial customers were screened and recruited by telephone from lists of BC businesses and then invited via email to the online survey. To encourage participation, an email reminder was sent part-way through the data collection period and a tiered prize draw was offered as an incentive.
- A total of 370 small commercial customers were recruited by phone to result in the 167 completed surveys (a 45% final response rate).
- To be eligible for this survey, respondents had to meet the following criteria:
  - 18 years of age or older
  - Have no one in their immediate family or household (including the respondent) employed by / or if a small commercial customer not be a: utility company, natural gas company or gas marketer, electrical company, market research company, newspaper/radio/TV network or utility regulatory body
  - FortisBC natural gas customer
  - Jointly or solely responsible for making payment decisions for their natural gas bill
  - Small commercial customers only: have a total monthly natural gas bill that is typically under $2,000
- Data collection for this study took place from April 5-30, 2017.
- At the data analysis stage, weighting was applied to the residential sample to ensure that the incoming sample was representative of the province by age, gender, and region and that low income residential customers were accurately represented in the final sample of 857.
- The margins of error (MOE) at the 95% level of confidence for the various sample sizes found within this study are as follows:

| Customer Group | Sample Size | MOE |
|---|---|---|
| Residential | 857 | ±3% |
| Low Income | 99 | ±10% |
| Small Commercial | 167 | ±8% |

- When comparing results between different customer groups the following required maximum differences are needed at the 95% level of confidence in order for that difference to be considered statistically significant:

| Comparing | Sample Sizes | MOE |
|---|---|---|
| All Residential vs Low Income | 857 vs 99 | ±11% |
| All Residential vs Small Commercial | 857 vs 167 | ±9% |
| | | |

- Copies of the small commercial telephone screener, email invite/reminder, and online questionnaire can be found in the Appendix of this report.
- As noted previously, 2012 results have been footnoted on applicable slides.

# Analysis Notes

〉 Throughout this report, results of each question are shown for all residential customers, low income residential customers and small commercial customers. Where relevant, other sub-group analysis may be shown.

〉 A key component of the analysis for this study is understanding the views and preferences of residents as a function of their position on the concept of 'hedging' (Q11), their general perceptions regarding the concept of paying extra to ensure a more stable natural gas bill (Q13) and how much more, if any, they are willing to pay each month for natural gas bill stability (Q12).

〉 Note that the same segmentation was not undertaken for small commercial customers given the small sample size [n=167].

〉 A k-means cluster method was used to assign residential customers to a cluster (segment) based on their distance to the cluster center (the smaller the distance, the more similar they are to the group) using questions 11, 12 and 13.

〉 The segmentation will help FortisBC understand the residential natural gas market, how to develop services/programs for it, and how to communicate with customers.

〉 The three segments which emerged from the cluster analysis are as follows (see chart to the right for sizes):

- Stability Seekers (n=367)
- Strong Opposers (n=332)
- Anxious & Uncertain (n=158)

〉 A description of the segments can be found starting on slide 13.

〉 When comparing results between *Stability Seekers* (n=367) and *Strong Opposers* (n=332), a difference of ±8 percentage points is needed to be considered statistically significant at the 95% level of confidence. When comparing either of these segments to the *Anxious & Uncertain*, a difference of ±10 percentage points is needed.

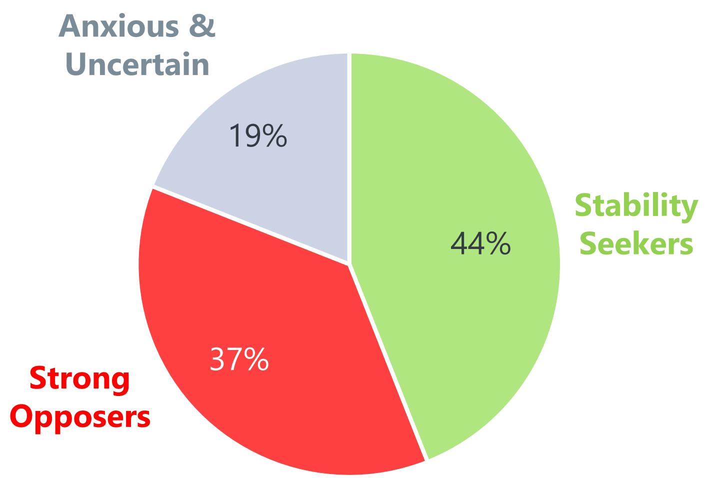
〉 Throughout this report, residential customer results are shown in total and by the three segments. Examples of how these are presented in the report are shown below.

Residential Segments

| Stability Seekers | Strong Opposers | Anxious & Uncertain | | 44% | 37% | 19% |
|---|---|---|---|---|---|---|

**Residential Customer Segments**

*Base: Total (857)*



# Executive Summary

# Executive Summary

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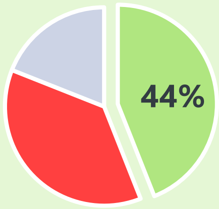
## Overview

- **In general, residential and small commercial customers place high value on stability**. Among both residential and small commercial customers, three-in-ten indicated that they did not support the idea of paying extra now to ensure a more stable natural gas bill. While it is understandable that a relatively small percentage of customers "like the idea" of paying extra (19% of residential customers, 17% of small commercial customers), the plurality of customers are "okay" with paying extra (43% of residential customers, 46% of small commercial customers), albeit with some concerns about paying too much.
- **There is also a preference for FortisBC to make smaller more frequent adjustments to ensure stability.** Over one-half of residential customers (52%) and small commercial customers (56%) prefer this over making larger, less frequent adjustments. Our segmentation analysis illustrates that even among the nearly four-in-ten (37%) residential customers classified as *Strong Opposers* – who are not supportive of the concept of hedging and do not want to pay extra for bill stability (see the following slide for a full description of the customer segments) – a significant minority (43%) still favour smaller, more frequent adjustments over larger, less frequent adjustments.
- **While customers value stability, they are divided on whether or not they should pay extra for it.** The over four-in-ten (44%) residential customers who classify as *Stability Seekers* are very amenable to paying extra for stability in their natural gas bill (91% are willing to pay more, with the average reasonable increase being 6%). In contrast, among *Strong Opposers,* only one-in-eight (12%) are willing to pay extra for stability in their natural gas bill, and the average reasonable increase is one percent (see slide 27 for more details.)
- These two groups do not differ in their understanding of their natural gas bill charges and calculations. However, they do differ in their perceptions of how natural gas prices have changed over the last 10 years. *Strong Opposers* are less likely to perceive that prices have increased compared to *Stability Seekers*, which helps to explain why they don't think they should pay extra.
- **Low income residential customers are generally similar to other residential customers; however they do differ in the following ways**:
  - They are less knowledgeable than other residential customers when it comes natural gas billing. Specifically, they are not as aware that they pay the same for natural gas as FortisBC, they have a lower understanding of the Cost of Gas charge, and they are less clear about how their natural gas bill is calculated.
  - They are more concerned about the price of various products and services (including natural gas) increasing over the next few years.
  - They have a lower tolerance for bill increases – that is, they are more likely to definitely make changes to their behaviour to offset natural gas bill increases.
  - They feel it is reasonable to pay two percent more on average each month to provide greater stability in their natural gas bill while among all residential customers the average is closer to four percent more each month.
  - They are less likely to be on FortisBC's pre-approved payment plan.
  - They are more likely to be renters and less likely to be living in a single detached home. They are also more likely to be part of a one person household. Low income customers over-index in the Southern Interior.

# Executive Summary

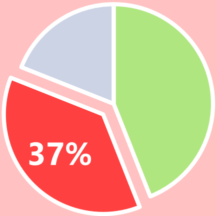
- For FortisBC to develop a price risk management strategy that meets the needs of various customer classes, it helps to understand the breakdown of residential customers in terms of how they feel about the concept of hedging and paying a higher natural gas bill to protect against possible price increases.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

## Stability Seekers



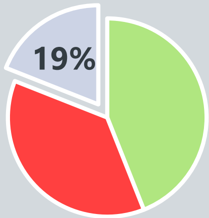

- Support the concept of paying extra to protect against increases (71% in support)
- Willing to pay more for natural gas stability (91%)
- Think paying extra for stability is ok, but still worry about paying too much for natural gas (65%); still, some like the idea (32%)
- Prefer smaller, more frequent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

## Strong Opposers




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

## Anxious & Uncertain

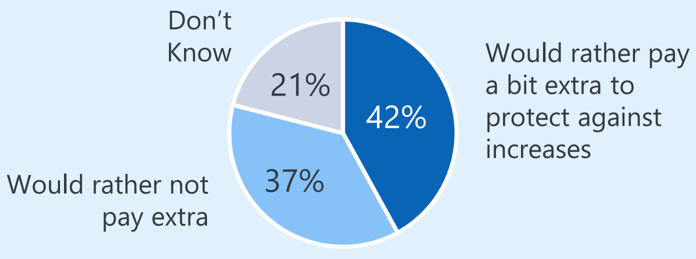



- Would rather not pay extra to protect against increases (42%) or are unsure (37%)
- Not willing to pay more for natural gas stability (49%) or are unsure (51%)
- Feel that paying extra for stability is ok, but worry about paying too much for natural gas (76%)
- Similar to *Stability Seekers* and *Strong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

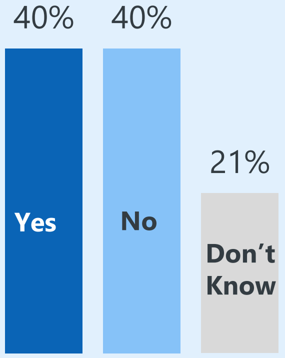
# Executive Summary

- Small commercial customers generally resemble residential customers when it comes to how they feel about the concept of hedging and paying a higher natural gas bill to protect against possible price increases.

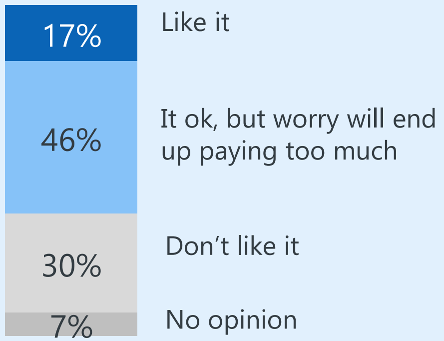
## Small Commercial Customers




Position on Hedging



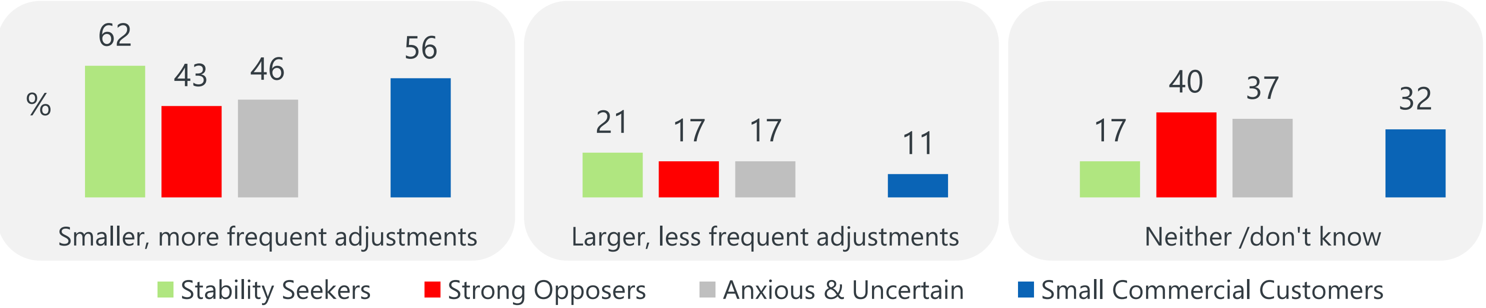

Willing to Pay More for Stability




Perceptions of Paying Extra for Stability

- When it comes to what residential and small commercial customers think is reasonable to pay extra each month to provider greater stability, small commercial customers are willing to pay the most, an average of 4.6% more compared with an average of 3.6% more among residential customers. Low income residential customers have an even lower threshold, only willing to pay an extra two percent per month to ensure a stable natural gas bill.
- Despite the segment they fall into (for residential customers) or the customer class, the preference among residential and small commercial customers tends to be that FortisBC make smaller, more frequent adjustments to the Cost of Gas rate to help ensure stability, even if customers pay a bit more, rather than making larger, less frequent adjustments that may end up costing customers too much. While some customers may not support the concept of hedging, don't like the idea of paying extra for stability and/or are not willing to pay more for stability, no fewer than four-in-ten (43%) among any customer group supports smaller, more frequent adjustments over larger, less frequent ones.

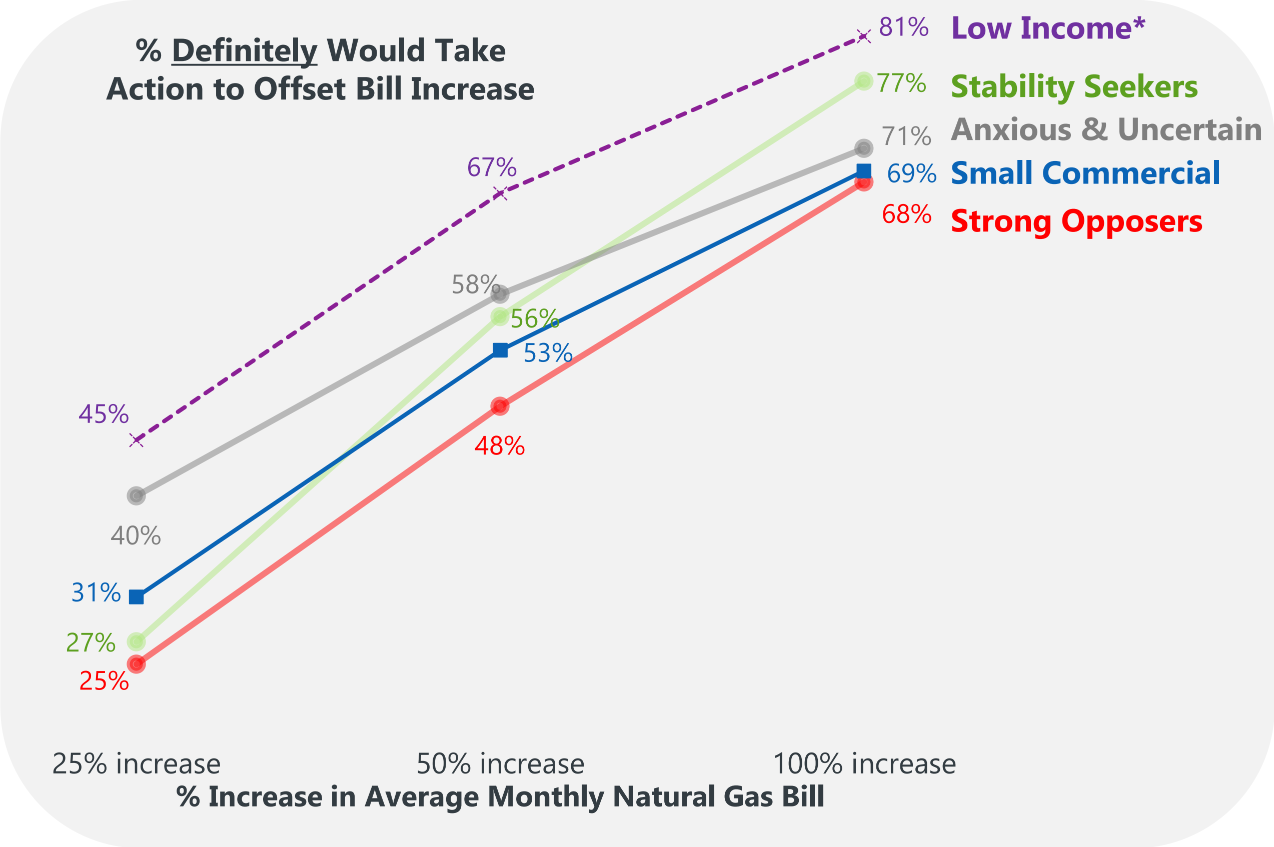
## Preferences for Adjustments to Cost of Gas Rate



# Executive Summary

sentis

- Residential and small commercial customers are relatively sensitive to price increases in their FortisBC natural gas bill. Low income residential customers have the greatest price sensitivity at every increase level, but are particularly sensitive at a 50% increase. The *Anxious and Uncertain* are particularly sensitive at a 25% bill increase – four-in-ten (40%) say they would definitely start making changes, which is very similar to low income residential customers. If their bills were to double, *Stability Seekers* are the most likely to say they definitely would take action (77% say they would). The likelihood of customers changing their behaviour to offset bill increases is significantly higher (especially at a 25% increase) among the one-half (51%) of residential customers and more than four-in-ten (44%) of small commercial customers who have taken actions or done things differently in the past to reduce their natural gas bill.
- In order to offset possible natural gas bill increases, residential and small commercial customers would most likely turn down the thermostat/heat. Residential customers in particular would also dress warmer/use portable space heaters/use blankets. Other actions they would likely take include better draft proofing/insulating and trying to use natural gas appliances or equipment less often. Among small commercial customers, taking measures to better draft proof or insulate, actively looking to replace natural gas with other fuel/energy alternatives, and trying to use natural gas appliances/equipment less are the next actions they would most likely take.




**Top Actions Customers Would Take to Offset Natural Gas Bill Increases**

**All Residents**

- Turn down the thermostat/heat - **70%**
- Dress warmer/use portable space heaters/use blankets - **58%**
- Take measures to better draft proof/insulate **- 44%**
- Try to use natural gas appliances/equipment less or less often - **40%**

**Low Income Residents**

- Turn down the thermostat/heat - **73%**
- Dress warmer/use portable space heaters/use blankets - **66%**
- Try to use natural gas appliances/equipment less or less often - **44%**
- Take measures to better draft proof/insulate - **42%**

**Small Commercial**

- Turn down the thermostat/heat - **56%**
- Take measures to better draft proof/insulate - **43%**
- Actively look to replace natural gas with other fuel/energy alternatives - **38%**
- Actively look to replace existing natural gas heating appliances/equipment with more efficient appliances - **36%**
- Try to use natural gas appliances/equipment less or less often - **34%**

*Not an exclusive category.

# Residential Customer Segments

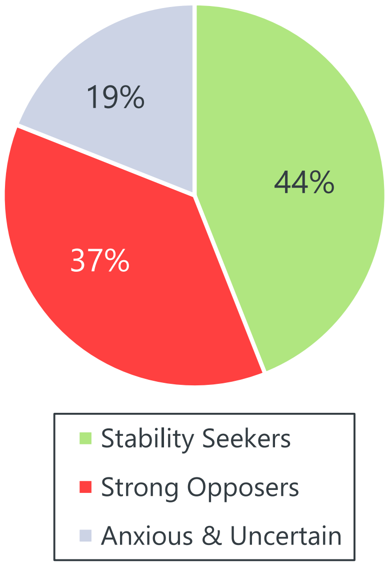
Detailed Findings

# Residential Customer Segments

- A key component of the analysis for this study is understanding customer views on hedging and perceptions regarding paying more each month to ensure a stable natural gas bill.
- Three distinct segments have been identified that will help FortisBC understand the residential natural gas market, how to best develop services/programs for it, and how best to communicate to these customers.
- ***Stability Seekers*** (44% of the residential customer base). *Stability Seekers* are the largest group of customers. They support the general concept of paying a bit extra each month to protect against increases, and nine-in-ten (91%) say they are willing to pay more each month to ensure a stable natural gas bill.
- Regarding their perceptions of paying extra for a stable natural gas bill, the majority (65%) think it is okay, but worry they might end up paying too much for natural gas, while one-third (32%) like the idea as they feel a stable gas bill should be a top priority for FortisBC.
- *Stability Seekers* have no strong distinguishing profile characteristics; they most closely resemble the total residential customer base.

## Residential Customer Segments

*Base: Total (857)*




| | Stability Seekers | Strong Opposers | Anxious & Uncertain |
|---|---|---|---|
| *Base* | *(367)* | *(332)* | *(158)* |
| **Views on Hedging** | | | |
| Would rather pay a bit extra to protect against increases | **71%** | 10% | 21% |
| Would rather not pay a bit extra/not be protected against increases | 16% | **63%** | **42%** |
| Don't know | 13% | 27% | **37%** |
| **Willingness to Pay More for NG Bill Stability** | | | |
| Willing to pay something (1% or more) | **91%** | 12% | - |
| Not willing to pay (0%) | 9% | **72%** | **49%** |
| Don't know | - | 16% | **51%** |
| **Perceptions of Paying Extra for Stability** | | | |
| Like it | **32%** | - | 24% |
| It's ok, but worried will end up paying too much for Natural Gas | **65%** | - | **76%** |
| Don't like it | 3% | **81%** | - |
| No opinion/doesn't matter | - | 19% | - |

*Q11. When it comes to paying for a product that has a fluctuating price, which most closely matches your point-of-view? / Q12. How much more do you think is reasonable to pay each month to provide greater stability in your natural gas bill? / Q13. Generally, what do you think of the idea of paying extra now to ensure a more stable natural gas bill?*

# Residential Customer Segments (continued)

- ***Strong Opposers*** (37% of the residential customer base). This segment is quite clear when it comes to their views on hedging and paying extra for natural gas bill stability.
- Two-thirds (63%) of *Strong Opposers* do not support the general idea of paying extra for something to protect against increases and seven-in-ten (72%) say they are not willing to pay extra for natural gas stability. In fact, eight-in-ten (81%) do not like the idea of paying extra now to ensure a more stable gas bill with the remaining two-in-ten (19%) being unsure about the idea.
- Relatively speaking, *Strong Opposers* are the oldest of the three segments, more likely to be male (63%) and to be living in a single detached home. While a majority (56%) incorrectly think the price of natural gas over the past 10 years has increased, compared to the other two segments, they are more apt to think prices have decreased or stabilized, which could be why they are less supportive (or worried about) natural gas bill stability.
- ***Anxious & Uncertain*** (19% of the residential customer base). Like their name indicates, this segment is the most worried about the natural gas prices, but is not always certain what actions to take to mitigate those worries. They generally tend to be undecided or have conflicting views on paying extra for stability in natural gas bills.

## Residential Customer Segments | Profiles

| | Stability Seekers | Strong Opposers | Anxious & Uncertain |
|---|---|---|---|
| *Base* | *(367)* | *(332)* | *(158)* |
| **Age** | | | |
| 18 – 34 | 29% | 22% | 35% |
| 35 – 54 | 39% | 40% | 33% |
| 55+ | 32% | 37% | 32% |
| **Gender** | | | |
| Male | 56% | 63% | 54% |
| Female | 44% | 37% | 46% |
| **Low Income** | 6% | 9% | 11% |
| **Housing Type** | | | |
| Single detached home | 69% | 75% | 55% |
| Townhouse, duplex or triplex | 21% | 16% | 24% |
| Apartment/condo | 9% | 6% | 15% |
| **Natural Gas Prices In Past 10 Years** | | | |
| Increased | 73% | 56% | 72% |
| Stayed the same | 11% | 16% | 11% |
| Decreased | 10% | 15% | 8% |
| Don't Know | 6% | 13% | 9% |

*Q11. When it comes to paying for a product that has a fluctuating price, which most closely matches your point-of-view? / Q12. How much more do you think is reasonable to pay each month to provide greater stability in your natural gas bill? / Q13. Generally, what do you think of the idea of paying extra now to ensure a more stable natural gas bill?*

# Residential Customer Segments (continued)

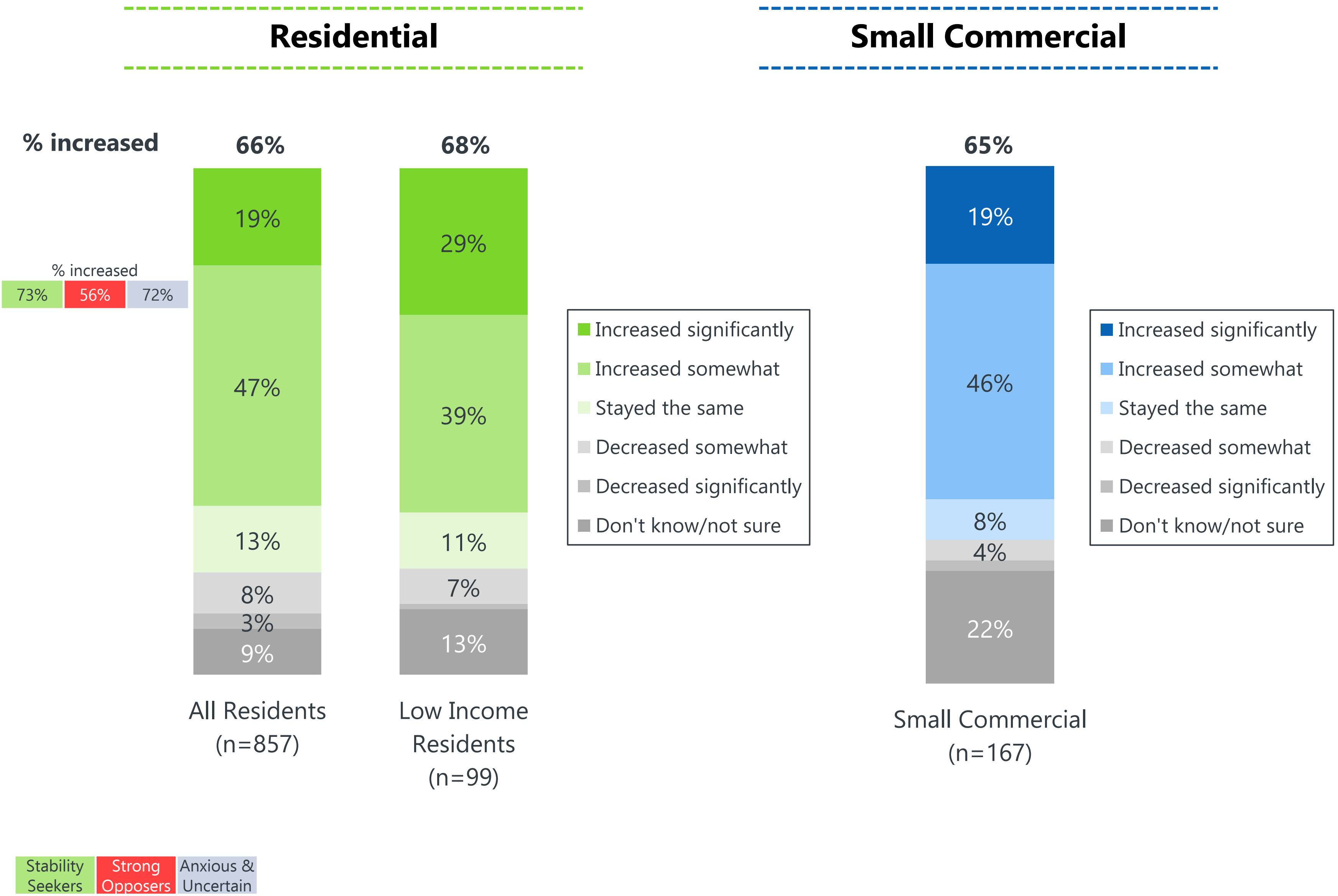
- With regard to the general concept of hedging, four-in-ten (42%) of the *Anxious & Uncertain* segment would rather not pay extra to protect against increases, while a similar proportion (37%) are unsure how they feel.  When it comes to their willingness to pay more for natural gas bill stability, sentiment is equally split with one-half either not willing to pay any extra for stability (49%) or unsure (51%).
- However, this segment's conflicting views emerge when it comes to the idea of paying extra now for a more stable natural gas bill in the future. Three-quarters of this segment (76%) think the idea is okay, but worry they will end up paying too much for natural gas. The remaining one-quarter say they like the idea of paying extra now for natural gas bill stability and feel stable gas prices should be a high priority for FortisBC.
- The *Anxious & Uncertain* are the youngest of the three segments and are the most likely to fall into the low income category (11% do). They are the most likely to be living in a townhouse, duplex or apartment/condo and, like *Stability Seekers,* seven-in-ten (72%) mistakenly think natural gas prices have increased in the past 10 years.

# Knowledge of Natural Gas Pricing & Charges

Detailed Findings

# Perception of Natural Gas Prices

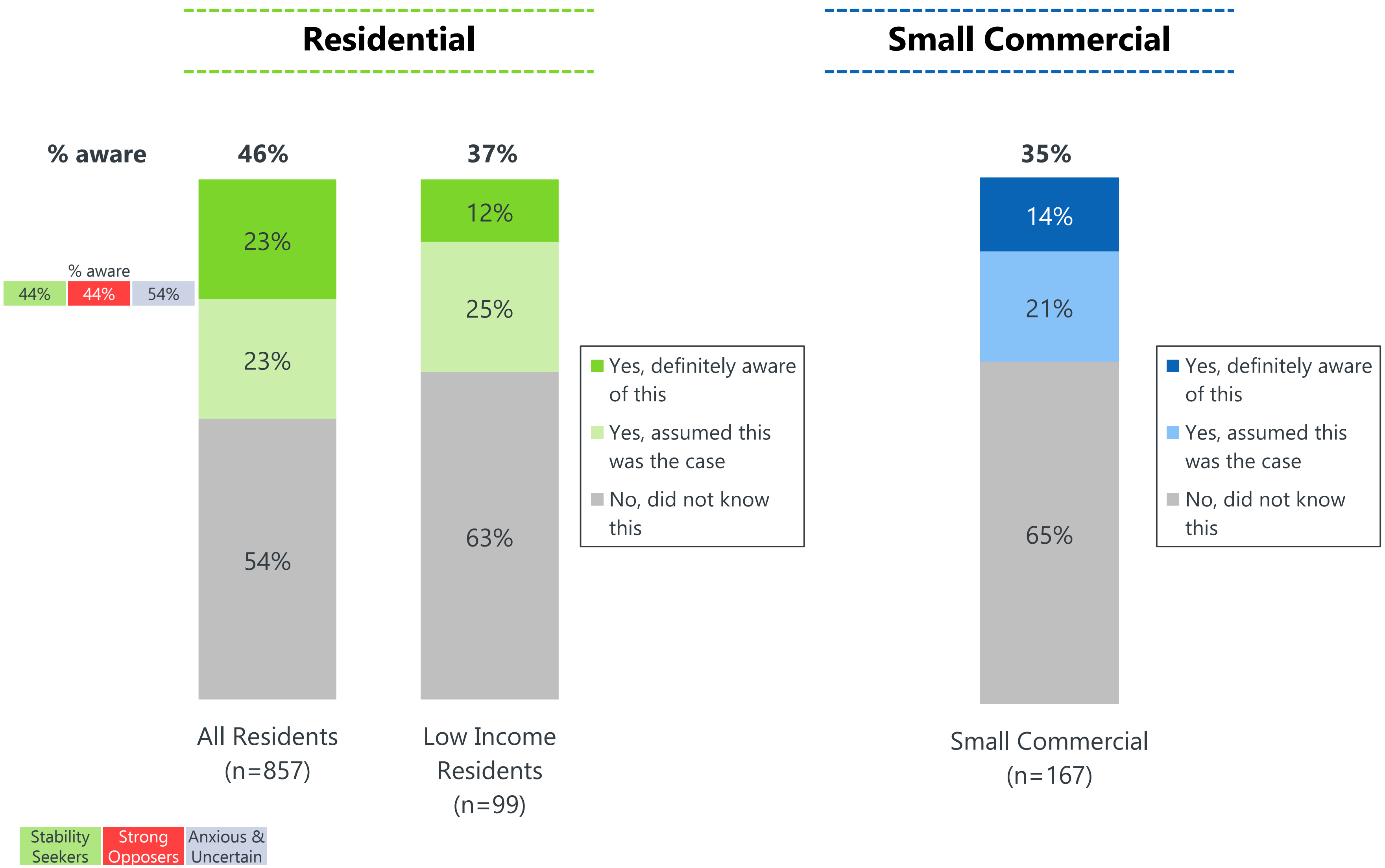
- Residential and small commercial customers are generally under the impression that natural gas prices have increased over the past 10 years.
- Low income residential customers are more likely than other customers to think that the prices have increased significantly over the past 10 years.
- While this misconception is fairly widespread – two-thirds of both customer groups believe the prices have increased – it is the least pronounced among *Strong Opposers*, the segment that is the least receptive to the concept of hedging and paying more for natural gas stability.




*Q18. Thinking about the past 10 years, to the best of your knowledge, would you say that natural gas prices have…*

# Aware of Paying Same Price as FortisBC for Natural Gas

- Residential and small commercial customers are not widely aware that they pay the same price for natural gas as FortisBC.
- Low income residential customers and small commercial customers are the least likely to have definite awareness of this fact.
- The largest discrepancy in knowledge is between men and women – over half (55%) of men are aware that they pay the same price as FortisBC versus only one-third (33%) of women.
- Among the three segments, it is the *Anxious & Uncertain* who are the most likely to know they pay the same as FortisBC (54% versus 44% among the other two segments).

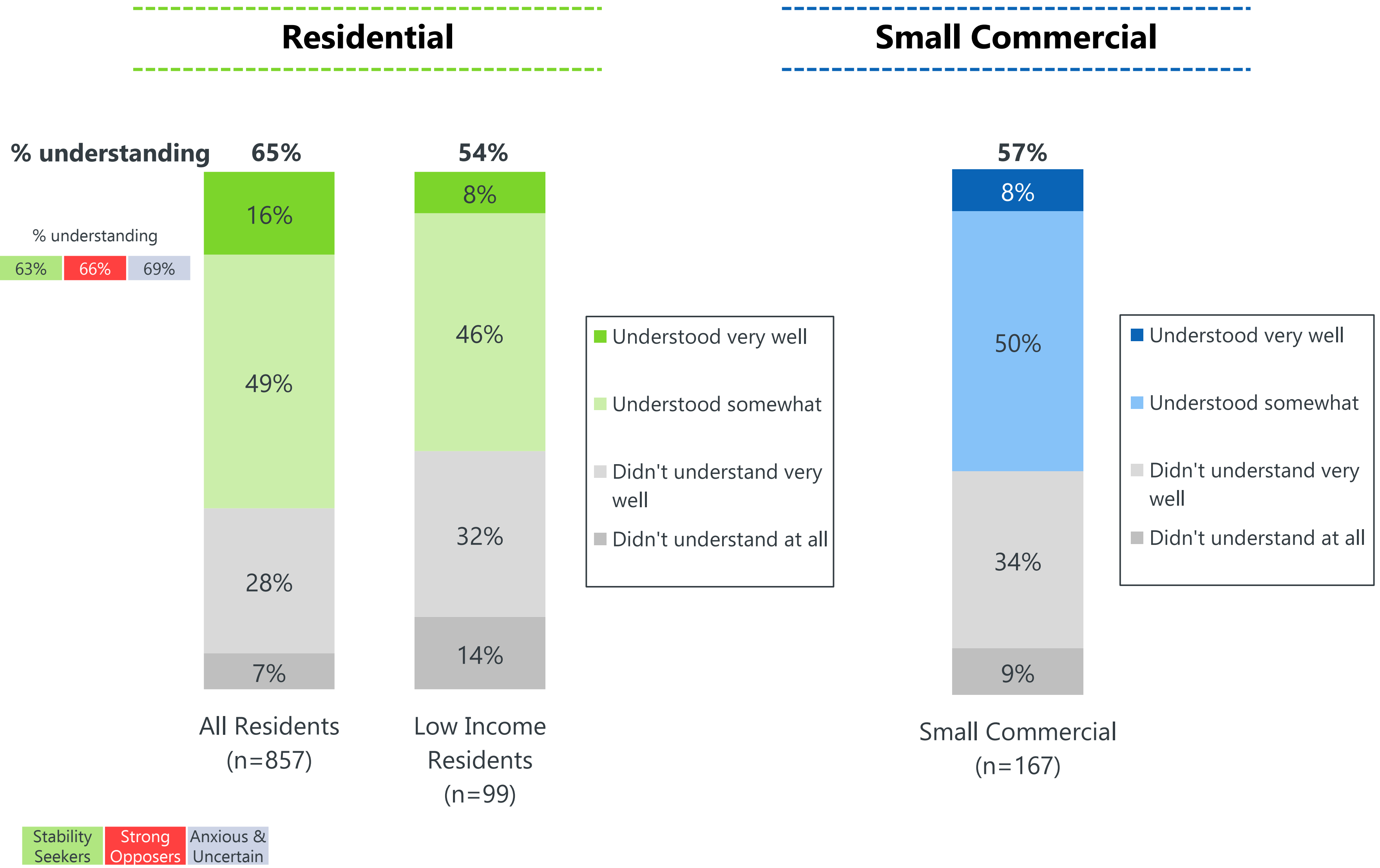



Note: In 2012, the proportions aware that FortisBC makes a profit only on the delivery of gas were as follows: All residents (27%), Low Income Residents (32%), Small Commercial (23%).

*Q5. Prior to this survey, were you aware that you pay the same price for your natural gas that FortisBC pays?*

# Understanding of Cost of Gas Charge

- While residential and small commercial customers are not widely aware that they are paying the same price for natural gas as FortisBC, they are more likely to report that they understand the Cost of Gas charge on their bill.
- Again, it is small commercial customers, and especially low income residential customers, who have a lower understanding of this charge.
- Also, similar to knowing that they pay the same price for natural gas as FortisBC, men are much more likely than women to say they understand the Cost of Gas charge on their bill (75% versus 51%, respectively).
- When it comes to the three segments, there are no significant differences in their understanding of the Cost of Gas charge on their FortisBC bill.
- Broad comparisons to the 2012 PRMP study indicates that understanding of the Cost of Gas charge may have increased among residential customers while remaining largely unchanged among small commercial customers. (Please note that different scales were used to rate understanding in 2012 and 2017.)

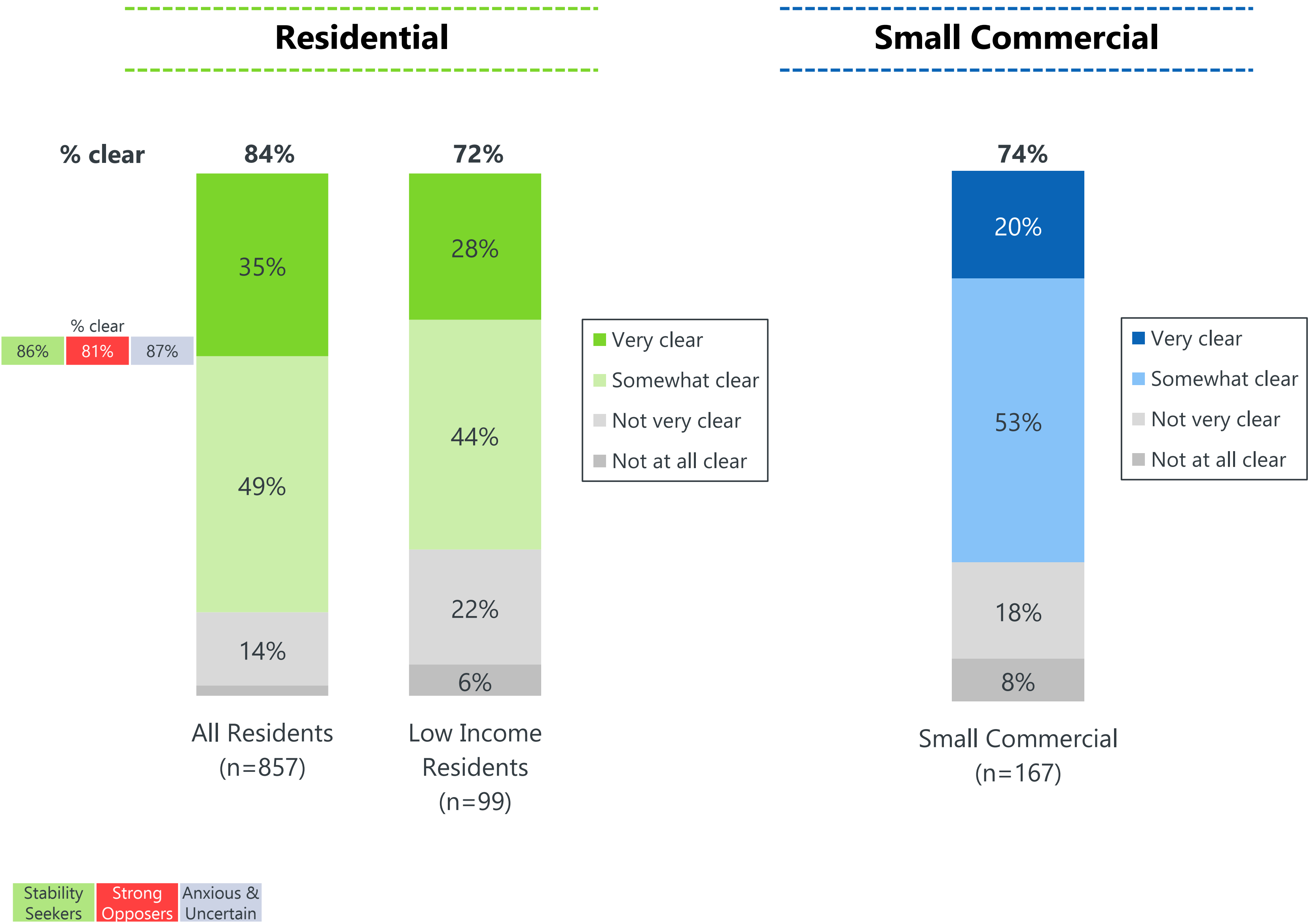



Note: In 2012, the proportions who understand the Cost of Gas charges well (rated 4 or 5 on a 5-point scale) were as follows: All Residents (58%), Low Income Residents (41%), Small Commercial (63%).

*Q6. And prior to this survey, how well did you understand the Cost of Gas charge?*

# Clarity of Natural Gas Bill Calculation

- Where residential and small commercial customers report being more knowledgeable is in how their natural gas bill is calculated. Over eight-in-ten (84%) of residential customers and three-quarters (74%) of small commercial customers say the are very or somewhat clear on how it is calculated.
- Low income residents are less clear than those with middle to higher household incomes when it comes to their natural gas bill calculations.
- All three segments profess equal (and high) clarity regarding how their natural gas bill is calculated.




*Q2. And when it comes to how your FortisBC natural gas bill is calculated, would you say you are…*

# Clarity of Natural Gas Bill Calculation

- There is a strong connection between how clear residential customers are about their natural gas bill calculation and their position on hedging, paying more for stability and preferences around adjusting the Cost of Gas rate.
- First, residential customers who are not clear about how their natural gas bill is calculated are also generally not aware that they pay the same for natural gas as FortisBC. They also do not have a solid understanding of the Cost of Gas charge and are the most likely to be misinformed about natural gas price changes over the past 10 years.
- These residential customers who are not clear also express more concern over natural gas costs.
- Those who are not clear about how their natural gas bill is calculated are more likely than other customers to be *Strong Opposers,* meaning they are not proponents of hedging and do not want to pay more to ensure natural gas bill stability.
- Finally, this group of customers who are unclear also are the most likely to lack a preference when it comes to having smaller, more frequent versus larger, less frequent adjustments to the Cost of Gas rate.

**Clarity of Natural Gas Bill Calculation**

| | Very Clear | Somewhat Clear | Not Clear |
|---|---|---|---|
| *Base* | (314) | (415) | (128) |
| **Knowledge Levels** | | | |
| Definitely aware they pay the same for natural gas as FortisBC | 36% | 19% | 8% |
| Understand the Cost of Gas charge very well | 33% | 9% | 0% |
| Natural gas prices over the past 10 years have increased significantly | 20% | 16% | 28% |
| **Views on Hedging, Paying More for Stability (Segments)** | | | |
| Stability Seekers | 46% | 44% | 40% |
| Strong Opposers | 34% | 37% | 44% |
| Anxious & Uncertain | 21% | 19% | 16% |
| **General Concern over Natural Gas Costs** | | | |
| Extremely concerned | 24% | 25% | 38% |
| **Preferences Around Adjustments to the Cost of Gas Rate** | | | |
| Prefer smaller, more frequent adjustments | 56% | 52% | 46% |
| Prefer larger, less frequent adjustments | 17% | 21% | 14% |
| Neither/Don't Know | 27% | 27% | 41% |

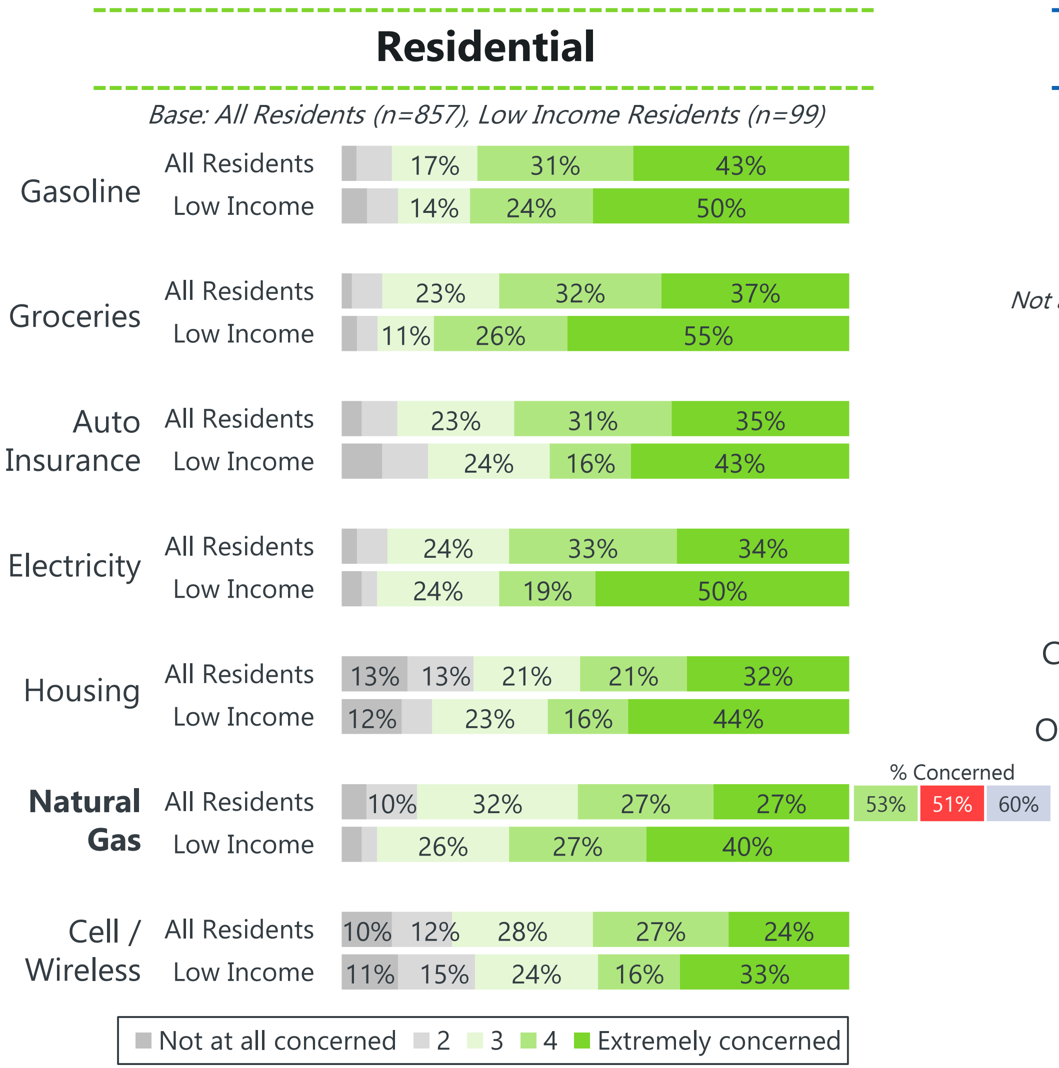
*Q2. And when it comes to how your FortisBC natural gas bill is calculated, would you say you are…*

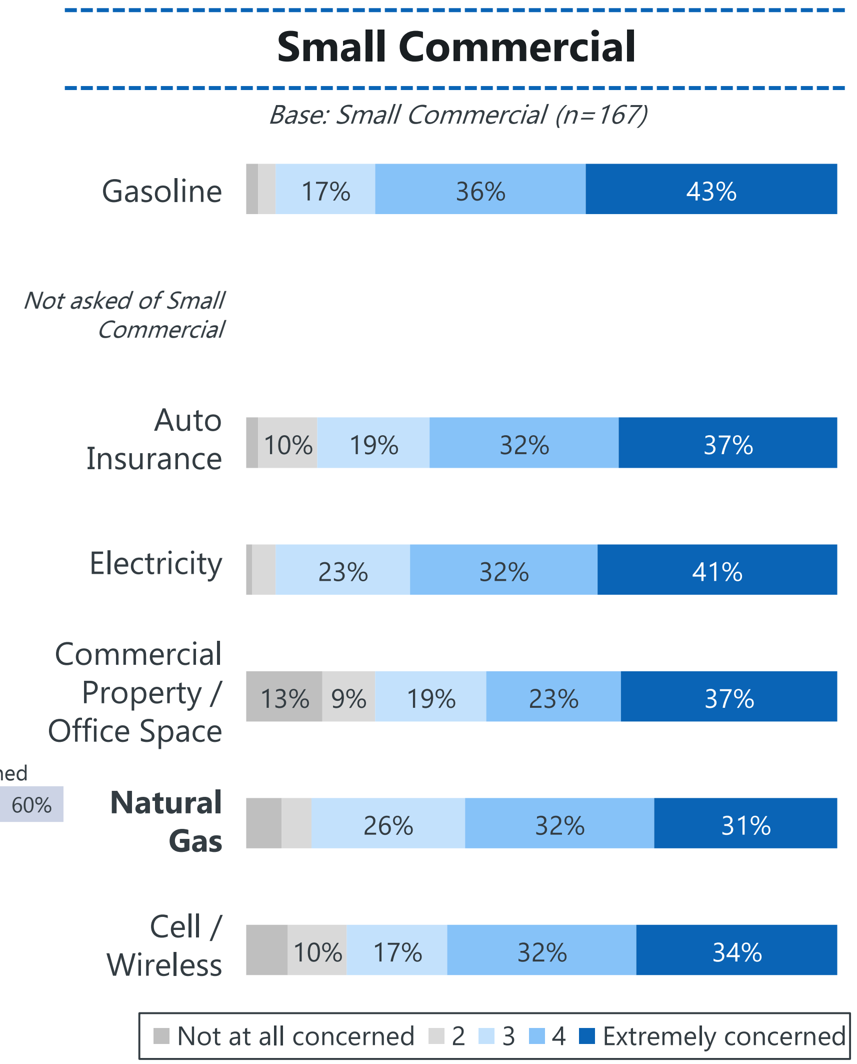
# General Concern about Natural Gas & Other Prices

Detailed Findings

# Concern About Price Increases

- Among residential and small commercial customers, concern over natural gas prices is less pronounced than concerns over the price of gasoline, groceries (residents only), auto insurance and electricity.
- A slight majority (54%) of residential customers express some level of concern over natural gas prices increasing, which is similar to the level of concern that residents have regarding increases in housing.
- Almost two-thirds (63%) of small commercial customers are somewhat or extremely concerned about the price of natural gas increasing, this being on par with the concern they express about increasing commercial property/office space prices.
- Low income customers express greater concern over prices than their non-low income counterparts, especially when it comes to groceries, electricity and natural gas.
- Compared with 2012, the proportion of customers who are extremely concerned about natural gas prices increasing has remained stable.
- Among the three segments it is the *Anxious & Uncertain* who express the most concern over increasing prices, including the price of natural gas.




Note: In 2012, the proportions extremely concerned about the price of Natural Gas increasing were as follows: All Residents (31%), Low Income Residents (41%), Small Commercial (39%).

| Stability Seekers | Strong Opposers | Anxious & Uncertain |
|---|---|---|

*Q3. [When it comes to your organization], how concerned are you about the price of the following increasing in the next few years?*

# Actions Taken to Reduce Natural Gas Bill

sentis

- One-half (51%) of residential customers and over four-in-ten (44%) small commercial customers have taken action or done something differently in the past to reduce their natural gas bill.
- Among low income customers, almost six-in-ten (57%) have done something in the past to reduce their natural gas bill.
- The most common action taken by all customer groups is to turn down the thermostat/heat. No other action is mentioned by more than one-in-ten residential customers or small commercial customers.

% Have taken action

| Stability Seekers | Strong Opposers | Anxious & Uncertain |
|---|---|---|
| 51% | 51% | 52% |

| | All Residents | Low Income Residents | Small Commercial |
|---|---|---|---|
| *Base* | *(857)* | *(99)* | *(167)* |
| **Have taken action** | **51%** | **57%** | **44%** |
| Turn down the thermostat / heat | 21% | 30% | 17% |
| Reduced electricity consumption | 9% | 8% | 7% |
| Reduced hot water consumption / installed hot water control | 7% | 9% | 4% |
| Purchased / installed an energy efficient furnace | 6% | 4% | 4% |
| Bought an adjustable thermostat (NEST) | 5% | 2% | 5% |
| Draft-proofed doors/windows | 4% | 9% | 4% |
| Replaced windows/doors | 3% | 2% | 5% |
| Added insulation | 3% | 5% | 5% |
| Dress warmer / use portable space heaters / blankets | 2% | 5% | 1% |
| Turned off fireplace | 2% | 4% | - |
| Purchased / installed a new hot water tank | 2% | - | 2% |
| Increased awareness/budgeted/researched | 2% | 2% | 2% |
| Wash with cold water | 2% | 3% | - |
| Purchased / installed other energy-efficient appliances | 2% | - | 3% |
| Conducted inspection/regular servicing | 2% | 3% | 2% |
| Purchased / installed a heat pump | 1% | - | 1% |
| Turned off pilot light | 1% | 2% | 1% |
| Actively looked to replace natural gas with other fuel/energy alternatives | 1% | 2% | 1% |
| Changed to natural gas/use natural gas appliance | 1% | 1% | 1% |
| Other | 4% | 4% | 4% |
| **Have not taken action** | **42%** | **36%** | **36%** |
| **Can't recall/not sure** | **7%** | **7%** | **20%** |

*Q4. [Have you / Has your organization] ever taken any actions or done anything differently in the past to reduce your natural gas bill? / Q4b. And what did you do? Please list everything you can think of.*

# Views on Hedging & Willingness to Pay More for Stability

Detailed Findings

# Views on Hedging

- There is no consensus among residential and small commercial customers when it comes to their views on paying for a product with a fluctuating price. Almost equal proportions (four-in-ten) say they would rather pay extra each month to protect against any large monthly increases in the future as say they would rather not pay extra each month. The remainder are simply unsure.
- Low income residential customers are no more likely than other residential customers to want to pay to be protected against increases, but they are more uncertain (33% of these customers admit to not having a preference).
- However, when it comes to the customer segments, it is clear that the *Stability Seekers* (as their name suggests) are clearly in favour of paying extra each month to protect against any large increases in price (71%), while almost two-thirds (63%) of *Strong Opposers* support the opposite point of view (not paying extra to protect against price increases).
- Among the two-in-ten residential customers who fall into the *Anxious & Uncertain* segment, approximately four-in-ten either do not want to pay extra for certainty in pricing (42%) or do not have a point-of-view (37%).

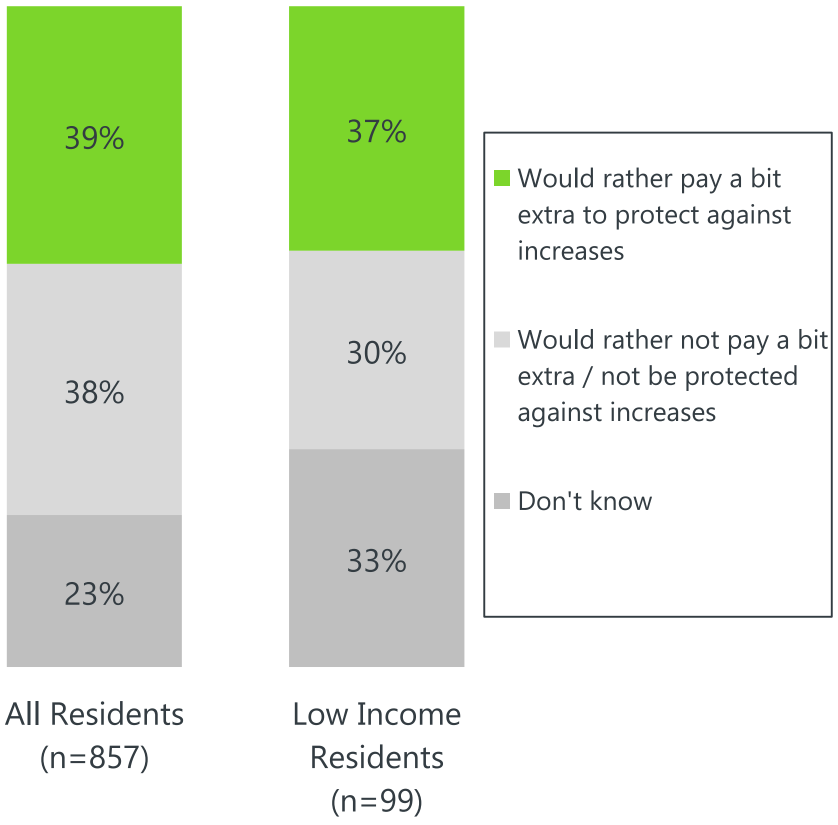
## Residential

% Would rather pay extra

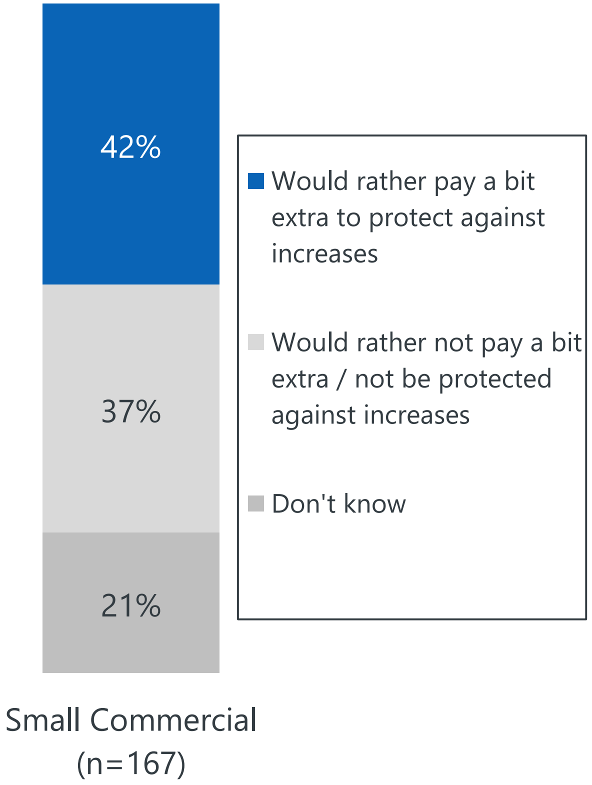
| | | |
|---|---|---|
| 71% | 10% | 21% |

% Would rather not pay extra

| | | |
|---|---|---|
| 16% | 63% | 42% |




## Small Commercial




| | | |
|---|---|---|
| Stability Seekers | Strong Opposers | Anxious & Uncertain |

*Q11. When it comes to paying for a product that has a fluctuating price, which most closely matches your point-of-view?*

# Willingness to Pay More for Stability

- Approximately four-in-ten residential customers, low income residential customers and small commercial customers are willing to pay more each month to provide greater stability in their natural gas bill, with equal percentages holding a contrary view.
- On average, residential customers think paying almost four percent more each month is reasonable to provider greater stability in their natural gas bill.
- Low income customers are comparably less likely to want to pay extra for stability. An increase of two percent is considered reasonable among this customer group.
- Small commercial customers are willing to pay the most for bill stability, with an almost five percent increase in their bill being considered reasonable.
- Among the three residential segments, *Stability Seekers* are the most receptive to paying more (91%) with an average increase of six percent more being considered reasonable. Alternatively, *Strong Opposers* and the *Anxious & Uncertain* express little to no interest in paying more for natural gas billing stability.

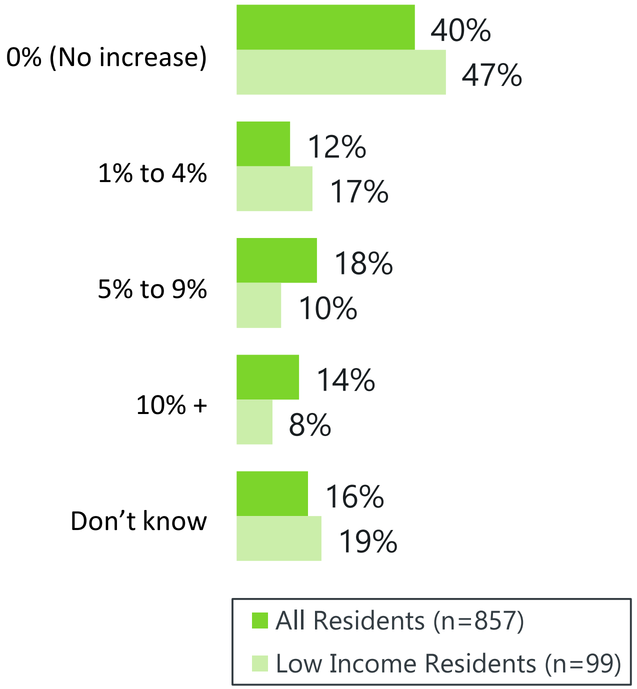
## Residential

Average (mean)

| All Residents (n=717) | Low Income Residents (n=80) |
|---|---|
| 3.6% | 2.0% |

Average (mean)

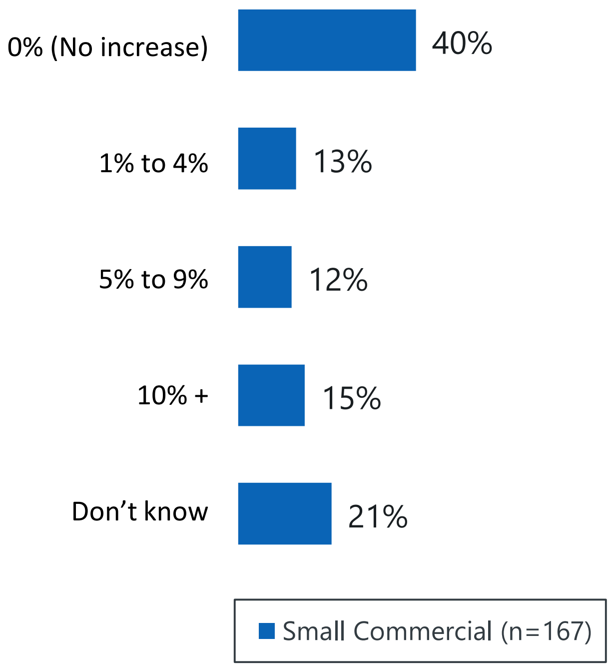
| Stability Seekers | Strong Opposers | Anxious & Uncertain |
|---|---|---|
| 6.2% | 0.8% | 0.0% |




## Small Commercial

Average (mean)

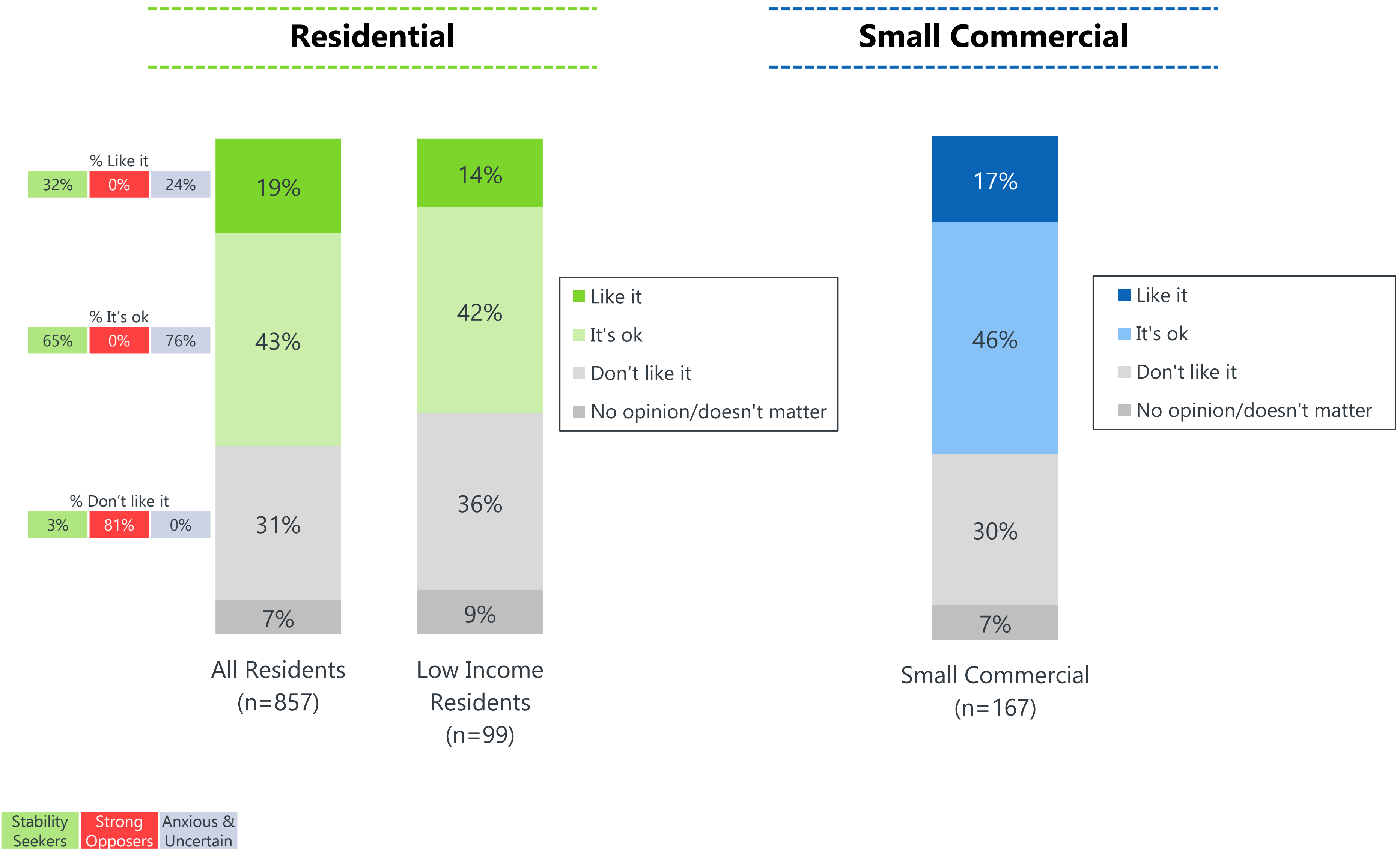
| Small Commercial (n=132) |
|---|
| 4.6% |




*Q12. How much more do you think is reasonable to pay each month to provide greater stability in your natural gas bill?*

# Perceptions of Paying Extra for Stability

- Currently, just under two-in-ten residential customers (19%) and small commercial customers (17%) like the idea of paying extra now to ensure a more stable gas bill because they feel that keeping natural gas prices stable should be a top priority for FortisBC.
- Another four-in-ten residential customers (43%) and small commercial customers (46%) think the idea is ok, but they worry they will end up paying too much for natural gas.
- About three-in-ten among both customer classes don't like the idea and want FortisBC to just buy the natural gas needed at the market rate and let it fluctuate.
- Low income residential customers have similar views; however, they tend to be slightly more opposed to the idea of paying extra for stability.
- Two-thirds (65%) of *Stability Seekers* and three-quarters (76%) the *Anxious & Uncertain* are of the opinion that paying extra now to ensure a more stable gas bill is an ok idea, but they still worry they will end up paying too much for natural gas.
- Meanwhile eight-in-ten (81%) of *Strong Opposers* don't like the idea of paying extra now to ensure a more stable natural gas bill.




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

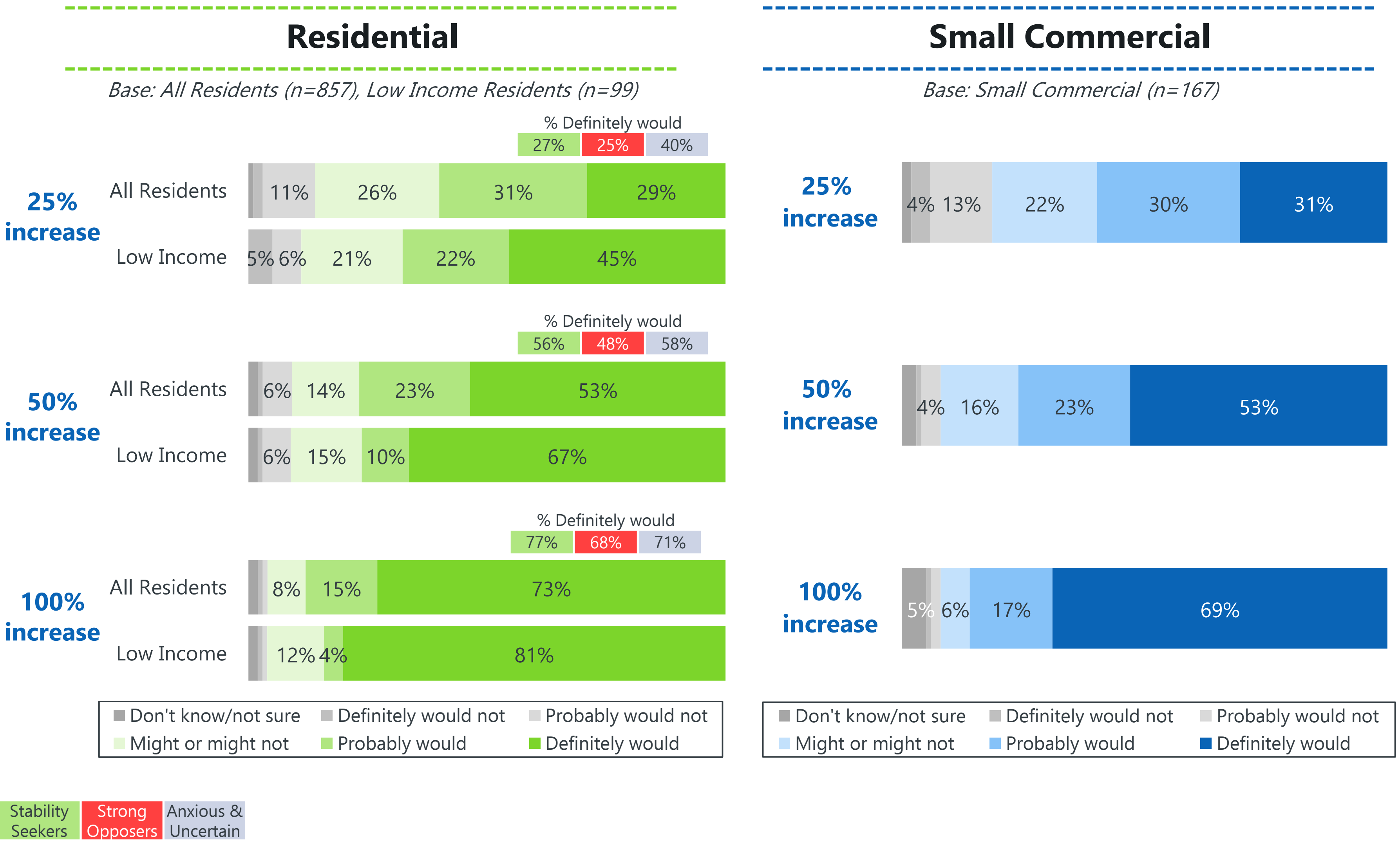
# Natural Gas Price Tolerances

Detailed Findings

# Impact of Natural Gas Bill Increases on Behaviour

- Residential and small commercial customers are fairly sensitive to price increases to their FortisBC bill in that considerable proportions (60% and 61%, respectively) say they would definitely or probably make changes to their household's or business' behaviour to offset bill increases of 25% or more.
- The greater the increase, the larger proportion of customers who say they would 'definitely' make some changes to offset the bill increase.
- At an increase of 25% to their monthly natural gas bill, equal proportions of customers (29% of residential and 31% of small commercial) feel they would definitely change their behaviour to offset the increase. If their bill increased by 50% then one-half of both customer groups claim they would definitely make changes to offset the increase. At a 100% increase in their bill, about seven-in ten among both customer classes feel they would definitely take action to mitigate the increase in their bill.
- Low income residential customers are particularly sensitive to any level of natural gas bill increase, but this is particularly evident at a 25% increase. If their natural gas bill increased by 25%, almost one-half (45%) of low income customers say they would change their household's behaviour to offset the increase compared to only three-in-ten (29%) of all residential customers.

*continued on next page…*




Note: In 2012, the proportions who said an increase would have 'very much' of an impact (on a 4-point scale) were as follows: 25% increase – All Residents (41%), Low Income Residents (51%), Small Commercial (44%); 50% increase – All Residents (57%), Low Income Residents (62%), Small Commercial (62%); 100% increase – All Residents (65%), Low Income Residents (70%), Small Commercial (70%).

*Q7. Imagine that for next year your average monthly natural gas bill was going to increase from [AVERAGE BILL AMOUNT] to [25% INCREASE]. How likely would you be to change your household's behaviour to help offset this increase in your bill? / Q8. And what if for the next year your average monthly bill went from [AVERAGE BILL AMOUNT] to [50% INCREASE]? / Q9. And finally, what if for the next year your average monthly bill went from [AVERAGE BILL AMOUNT] to [100% INCREASE]?*

# Impact of Natural Gas Bill Increases on Behaviour (continued)

- At a 25% bill increase, it is the *Anxious & Uncertain* segment that would most likely make changes to offset the increase (40% say they definitely would). However, at a 50% and 100% bill increase, this segment is no more likely to make changes to offset the increase than a typical residential customer.
- *Stability Seekers* are particularly sensitive to a 100% increase in their bill with three-quarters (77%) saying they would definitely make changes to offset the costs. Meanwhile, *Strong Opposers*, while also sensitive to natural gas bill increases, are the least of the three segments. This segment's lower sensitivity to natural gas bill increases is most evident at a 50% bill increase.

# Changes Likely to Make to Offset Natural Gas Bill Increases

- Customers who expressed at least some likelihood of changing their behaviour to offset increases in their natural gas bill were presented with a list of changes they could possibly make.
- From this list, residential and small commercial customers most often selected that they would turn down the thermostat/heat (70% of residential customers and 56% of small commercial customers)
- Residential customers would also dress warmer/use portable space heaters/use blankets, this being selected most often by low income customers (66% versus 58% among all residential customers).
- Draft proofing/insulating and trying to use natural gas appliances/equipment less often are measures that two in five residential customers think they also would take to offset bill increases.
- Among small commercial customers, along with turning down the thermostat, they would also draft proof/insulate (43%), actively look to replace natural gas with another fuel (38%), actively look to replace natural gas appliances/ equipment with more efficient ones (36%) or use these appliances/ equipment less (34%).

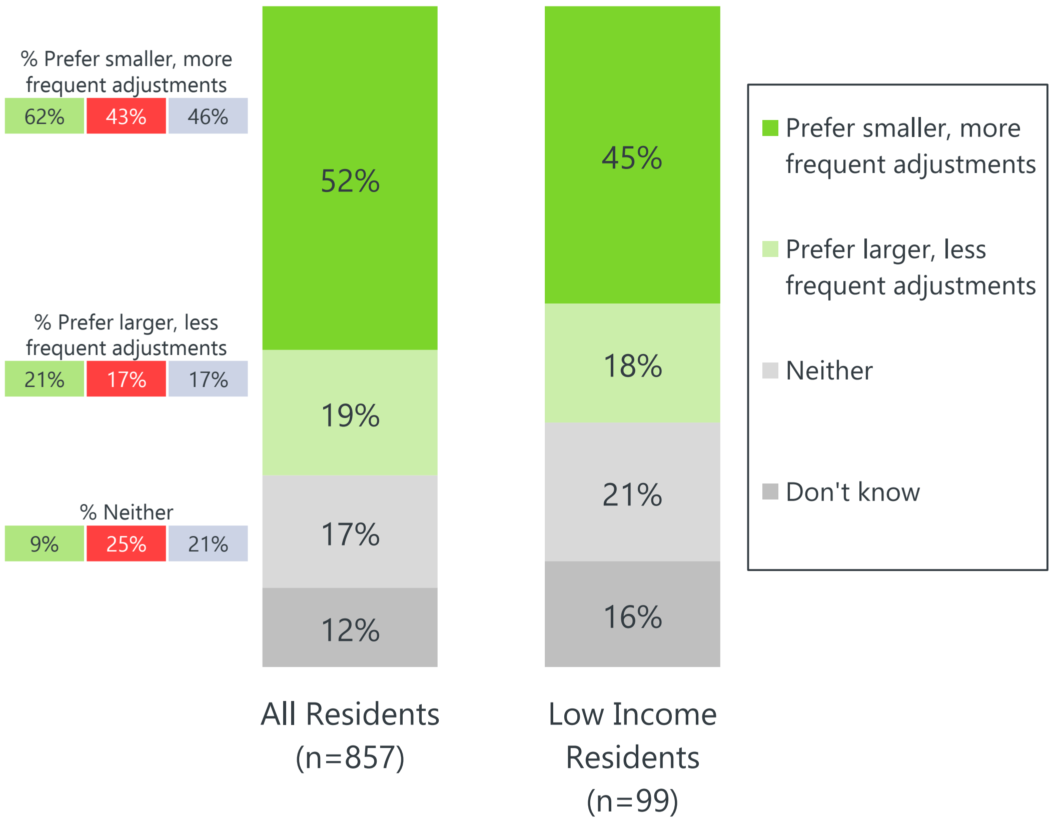
| | All Residents | Low Income Residents | Small Commercial |
|---|---|---|---|
| *Base: Might/probably/definitely likely to change behaviour due to natural gas bill increase* | *(827)* | *(98)* | *(158)* |
| Turn down the thermostat/heat | 70% | 73% | 56% |
| Dress warmer/use portable space heaters/use blankets | 58% | 66% | 30% |
| Take measures to better draft proof/insulate | 44% | 42% | 43% |
| Try to use natural gas appliances/equipment less or less often | 40% | 44% | 34% |
| Actively look to replace natural gas with other fuel/energy alternatives | 25% | 29% | 38% |
| Cut back spending in other areas | 25% | 27% | 19% |
| Actively look to replace existing natural gas heating appliances/equipment with more efficient appliances | 23% | 25% | 36% |
| Other | 3% | 5% | 4% |
| None of the above | 1% | 1% | 1% |
| Don't know | 2% | 2% | 8% |

*Q10. What changes do you think you would most likely make?*

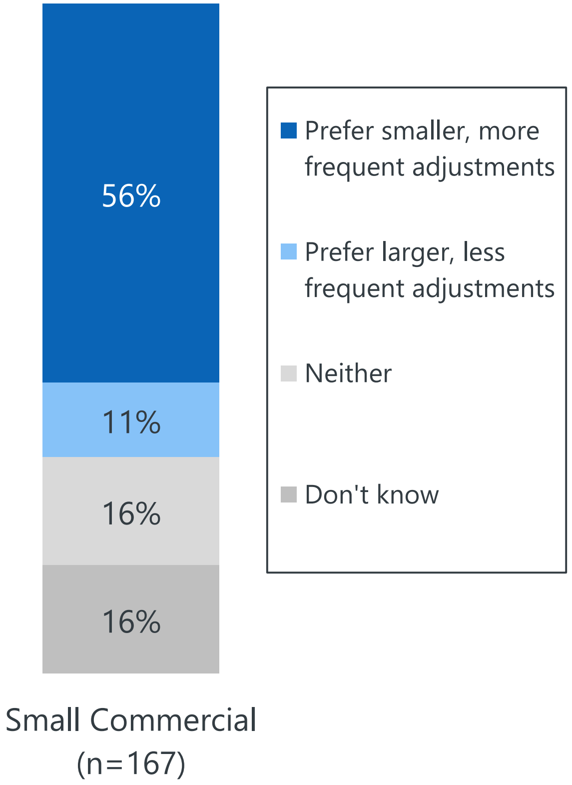
# Cost of Gas Rate Adjustment Preferences

- Residential and small commercial customers were presented with two options for adjusting the Cost of Gas rate:
  - FortisBC makes smaller, more frequent adjustments to the Cost of Gas rate to help ensure stability in the gas bill, even it means customers pay more; or
  - FortisBC makes larger, less frequent adjustments because changing the rate too frequently can end up costing too much more.
- Among all customer groups and segments, the preference tends to be that FortisBC make smaller, more frequent adjustments to the Cost of Gas rate. This preference is strongest among small commercial customers (56% prefer it) and *Stability Seekers* (62%).

## Residential




## Small Commercial




| Stability Seekers | Strong Opposers | Anxious & Uncertain |
|---|---|---|

*Q14. Which of the following best matches your opinion?*

# Billing Behaviour & Practices

Detailed Findings

# Average Monthly Natural Gas Bill

- Residential natural gas customers report having an average monthly bill of close to $79 and small commercial customers report having an average bill of just over $336 per month.
- Low income residential customers report an average natural gas bill of about $81 per month.
- As would be expected, those customers who use natural gas to heat their home/business have a higher monthly bill than those who use electricity for heating (among residential customers, $81/month on average for those heating their home with natural gas versus $65.80/month for those using electricity; and among small commercial customers, $355.60/month on average for those heating their premises with natural gas versus $248.80/month for those using electricity.)
- Among the three segments, *Stability Seekers* have a slightly lower monthly natural gas bill than the other two.

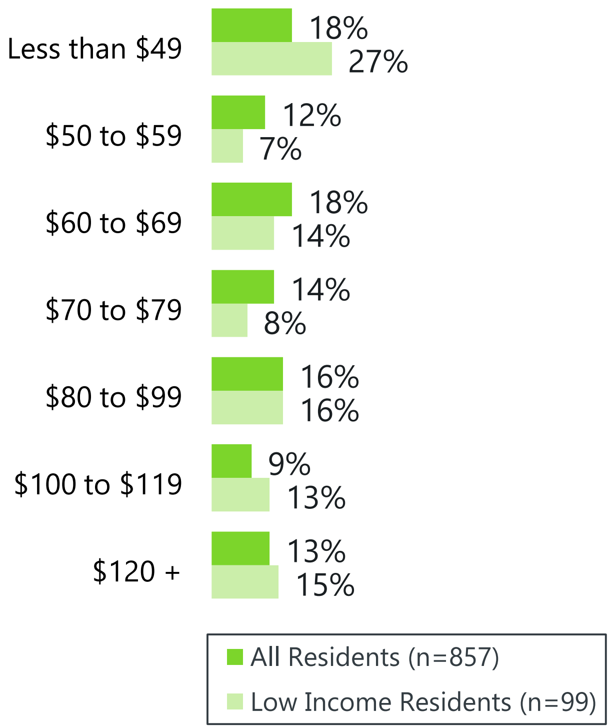
## Residential

**Average (mean)**

| All Residents | Low Income Residents |
|---|---|
| **$78.70**/month | **$80.90**/month |

Average (mean)

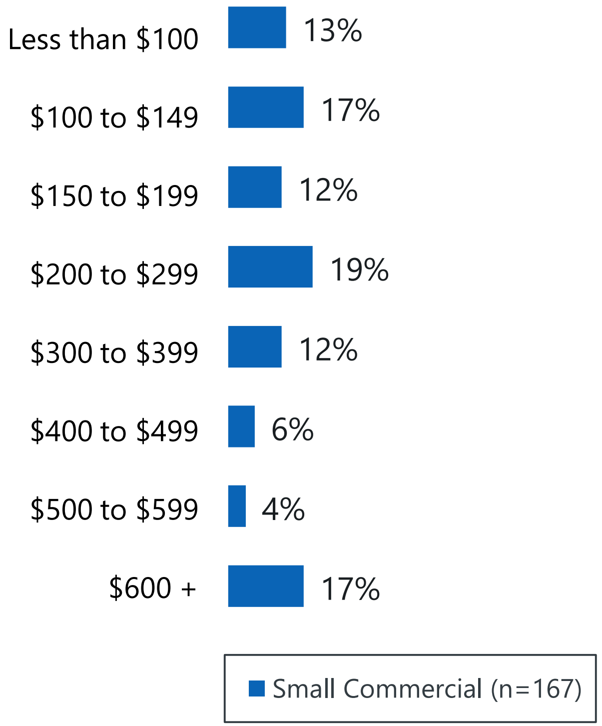
| Stability Seekers | Strong Opposers | Anxious & Uncertain |
|---|---|---|
| $75.50 | $81.60 | $80.40 |




## Small Commercial

**Average (mean)**

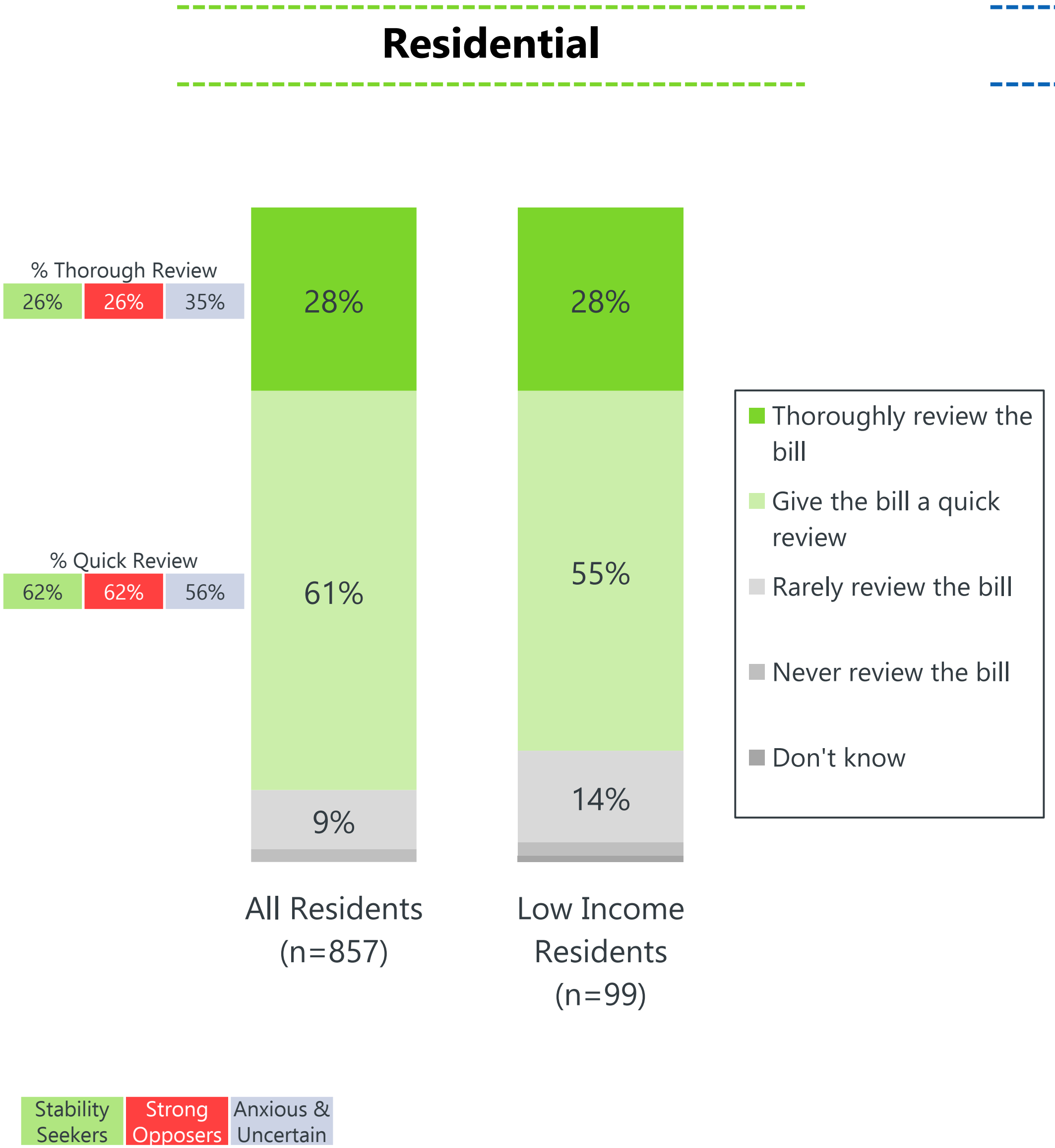
| Small Commercial |
|---|
| **$336.10**/month |

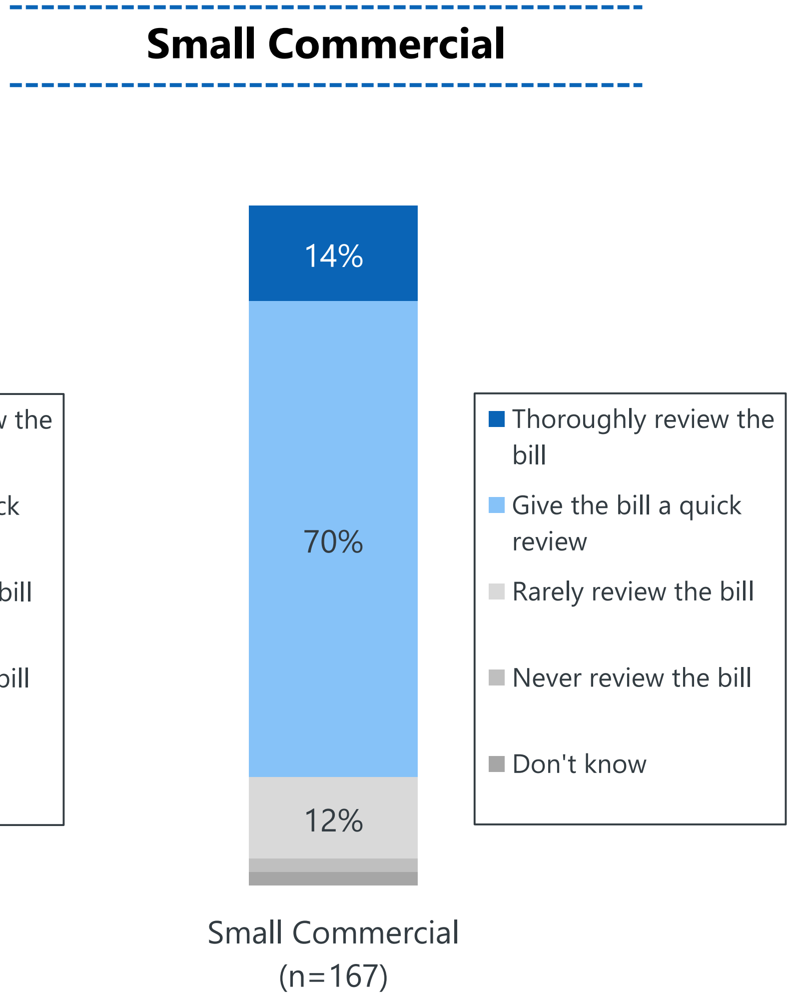



*DS12. What is your current average monthly natural gas bill?*

# Review of Natural Gas Bill

- Only three-in-ten (28%) residential customers, and one-in-seven (14%) small commercial customers report that they thoroughly review their natural gas bill when they receive it.
- Most customers, especially small commercial customers, simply give it a quick review to make sure everything look as expected.
- Residents who fall into the *Anxious & Uncertain* segment are the most likely to give their FortisBC natural gas bill a thorough review (35% say they do) which is consistent with their heightened concern over natural gas prices.



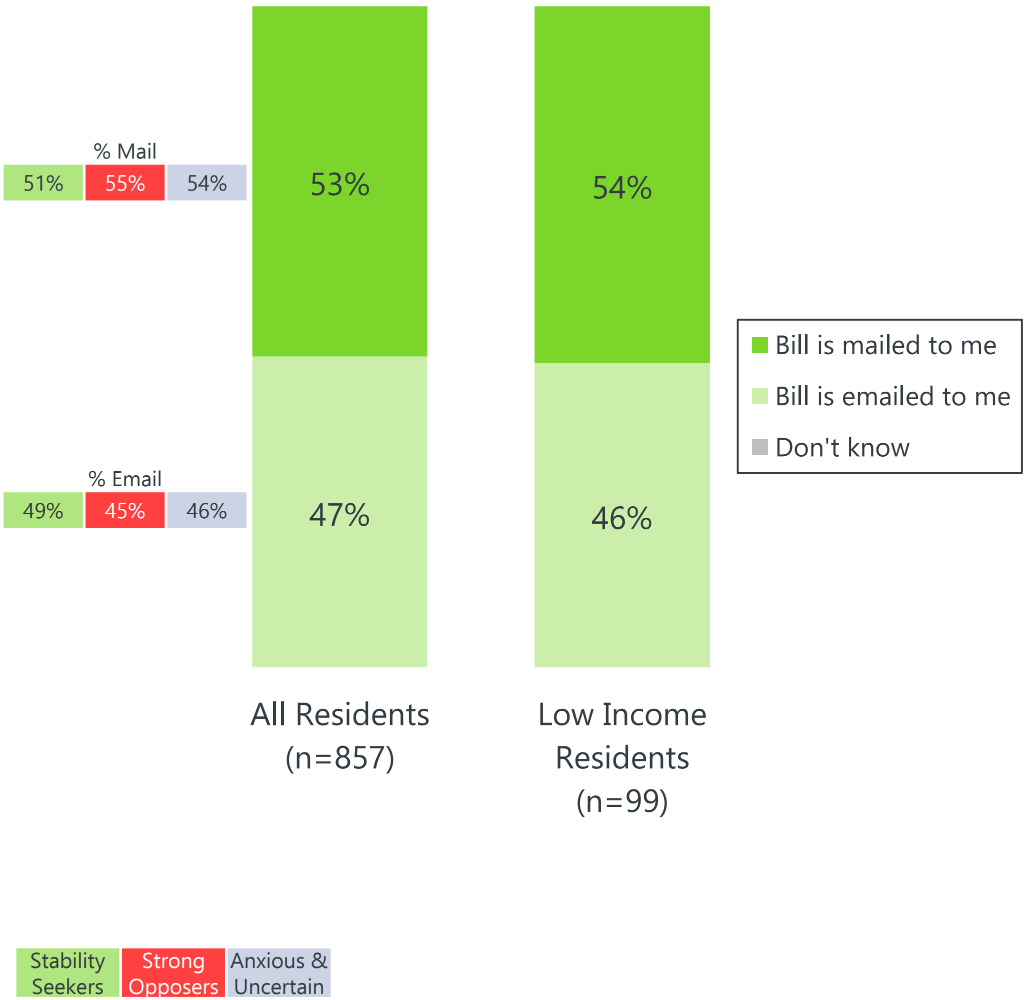




*Q1. When you get your FortisBC natural gas bill, would you say you...*

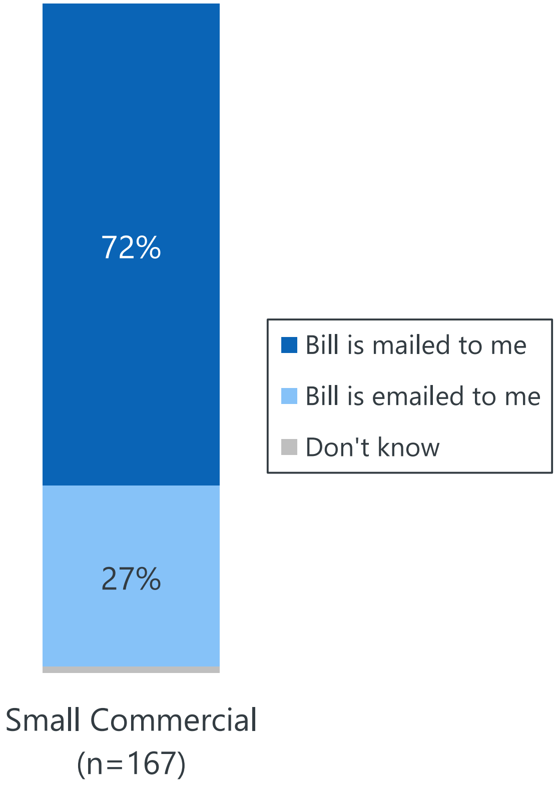
# Natural Gas Bill Delivery Format

- Among FortisBC natural gas residential customers, one-half report that their bill is mailed (53%) to them or receive it via email (47%) . This is generally also the case for low income residential customers.
- The majority of small commercial customers (72%) are receiving their bill by regular mail.
- Residential customers living in apartments/condos or townhouses/ duplexes, as well as those living in the Lower Mainland/Fraser Valley or on Vancouver Island/the Coast, are significantly more likely to receive their FortisBC natural gas bill via email when compared to those in singled detached homes and/or living in the Interior.

## Residential



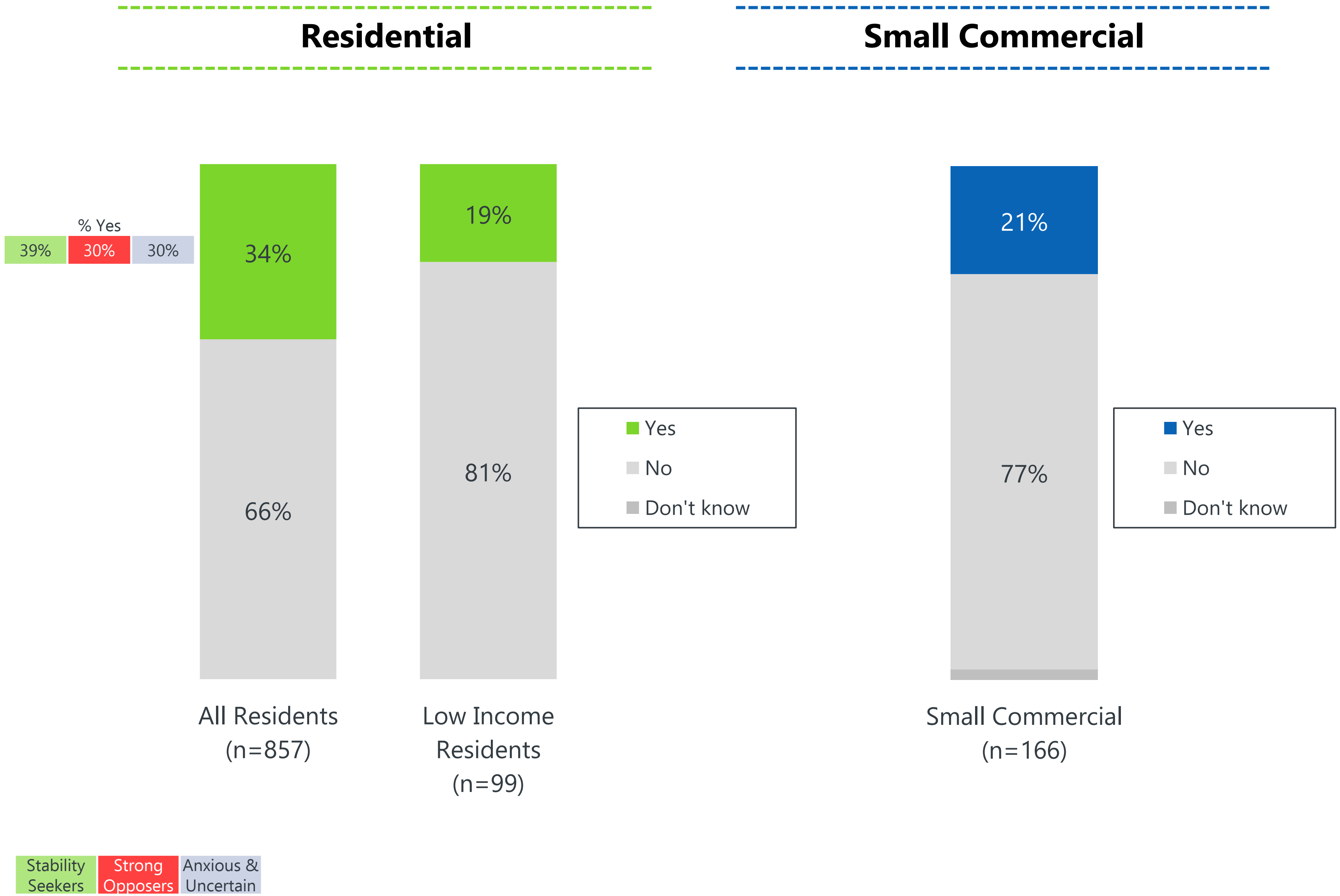

## Small Commercial




*DS10. How do you receive your FortisBC natural gas bill?*

# Participation in Pre-Authorized Payment Plan

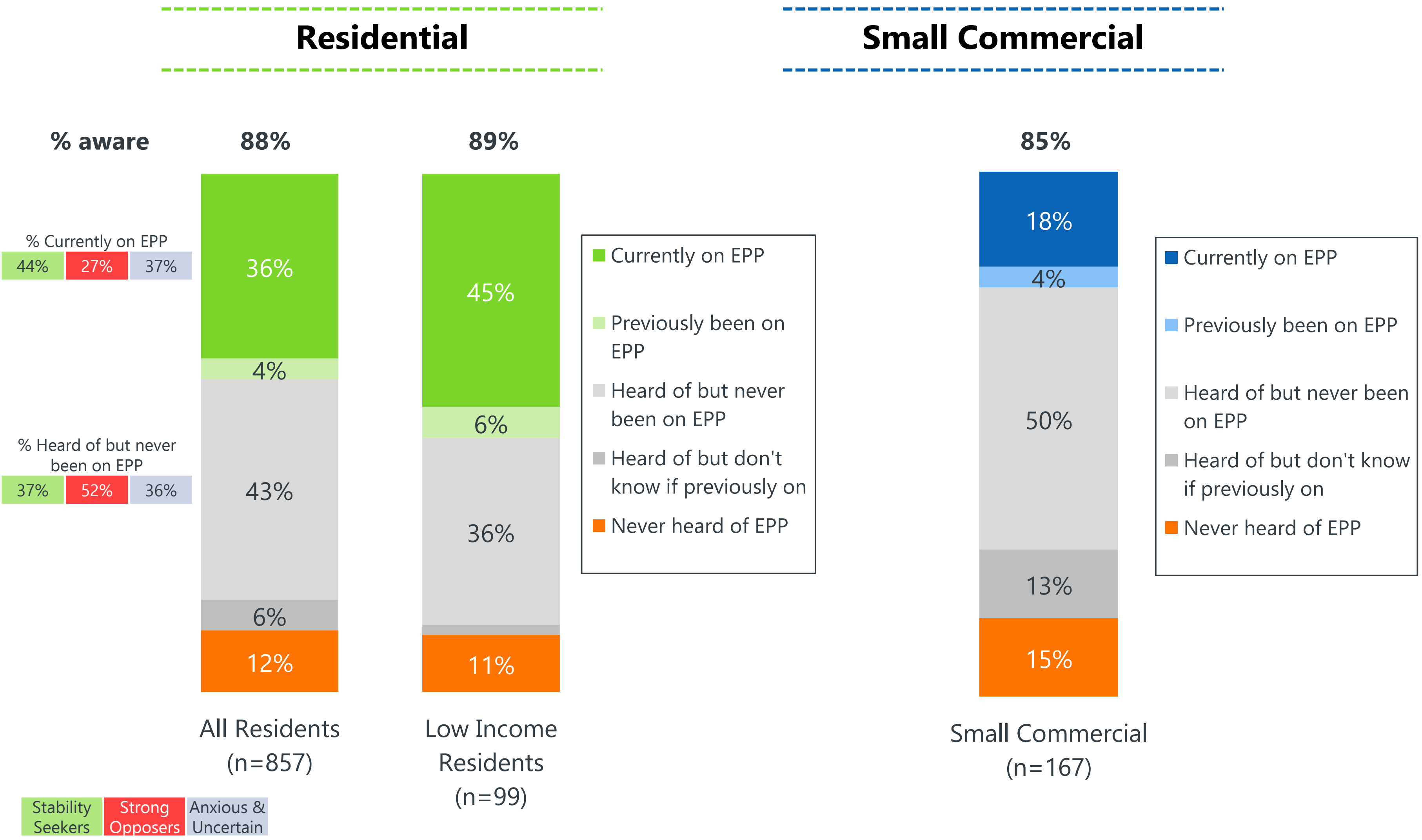
- Participation in FortisBC's pre-authorized payment plan stands at one-third (34%) among residential customers.
- Participation is considerably lower among low income customers (19%) and among small commercial customers (21%).
- Residential customers who own their home are more than twice as likely as renters to be on the pre-authorized payment plan (37% versus 17%, respectively).
- Among the three segments, it is the *Stability Seekers* who are most likely to be on FortisBC's pre-authorized payment plan (39%) which aligns with their desire to have more stable bills.




DS11. *Do you use a Pre-Authorized Payment Plan (money is automatically debited from your account) to pay your FortisBC natural gas bill?*

# Participation in Equal Payment Plan

- While the majority of residential and small commercial customers report being aware of FortisBC's equal payment plan (EPP), a minority of residential (36%) and small commercial (18%) customers are actually on the plan.
- Low income customers are more likely to be taking advantage of the plan, with nearly one-half (45%) currently using it.
- Other customer groups who are more likely to be on the EPP compared to their counterparts include:
  - Older (55+) customers (45%)
  - Those in townhouses/duplexes (43%)
  - Those using natural gas to heat their home (39%)
  - Small commercial customers with 10 or fewer employees (22% versus 8% among those with over 10 employees).
- Among the three segments it is *Stability Seekers* and the *Anxious & Uncertain* who are most likely to be on the EPP (44% and 37%, respectively). *Strong Opposers*, while aware of the EPP, are the least likely to be using it (27%). 19% of the *Anxious & Uncertain* are unaware of the plan.
- Since 2012, awareness of the EPP appears to have increased, while usage appears stable.




Note: In 2012, the proportions who were aware of/signed up for FortisBC's EPP were as follows: Aware – All Residents (78%), Low Income Residents (75%), Small Commercial (80%); Signed Up – All Residents (41%), Low Income Residents (40%), Small Commercial (13%).

*Q15. Which of the following best describes your [household / organization]? / q16. [Have you / Has your organization] ever been on FortisBC's Equal Payment Plan?*

# Reasons for Leaving Equal Payment Plan

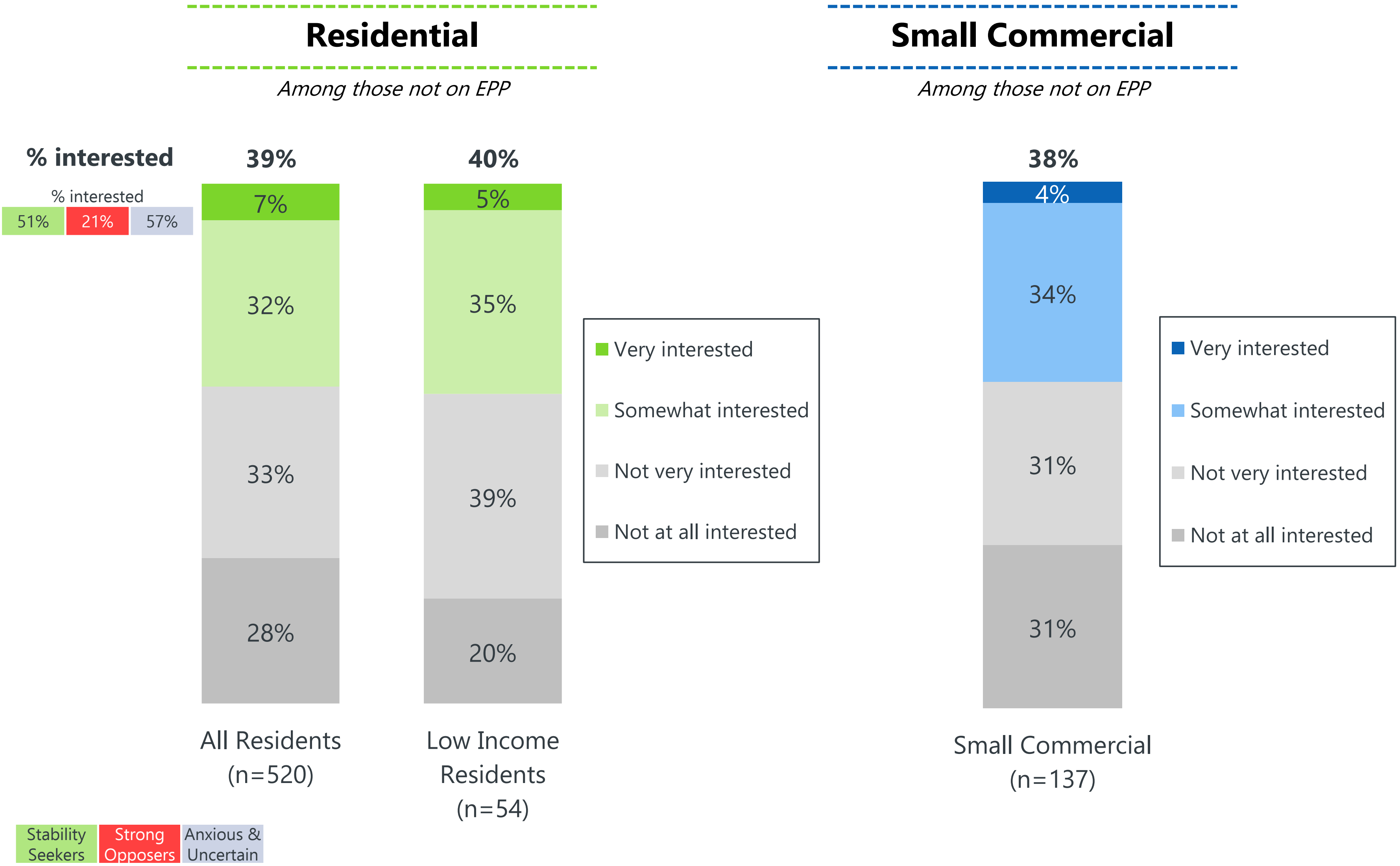
〉 For the small group of customers who have been on the EPP in the past but no longer use it, moving or no longer needing the service, preferring to just pay what they owe, and lack of affordability are the main reasons for not using it any more.

| | Residents |
|---|---|
| *Base: Previously on FortisBC's EPP* | *(38)* |
| Moved/no longer needed service | 29% |
| Prefer to pay what I owe | 23% |
| Could not afford/price too high/unexpected charges | 22% |
| Incorrect billing/overcharged | 9% |
| It's a scam | 8% |
| Other | 11% |
| Don't know | 4% |

*Q16b. Why did you stop using FortisBC's Equal Payment Plan?*

# Interest in Joining Equal Payment Plan

- Interest in joining FortisBC's EPP among residential and small commercial customers who are currently not on the plan stands at about four-in-ten among both groups, including low income customers.
- Residential customers who are not on the EPP, but express interest in it, include:
  - Apartment/condo dwellers (70%)
  - Those on the pre-approved payment plan (53%)
  - Renters (50%)
- While the *Anxious & Uncertain* residents who are not on the EPP express the greatest interest in joining (57% are very or somewhat interested), *Strong Opposers* not on the EPP are clearly not interested (79% say they are not interested).
- Broad comparisons to 2012 indicate that strong interest in joining the EPP is at best marginally higher among residential customers. (Please note that different scales were used in 2012 and 2017.)




Note: In 2012, the proportions who said they 'definitely will' sign up (on a 5-point scale) for FortisBC's Natural Gas EPP were as follows: All Residents (3%), Low Income Residents (3%), Small Commercial (6%).

*Q17. How interested would [you / your organization] be in joining FortisBC's Equal Payment Plan [again]?*

# Reasons for Lack of Interest in Joining Equal Payment Plan

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- Customers who are not interested in joining the EPP would rather pay for their actual usage, like having lower bills in the summer or are simply happy with the way their billing is now.
- Small commercial customers not interested in the EPP also mention that they like to know what they are spending each month, that they don't want to have to 'owe" FortisBC at any point or that their bill just isn't that high to require it.

| | All Residents | Low Income Residents | Small Commercial |
|---|---|---|---|
| *Base: Not interested in joining FortisBC's EPP* | *(342)* | *(35)* | *(84)* |
| Prefer to pay for actual usage | 28% | 25% | 25% |
| Our consumption fluctuates/lower bill in the summer | 18% | 4% | 11% |
| We don't need it/happy the way it is now | 15% | 23% | 12% |
| We can afford to cover fluctuations ourselves | 12% | 7% | 5% |
| I like to know what I'm spending each month/manage it myself | 10% | 10% | 26% |
| It's a scam | 8% | 6% | 1% |
| I don't want to overpay | 7% | 9% | 5% |
| Our bill isn't very high right now | 6% | 5% | 10% |
| I don't want to owe FortisBC after | 2% | 7% | 12% |
| I don't have the budget to pay all at once | 1% | 2% | 1% |
| Other | 5% | 4% | 12% |
| Don't know, N/A | 3% | 9% | 1% |

Note: In 2012, the top reasons for not being likely to sign up for FortisBC's Natural Gas EPP were: Not being concerned about changes to monthly bill [All Residents (43%), Small Commercial (43%)]; and feeling there is not a lot of difference between winter and summer bills [Low Income Residents (38%)].

*q17b. Why are you [not at all / not very interested] in joining FortisBC's Equal Payment Plan?*

# Respondent Profiles

# Respondent Profile: Residents

| | All Residents | Low Income Residents |
|---|---|---|
| *Base* | (857) % | (99) % |
| **Primary Heat Source** | | |
| Natural Gas | 78 | 76 |
| Electricity (baseboard heaters) | 12 | 12 |
| Electricity (heat pump) | 5 | 5 |
| Wood | 2 | 3 |
| Oil | <1 | - |
| Propane | <1 | - |
| Other | 2 | 2 |
| Don't know | <1 | 3 |
| **Type of Home** | | |
| Single detached home | 69 | 52 |
| Townhouse, duplex or triplex | 20 | 19 |
| Apartment or condo | 9 | 11 |
| Mobile home | 1 | 14 |
| Other | 1 | 5 |
| Don't know/not sure | <1 | - |
| **Home Ownership** | | |
| Own | 85 | 60 |
| Rent | 15 | 40 |

| | All Residents | Low Income Residents |
|---|---|---|
| *Base* | (857) % | (99) % |
| **Region** | | |
| Lower Mainland/Fraser Valley | 67 | 61 |
| Island/Coast | 10 | 5 |
| Northern Interior | 15 | 14 |
| Southern Interior | 8 | 20 |
| **Age** | | |
| 18 – 24 | 3 | 8 |
| 25 – 34 | 24 | 11 |
| 35 – 44 | 16 | 21 |
| 45 – 54 | 23 | 18 |
| 55 – 64 | 12 | 16 |
| 65 + | 22 | 26 |
| **Gender** | | |
| Male | 58 | 44 |
| Female | 42 | 56 |

| | All Residents | Low Income Residents |
|---|---|---|
| *Base* | (857) % | (99) % |
| **Household Size** | | |
| 1 | 18 | 32 |
| 2 | 39 | 30 |
| 3 | 18 | 17 |
| 4 | 17 | 13 |
| 5 | 6 | 5 |
| 6 | 2 | 1 |
| 7 + | <1 | 2 |
| **Household Income** | | |
| < $62,000 | 28 | 100 |
| $62,000 – <$70,000 | 10 | - |
| $70,000 – <$80,000 | 10 | - |
| $80,000 – <$100,000 | 14 | - |
| $100,000 + | 27 | - |
| Prefer not to say | 11 | - |

# Respondent Profile: Small Commercial Businesses

| | Small Commercial |
|---|---|
| *Base* | (167) % |
| **Primary Heat Source** | |
| Natural Gas | 77 |
| Electricity (baseboard heaters) | 8 |
| Electricity (heat pump) | 8 |
| Wood | - |
| Oil | 1 |
| Propane | 1 |
| Other | 3 |
| Don't know | 2 |
| **Role** | |
| Owner | 36 |
| Partner | 6 |
| CEO/President | 14 |
| CFO | 1 |
| COO | - |
| Vice President/Senior Executive | 1 |
| Accountant/Controller | 16 |
| Business Manager/General Manager/Administrator | 23 |
| Other | 4 |

| | Small Commercial |
|---|---|
| *Base* | (167) % |
| **Building/Facility/Business Type** | |
| Automotive | 7 |
| Educational Facility | 1 |
| Food Store | 2 |
| Health Care Facility | 4 |
| Lodging | 4 |
| Manufacturing/Agriculture | 11 |
| Office/Mixed-use Building | 16 |
| Public Assembly | 1 |
| Restaurant | 5 |
| Retail and Personal Services | 6 |
| Warehouse | 13 |
| Home/home business/home office (unaided) | 7 |
| Other | 23 |
| **Region** | |
| Lower Mainland/Fraser Valley | 53 |
| Island/Coast | 8 |
| Northern Interior | 26 |
| Southern Interior | 13 |

| | Small Commercial |
|---|---|
| *Base* | (167) % |
| **Years in Business** | |
| 0 – 9 | 22 |
| 10 – 19 | 24 |
| 20 – 29 | 28 |
| 30 + | 23 |
| Don't know | 4 |
| **Number of FTE Employees** | |
| 0 | 8 |
| 1 | 8 |
| 2 | 12 |
| 3 – 4 | 14 |
| 5 – 9 | 19 |
| 10 – 19 | 20 |
| 20 + | 17 |
| Don't know | 3 |

# Appendix

Small Commercial Telephone Screener & Reminder

Email Invitation & Reminder

Questionnaire

## SMALL COMMERCIAL TELEPHONE SCREENER

Hi, this is [NAME] calling from Sentis Research on behalf of FortisBC.

**S1.** Are you the person or one of the people responsible for your organization's natural gas bill and making decision about payment options and plans?

1. Yes
2. No
3. Refused **| RECORD AS ORGANIZATION REFUSAL**
4. Not a FortisBC customer **| RECORD AS NOT A FORTISBC CUSTOMER**
5. Company does not use natural gas **| RECORD AS DOES NOT USE NATURAL GAS**

**IF NO:** May I speak to that person?

**IF YES AND PERSON COMES TO PHONE, RE-INTRODUCE**
**IF YES, BUT NOT AVAILABLE, ARRANGE CALLBACK**
**IF MAYBE OR HESITATES, THEN USE PERSUADERS**
**IF FIRM NO, THANK AND TERMINATE**

**WHEN TARGET RESPONDENT IS ON THE LINE RE-INTRODUCE THEN ASK:**
**S2.** We're doing research with FortisBC customers to get their feedback on managing energy costs and payments. Would you be interested in participating in an online research survey that we will email you? You can do it any time between today and April 21, 2017. All customers who complete the survey by April 21, 2017 will be entered into a draw to win a grand prize of a $500 VISA gift card or one of five $100 VISA gift cards. We're only surveying 200 FortisBC customers so the odds of winning are quite good.

1. Yes **| CONTINUE S3a**
2. Maybe or hesitates **| CONTINUE TO QUESTIONS**
3. Firm No **| THANK AND TERMINATE – RECORD AS RESPONDENT REFUSAL**

IF NECESSARY: The online survey will take 8-9 minute to complete.

**QUESTIONS:** Are there any questions I can answer that would help you decide whether or not to participate? **USE PERSUADERS AS NECESSARY**

**S3a.** Before we email you the survey, we just have a few questions to confirm that the survey will be relevant to you. Does your organization receive a **natural gas bill**?

1. Yes, I receive a natural gas bill
2. No, I do not | **THANK AND TERMINATE**
97. Don't know/ not sure | **THANK AND TERMINATE**

**S3b**. Is your natural gas supplied by… **READ**

1. FortisBC
2. An independent gas marketer | **THANK AND TERMINATE**

**DO NOT READ:**

97. Don't know/ not sure | **THANK AND TERMINATE**

**S3c.** And is your organization's total monthly natural gas bill typically under $2,000 or $2,000 or higher?

1. Under $2,000/month
2. $2,000 or higher | **THANK AND TERMINATE**
97. Don't know/ not sure | **THANK AND TERMINATE**

**THANK AND TERMINATE MESSAGE FOR S3a-c**: For this research we need to speak to FortisBC natural gas customers who have monthly bills under $2,000, so that will be my last question today. Thank you very much for your time.

**S4.** Does your organization fall into any of the following sectors? **READ LIST**

1. Utility company | **THANK AND TERMINATE**
2. Natural gas company or gas marketer | **THANK AND TERMINATE**
3. Electricity company | **THANK AND TERMINATE**
4. Market research company | **THANK AND TERMINATE**
5. Newspaper, radio, or TV network | **THANK AND TERMINATE**
6. Utility regulatory body | **THANK AND TERMINATE**

**IF NO TO ALL THEN USE CODE 7 BELOW, DO NOT READ:**

7. None of the above | **CONTINUE**

**S5. EMAIL.** May I have your email address to send you the link to the survey?

1. Yes | **GO TO S6 RECORD EMAIL ADDRESS**
2. No | **HAVE DECIDED NOT TO DO IT-THANK AND TERMINATE**

**S6. RECORD EMAIL ADDRESS.**

Email: _______________________

Let me repeat that back just so I know I've got it correct **[USE ALPHA AS NECESSARY]**

And may I have your name please? **[INTERVIEWER: MAKE SURE SPELLING IS CORRECT]**

First name: _____________________________________

In the next hour or so, you'll receive an email from fortisbc@sentis.ca with the subject line: Help FortisBC Manage Energy Costs & Payments. If you do not see the email in your inbox, then please check your junk mail folder.

**EMAIL SEND/SIGN OFF**

I'd like to thank you for your help today. Your feedback will help FortisBC best meet the needs of its customers.

Have a great day/ evening.

**[DISPLAY THE FOLLOWING ON THIS PAGE AS WELL]**

Interviewer: Information for email invite below:

EMAIL: **[DISPLAY INFO FROM S4]**

NAME: **[DISPLAY FIRST]**

TOKEN**: [DISPLAY FROM SAMPLE]**

## SMALL COMMERCIAL TELEPHONE REMINDER

Hi, this is [NAME] calling from Sentis Research on behalf of FortisBC. May I please speak to [customer name]?

Hi there. A few days ago you agreed to participate in a survey for FortisBC about managing energy costs and payments. We noticed you haven't had a chance to complete the survey yet and wanted to make sure you received the email and are still interested in participating.

A. Did you receive the email invitation?
    1. Yes: Okay, great. **[GO TO B]**
    2. Not sure/Probably **[GO TO C]**
    3. No **[GO TO D].**
    4. Already completed survey

**IF NECESSARY:** The email was sent [**DISPLAY DATE**]
**IF NECESSARY:** The subject line: Help FortisBC Manage Energy Costs & Payments.

B. Do you need us to send it again so you don't have to look for it?

    1. Yes **[GO TO D]**
    2. No **[GO TO E]**

C. If you're not a 100% sure if you have it or not, it's no trouble for us to send it again so you don't have to look for it.

    1. Yes **[GO TO D]**
    2. No **[GO TO E]**

D. Okay, we will re-send the invitation to you.

   To confirm, is your email address: **[DISPLAY EMAIL ADDRESS]**
   **USE ALPHA AS NECESSARY**

   1. Yes
   2. No **[INTERVIEWER: ENTER CORRECT/ALTERNATIVE EMAIL ADDRESS BELOW THEN RECONFIRM]**

   NEW EMAIL: ______________________________

Within the next hour or so, you should receive an email from fortisbc@sentis.ca with the subject line: Help FortisBC Manage Energy Costs & Payments. If you do not see the email in your inbox, then please check your junk mail folder.

I'd like to thank you for your help in answering this survey. Your feedback will help FortisBC best meet the needs of its customers.

Have a great day/ evening.

**DISPLAY SAMPLE INFO:**

Name: ___________
Token:___________
Old Email:________
New Email:_______

E. The survey is open for participation until Wednesday, April 26. Don't forget, for completing the survey you'll be entered into the prize drawing for one $500 Visa gift card or one of five $100 Visa gift cards. Since we are only surveying 200 businesses, your chances of winning are quite good!

I'd like to thank you for your help in answering this survey. Your feedback will help FortisBC best meet the needs of its customers.

Have a great day/ evening.

## PERSUADERS

- We’re asking customers for their input so that FortisBC can make the most informed decisions about managing energy costs and payments for its customers’ future energy services.

- We’re asking customers to participate in an 8-9 minute online survey about managing energy costs and payments. As a token of appreciation, we’re giving away $1,000 in prizes. Those who participate are entered into a prize draw to win a grand prize of a $500 VISA gift card or one of five $100 gift cards.

- This is a confidential research project – not a sales call. All feedback customers provide is anonymous and used for research and planning purposes only.

- You can verify the legitimacy of this project by contacting Walter Wright at FortisBC: 604.592.7653 or Walter.Wright@fortisbc.com

- You can complete the survey any time between today and April 21, 2017.

- Sentis is a professional research company commissioned by FortisBC to assist with this research. We are based in downtown Vancouver.

**EMAIL INVITE (SUBJECT: Help FortisBC Manage Energy Costs and Payments)**

SENTIS ON BEHALF OF FortisBC

# Managing Energy Costs & Payments Survey

Dear [NAME FROM RECRUIT],

Thank you for your interest in this survey. Your input will help FortisBC make the most informed decisions about managing future energy costs and savings.

After completing the survey, you will be entered into the prize draw for one of the following:

- One $500 VISA gift card
- One of five $100 VISA gift cards

---

It's really easy, simply click Start Survey to go to the survey.

The survey should take no more than 8 to 9 minutes to complete.

**Start Survey**

---

If you begin the survey but can't finish it all at one time, you can return to the point where you left off by clicking on the link - you will not have to go back to the beginning.

If you have any problems accessing the survey or for any other technical issues, please contact Sentis at 1-855-463-4025 or you can email us at: fortisbc@sentis.ca. To verify the validity of this survey you can contact Walter Wright at FortisBC at 604.592.7653 or Walter.Wright@fortisbc.com.

Thank you on behalf of FortisBC.

Having trouble? Copy and paste the link below into your web browser.
[SURVEY URL]

Privacy Policy
Unsubscribe
Contest Rules

Sentis Market Research Inc.
6th flr, 543 Granville Street l Vancouver, BC, V6C 1X8

**EMAIL REMINDER (Subject: Thank you for agreeing to share your opinion)**

SENTIS ON BEHALF OF FortisBC

# Managing Energy Costs & Payments Survey

Dear [NAME FROM RECRUIT],

A few days ago we emailed you a link to a confidential survey about managing future energy costs and payments.

If you've already provided your feedback, thank you!

If you haven't had the opportunity to share your feedback, we hope that you'll be able to do so in the next few days. **The survey is open until April 21, 2017**

After completing the survey, you will be entered into the prize draw for one of the following:

- One $500 VISA gift card
- One of five $100 VISA gift cards

**Since we are only surveying 200 businesses, your chances of winning are quite good!**

---

It's really easy, simply click Start Survey to go to the survey.

The survey should take no more than 8 to 9 minutes to complete.

**Start Survey**

If you begin the survey but can't finish it all at one time, you can return to the point where you left off by clicking on the link - you will not have to go back to the beginning.

If you have any problems accessing the survey or for any other technical issues, please contact Sentis at 1-855-463-4025 or you can email us at: fortisbc@sentis.ca. To verify the validity of this survey you can contact Walter Wright at FortisBC at 604.592.7653 or Walter.Wright@fortisbc.com.

Having trouble? Copy and paste the link below into your web browser.
[SURVEY URL]

## QUESTIONNAIRE

### Demographic & Screening Questions

**DS1a.** In which area is your primary residence?

1. Lower Mainland/ Fraser Valley (includes Whistler and Squamish)
2. Vancouver Island/ Sunshine Coast
3. Southern Interior (Kootenays/ Okanagan/ Thompson)
4. Northern Interior (North of Kamloops)

**DS1b.** And what are the first 3 digits of your postal code?

__ ___ __

**DS2.** Into which of the following categories does your age fall?

1. Under 18 **THANK AND TERMINATE**
2. 18 to 24
3. 25 to 34
4. 35 to 44
5. 45 to 54
6. 55 to 64
7. 65 or older

**DS3.** Are you…?

1. Male
2. Female

**DS4.** Including yourself, how many people live in your household?

**DS5a.**. Is your annual household income above $62,000 or below $62,000?

1. $62,000 or above **GO TO QDS5c**
2. Below $62,000 **IF QDS4=7+ AND REGION=LARGE URBAN CENTRE, And DS5a=2, THEN RECORD AS MEETS LICO & SKIP DIRECTLY TO QDS6.**
3. Prefer not to answer **GO TO QDS6**

| LICO Cut-offs | | | |
|---|---|---|---|
| **Family Size** | **Rural/Small Pop'n Centres** | **Med Urban Pop Centres** (PG, Kam, Pent, Nan, Vernon, Courtney, Campbell R) | **Lg Urban Pop'n Centres** (Metro Van, FV, CRD, Kelowna) |
| **Person not in an economic family** | 18,000 | 21,000 | 23,000 |
| **2 persons** | 23,000 | 26,000 | 29,000 |
| **3 persons** | 28,000 | 32,000 | 36,000 |
| **4 persons** | 34,000 | 39,000 | 44,000 |
| **5 persons** | 38,000 | 44,000 | 49,000 |
| **6 persons** | 43,000 | 50,000 | 56,000 |
| **7 or more persons** | 48,000 | 56,000 | 62,000 |

**DS5b. IF BELOW $62,000:** Is it above or below **[INSERT $ AMOUNT FROM TABLE ABOVE BASED ON LOCATION (reference FSA spreadsheet) & HH SIZE (DS9)]**

1. Above (or equal to)
2. Below **[RECORD AS MEETS LICO & GO TO DS6]**

**DS5c. IF $62,000 or ABOVE:** Please indicate the range in which your annual household incomes falls.

1. $62,000 to less than $70,000
2. $70,000 to less than $80,000
3. $80,000 to less than $100,000
4. $100,000 or higher

**DS6.** Are you or any member of your immediate family or household employed in the following sectors? *Select all that apply*

1. Utility company **| THANK AND TERMINATE**
2. Natural gas company or gas marketer **| THANK AND TERMINATE**
3. Electricity company **| THANK AND TERMINATE**
4. Market research company **| THANK AND TERMINATE**
5. Newspaper, radio, or TV network **| THANK AND TERMINATE**
6. Utility regulatory body **| THANK AND TERMINATE**

**EXCLUSIVE CODE:**

99. None of the above **| CONTINUE**

**DS7**. Do you receive a **natural gas bill**?

1. Yes, I receive a natural gas bill
2. No, I do not | **THANK AND TERMINATE**
98. Don't know/ not sure | **THANK AND TERMINATE**

**DS8**. Is your natural gas supplied by:

1. FortisBC
2. An independent gas marketer | **THANK AND TERMINATE**
98. Don't know/ not sure | **THANK AND TERMINATE**

**DS9.** Are you the person in your household who is responsible for, or who shares responsibility for making payment decisions for your natural gas bill?

1. Yes, I am responsible or share responsibility
2. No, I am not | **THANK AND TERMINATE**
98. Don't know/ not sure | **THANK AND TERMINATE**

**Show message for Panel (Residents):** Thank you! You have qualified for this survey. We appreciate your candid and accurate responses.

**Show Landing page for Small Commercial when they enter survey:**
Thank you for agreeing to participate in this survey. FortisBC is looking to get your feedback on managing energy costs and payments. It should take 6-8 minutes to complete.

**DS10.** How do you receive your FortisBC natural gas bill? *Select one*

1. Bill is emailed to me
2. Bill is mailed to me
3. Don't know **GO TO DS12**

**DS11.** Do you use a Pre-Authorized Payment Plan (money is automatically debited from your account) to pay your FortisBC natural gas bill?

1. Yes
2. No
3. Don't know

**QDS12.** What is your current average monthly natural gas bill? *Please enter in a round dollar amount (no cents).*
*If you don't know what your average bill is, please provide your best estimate.* **IF RES:** *For your reference, the average monthly natural gas bill is between $55 and $80 for a household with 4 people in a 2,200 square foot home.* **IF BUS:** *For your reference, the average monthly natural gas bill is between $165 and $240 for an organization of your size.*

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

**Understanding Of Natural Gas Bill**

**Q1.** When you get your FortisBC natural gas bill, would you say you…

1. Thoroughly review the bill
2. Give the bill a quick review to make sure everything looks as expected
3. Rarely review the bill
4. Never review the bill

98. Don't know/ Not sure

**Q2.** And when it comes to how your FortisBC natural gas bill is calculated, would you say you are…

1. Very clear on how your bill is calculated
2. Somewhat clear
3. Not very clear
4. Not at all clear on how your bill is calculated

**Importance/Concern Regarding Natural Gas Costs**

**Q3.** Many consumer products and services go through price fluctuations, meaning the prices go up or down depending on a variety of factors.
**IF RES:** How concerned are you about the price of the following increasing in the next few years?
**IF BUS:** When it comes to your organization, how concerned are you about the price of the following increasing in the next few years?

**Q3 AND 4 TO BE ON SAME SCREEN**

| **RANDOMIZE** | Not At All Concerned | | | | Extremely Concerned |
|---|---|---|---|---|---|
| a. Electricity | 1 | 2 | 3 | 4 | 5 |
| b. Groceries **(RES ONLY)** | 1 | 2 | 3 | 4 | 5 |
| c. Gasoline | 1 | 2 | 3 | 4 | 5 |
| d. Auto Insurance | 1 | 2 | 3 | 4 | 5 |
| e. Natural Gas | 1 | 2 | 3 | 4 | 5 |
| f. Cell Phone/Wireless Charges | 1 | 2 | 3 | 4 | 5 |
| g. **IF RES:** Housing (this could include a mortgage, rent or the price to buy a home) **IF BUS:** Commercial Property/Office Space (rent, lease payment or purchase price) | 1 | 2 | 3 | 4 | 5 |

**Q4. IF RES:** Have you ever taken any actions or done anything differently in the past to reduce your natural gas bill?
**IF BUS:** Has your organization ever taken any actions or done anything differently in the past to reduce its natural gas bill?

1. Yes **IF YES, ASK Q4b.** And what did you do? *Please list everything you can think of.*
2. No
3. Can't recall/ Not sure

**Awareness Of Natural Gas Pricing**

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

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

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

**Q5** Prior to this survey, were you aware that you pay the same price for your natural gas that FortisBC pays?

1. Yes, definitely aware of this
2. Yes, assumed this was the case
3. No, did not know this

**Pop up Q6 on same page as Q5 once C5 Answered**
**Q6** And prior to this survey, how well did you understand the Cost of Gas charge?

1. Understood it very well
2. Understood it somewhat
3. Didn't understand it very well
4. Didn't understand it at all

**Tolerance Re: Natural Gas Bill Fluctuations**

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

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

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

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

**ASK Q8 IF Q7=1, 2, 3, OR 4. OTHERWISE GO TO Q10**

**Q8.** And what if for the next year your average monthly bill went from **[AMOUNT FROM QDS12]** to **[AMOUNT FROM QDS12 x1.5]**? Would you...

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

**ASK Q9 IF Q8=1, 2, 3, OR 4. OTHERWISE GO TO Q10**

**Q9.** And finally, what if for the next year your average monthly bill went from **[AMOUNT FROM QDS12]** to **[AMOUNT FROM QDS12 x 2]**? Would you...

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

**ASK Q10 IF ANY OF Q7, Q8, OR Q9 = 3, 4 OR 5. OTHERWISE GO TO Q11**

**Q10.** What changes do you think you would most likely make? *Select all that apply*

**RANDOMIZE**

1. Turn down the thermostat/ heat
2. Try to use natural gas appliances/ equipment less or less often
3. Cut back spending in other areas
4. Actively look to replace existing natural gas heating appliances/ equipment with more efficient appliances
5. Actively look to replace natural gas with other fuel/ energy alternatives
6. Take measures to better draft proof/ insulate (e.g. improve insulation, install more weather stripping, install double-glazed windows, etc.)
7. Dress warmer/ use portable space heaters/use blankets
96. Other (specify)
98. None of the above **EXCLUSIVE CODE**
99. Don't know **EXCLUSIVE CODE**

**ASK ALL**

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

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

98. Don't know

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

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

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

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

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

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

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

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

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

97. Neither
98. Don't know

**Equal Payment Plan**

**Q15.** One way FortisBC helps customers smooth out their natural gas bill is to offer an Equal Payment Plan (referred to as the EPP). This plan takes your total estimated annual natural gas bill for the year and divides it into 12 monthly payments.

FortisBC also reviews your plan every quarter and adjusts your monthly payment up or down to reflect the change in gas prices. The EPP does not protect customers from natural gas price increases, but simply ensures that your payments are distributed as equally as possible across the year.

Which of the following best describes your **IF RES:** household / **IF BUS:** organization?

1. We are on FortisBC's Equal Payment Plan (EPP) **GO TO Q18**
2. I am aware of the EPP, but we are not on it
3. I am aware of the EPP, but I am not sure if we are on it
4. I had never heard about the EPP before this survey

**IF NOT ON EPP, BUT AWARE OF IT (Q15=2 OR 3) ASK Q16:**
**Q16.** **IF RES:** Have you / **IF BUS:** Has your organization ever been on FortisBC's Equal Payment Plan?

1. Yes
2. No

98. Don't know/ Can't recall

**IF BEEN ON EPP BEFORE (Q16=1), POP UP Q16b ON SAME PAGE:**
**Q16b.** Why did you stop using FortisBC's Equal Payment Plan?

**IF NOT ON EPP (Q15=2, 3 OR 4) ASK Q17:**
**Q17**. How interested would **IF RES:** you / **IF BUS:** your organization be in joining FortisBC's Equal Payment Plan **[IF Q16=1, ADD IN:** again**]**?

4. Very interested
3. Somewhat interested
2. Not very interested
1. Not at all interested

**ASK Q17b IF NOT INTERESTED (Q17= 1 OR 2):**
**Q17b.** Why are you **[INSERT Q17 RESPONSE]** in joining FortisBC's Equal Payment Plan?

**Other Profile Questions**

**Q18.** Thinking about the past 10 years, to the best of your knowledge, would you say that natural gas prices have…

1. Increased significantly
2. Increased somewhat
3. Stayed the same
4. Decreased somewhat
5. Decreased significantly

98. Don't know/ Not sure

**Q19.** What is the **primary** heat source for your **IF RES:** home / **IF BUS:** premises? *Select one only.*

1. Natural Gas
2. Electricity (baseboard heaters)
3. Electricity (heat pump)
4. Wood
5. Propane
6. Oil

96. Other (specify)
98. Don't know

**IF RES: GO TO QDS13**
**IF BUS: GO TO QDS15**

**Other Demographic/Firmographic Questions**

**DS13.** Are you currently living in …?

1. An apartment or a condominium in a multi-unit building
2. A townhouse, duplex or triplex
3. A single detached home

96. Other (specify)
97. Don't know/ Not sure

**DS14.** Do you own or rent your home?

1. Own
2. Rent

**RESIDENTIAL: THANK AND END SURVEY**

And just a few final questions for classification purposes.

**DS15.** Which of the following best describes **your role** at your organization?

1. Accountant/ Controller
2. Business manager/ General Manager/ Administrator
3. CEO/ President
4. CFO
5. COO
6. Owner
7. Partner
8. Vice President/ Senior executive

96. Other (Specify)

**DS16.** Which of the following best describes the **type of building, facility or business** served by your FortisBC account?

**SHOW DETAILED OPTIONS ONLY AFTER THEY HAVE SELECTED ONE OF THE MAIN OPTIONS LISTED [MAIN OPTIONS ARE 1 REPLY, BUT WITHIN A MAIN OPTION MULTIPLE SELECTIONS ARE ALLOWED]**

A. Automotive
- ☐ Gas station/Automobile service station and shop
- ☐ Automobile sales and service

B. Educational Facility
- ☐ University/college
- ☐ Elementary school
- ☐ High school
- ☐ Preschool/daycare

C. Food Store
- ☐ Supermarket
- ☐ Convenience store
- ☐ Specialty food store

D. Health Care Facility
- ☐ Medical clinic/lab
- ☐ Rehabilitation facility
- ☐ Hospital
- ☐ Medical offices

E. Lodging
- ☐ Retirement, group or nursing homes
- ☐ Hotel
- ☐ Motel

F. Manufacturing/Agriculture

☐ Medium/light manufacturing plant
☐ Greenhouse
☐ Food processing
☐ Other agricultural

G. Office Building and Mixed-use Building
☐ Office – in low rise or high rise building
☐ Shopping mall/shopping centre (own or manage)
☐ Mixed use building – commercial and residential living
☐ Strip mall/plaza (own or manage)

H. Public Assembly
☐ Theatre/Auditorium
☐ Place of worship
☐ Museum
☐ Community/Recreation centre

I. Restaurant
☐ Full service restaurant
☐ Bar/pub/nightclub
☐ Fast food or self-service restaurant

J. Retail and Personal Services
☐ Non-food merchandise (clothing, home furnishings, etc.)
☐ Personal services (hair salons, dry cleaners, etc.)

K. Warehouse
☐ Warehouse - refrigerated
☐ Warehouse - unrefrigerated

96. Other (specify)
98. Don't know

**DS17.** How long has your organization been in business?
*Enter 0 if less than 1 year*

__________ years **RANGE IS 0-200**
☐ Don't know

**DS18.** How many FTE (full-time equivalent) employees do you have?
*Enter 0 if no FTE employees*

__________ employees **RANGE IS 0-9999**
☐ Don't know

**IF BUS:** Thank-you for your feedback. Prize draw winners will be contacted by email by no later than May 15th, 2017.

# Appendix B

# AVAILABLE PRICE RISK MANAGEMENT TOOLS

| Price Risk Management Tool | Description | Degree to which Volatility is Mitigated | Limitations of Tool |
|---|---|---|---|
| **Alternatives currently used or available to FEI and its customers** | | | |
| ***Physical Gas Contracting Tools*** | | | |
| **Contracting with multiple counterparties** | FEI purchases supply from multiple producers or marketers. | No impact on mitigating market price or rate volatility if purchasing at market index prices. | Helps manage counterparty credit or supply risk only. |
| **Receipt Point allocation** | FEI purchases commodity supply at Station 2 and AECO/NIT (and in the past Huntingdon/Sumas) rather than a single hub. | Mitigates any market price disconnections that may occur at particular price hubs due to regional pipeline constraints or other market conditions. | Does not mitigate overall market price volatility as all market prices generally move together. |
| **Allocation between monthly and daily index priced gas purchases** | FEI currently purchases commodity supply at a mix of 60% monthly and 40% daily index prices. | Daily market price volatility is reduced by having monthly priced supply in the portfolio. | Does not mitigate monthly market price volatility. |
| **Long term index price purchases** | FEI purchases supply from producers or marketers at market index prices for terms up to ten years to provide security of supply. | Mitigates AECO/NIT-Station 2 basis volatility on an annual basis since the basis is determined and locked in each year. | Does not mitigate AECO/NIT market price volatility. |
| **Use of storage** | Under the Essential Services Model, FEI buys baseload gas every day of the year. FEI injects gas in the summer, when market prices are typically lower, and withdraws it during winter, when market prices are typically higher. | Mitigates some market price volatility for a single winter period only, as most of the injected gas is used during the winter. | Mitigates price volatility for a single winter period. Sometimes, the summer injection price can be higher than the winter market price. |
| **Fixed AECO-Station 2 Basis Differential Contracts** | FEI locks in the forward market price differential between AECO/NIT and Station 2 to capture the Station 2 discount. | Mitigates the volatility or changes in the price differential between AECO/NIT and Station 2. | Does not mitigate the AECO/NIT market price volatility. |

| Price Risk Management Tool | Description | Degree to which Volatility is Mitigated | Limitations of Tool |
|---|---|---|---|
| ***Rate Setting Mechanisms*** | | | |
| **Quarterly rate setting (versus annual)** | Pursuant to Commission Guidelines, each quarter FEI submits, for Commission review, a report on the actual incurred and forward market prices, and the actual and projected deferral account balances to determine if a commodity rate change is warranted. | Generally speaking, quarterly rate setting will result in more frequent yet smaller rate changes than annual rate setting.<br><br>Quarterly rate setting allows FEI to manage the size of the deferral account while providing customers with a balance of rate stability and price transparency through a relatively simple and efficient process.<br><br>Annual rate setting would reduce the frequency of rate changes but tend to increase the magnitude of the rate change required, would tend to provide less price transparency, and may be an obstacle to managing the deferral account balance within a reasonable range. | The quarterly rate setting mechanism addresses rate stability, price transparency, managing deferral account balances, and efficiency of process. However, the mechanism has to balance possibly conflicting objectives such as dealing with both the frequency and the size of rate changes which comprise rate stability. As well, amortization of deferral balances can affect price transparency by masking the price signal provided by the commodity rate.<br>Does not affect underlying market prices and their impact on gas costs. |
| **12-month amortization of CCRA deferral account balance** | Consistent with the Commission Guidelines, FEI typically recovers from, or refunds to, customers any projected accumulated deferral account balance at the end of the current period over the next 12 months when setting commodity rates. | Generally, 12 months provides a reasonable amortization period for the variances (between the approved recovery rate, based on the forecast cost of gas, and the actual cost of gas incurred) captured in the deferral account.<br><br>Shorter amortization periods would tend to increase the magnitude of the change in rates. Longer amortization periods would tend to have the opposite effect on rates but may impair the ability to manage deferral account balances within a reasonable range. | Amortization of the deferral balance can mask the price signal provided by the commodity rate.<br><br>Size of deferral account, in conjunction with the amortization period, can impact customer behaviours.<br><br>Does not affect underlying market prices and their impact on gas costs. |

| Price Risk Management Tool | Description | Degree to which Volatility is Mitigated | Limitations of Tool |
|---|---|---|---|
| **0.95/1.05 cost-recovery ratio deadband** | Consistent with Commission Guidelines, a commodity rate change is indicated if the ratio of the forecast 12-month gas cost recoveries at the existing rate compared to the sum of the forecast gas costs for the 12-month prospective period plus the projected CCRA deferral balance at the end of the current quarter is outside the +/- 5 percent deadband. A minimum rate change threshold of $0.50/GJ was approved pursuant to L-40-11. | Supports rate stability, price transparency, managing deferral account balances, and efficiency of process. Provides a signal of when forward market prices, in conjunction with the deferral account balance, may drive the need to change the commodity rate. | Provides a simple, easy to understand trigger mechanism however, taken on its own, it can indicate the need for minor, possibly unnecessary, changes in rates when in a low market price environment. Also, the trigger mechanism by itself excludes consideration of the full circumstances.<br><br>Does not affect underlying market prices and their impact on gas costs. |
| **$0.50/GJ minimum rate change threshold** | Commission Guidelines were revised pursuant to L-40-11 to include a minimum rate change threshold of $0.50/GJ. | The addition of the minimum rate change parameter prevents the 95%-105% deadband from becoming too narrow during periods when the price of natural gas remains low, thereby avoiding minor and possibly frequent commodity rate changes in low price environments. | The minimum rate change threshold has a dampening effect on the volatility of rate changes which may mask the price signal provided by the commodity rate.<br><br>Does not affect underlying market prices and their impact on gas costs. |
| **Consideration of full circumstances to vary from standard guidelines for commodity rate setting (e.g. 24-month amortization)** | Consistent with Commission Guidelines, the full circumstances prevailing at the time when a quarterly report and cost recovery rates are under review will be considered. As well as the Commission Guideline trigger mechanism and rate methodology, consideration will be given to factors such as the current deferral balances and, based on the forecast costs, the appropriateness off any rate proposals over a 24-month timeframe. | Supports reduction of rate volatility, while still managing deferral account balances within a reasonable range, when there is a significant difference in the forward gas costs for the next twelve months compared to the subsequent twelve months. In some situations, setting the commodity rate over a 12-month timeframe can result in more rate volatility than if the commodity rate was set using a 24-month outlook. | Opportunities for use of this tool are dependant upon the forward market prices at the time of the quarterly review.<br><br>Does not affect underlying market prices and their impact on gas costs. |

| Price Risk Management Tool | Description | Degree to which Volatility is Mitigated | Limitations of Tool |
|---|---|---|---|
| ***Optional Customer Bill and Rate Tools*** | | | |
| **Equal Payment Plan (EPP)** | Customers can elect to sign up for a program that smooths out their monthly bill payments. Customers' consumption and commodity rates are forecast in order to average out the next twelve months' bills. | Some monthly bill payment smoothing will occur for customers during periods of relatively stable rates and when customers' actual consumption of gas is close to their expected consumption. | During periods of volatile rates and/or higher or lower expected consumption, periodic adjustments may be required within the twelve month period. This is to prevent large adjustments for EPP customers at the end of the twelve month term. |
| **Customer Choice Program** | Customers can elect to receive their commodity supply from a natural gas marketer rather than FEI and pay a fixed rate for terms up to five years. | Provides commodity rate stability for customers up to five years. Customers can benefit if market prices increase above their fixed rate. | Fixed rate dampens market price signals. Marketers' rates may include a profit margin. Customers do not benefit if market prices fall below their fixed rate. |
| **Customer moving from sales to transportation service** | Some customers can elect to receive their commodity supply from a natural gas marketer and use FEI transportation service to get their supply. | Customers can determine the degree of commodity rate volatility reduction they want through their arrangement with the marketer. | This option is only available to certain rate classes and is generally not available to low-volume residential and commercial customers. |
| ***Financial Tools*** | | | |
| **Sumas AECO/NIT Swaps** | FEI locks in the forward market price differential between AECO/NIT and Sumas to protect against Sumas price disconnections. | Mitigates the volatility or changes in the price differential between AECO/NIT and Sumas. | Does not mitigate the AECO/NIT market price volatility. |
| **Approved Tools in 2015 PRM Application** | | | |
| ***Rate Setting Mechanisms*** | | | |
| **Capping quarterly rate changes at $1.00/GJ** | A rate change cap for quarterly rate setting of +/- $1.00/GJ that is used for no more than 2 consecutive quarters when the rate changes subject to the cap have been in the same direction. | Reduces rate volatility during periods of short-term market price volatility. | Only temporarily dampens the impact of a sustained market price decrease or increase, which is ultimately flowed through to the customer via rates. |

| Price Risk Management Tool | Description | Degree to which Volatility is Mitigated | Limitations of Tool |
|---|---|---|---|
| **Established criteria for moving to 24-month amortization** | Criteria provided for clarification of when consideration may be given for commodity rate proposals beyond the 12-month outlook in order to reduce rate volatility and manage deferral balances. Provides criteria for consideration of 24-month view during periods when 12-month gas costs are significantly different than following 12-month gas costs while maintaining the CCRA deferral account within a reasonable range over the full duration of the 24-month period. | Supports reduction of rate volatility, while still managing deferral account balances within a reasonable range, when there is a significant difference in the forward gas costs for the next twelve months compared to the subsequent twelve months. In some situations, setting the commodity rate over a 12-month timeframe can result in more rate volatility than if the commodity rate was set using a 24-month outlook. | Opportunities for use of this tool are dependant upon the forward market prices at the time of the quarterly review.<br><br>Does not affect underlying market prices and their impact on gas costs. |
| ***Physical Contracting Tools*** | | | |
| **Fixed price purchases** | FEI purchases supply from producers or marketers at fixed prices for terms within 3-year horizon to mitigate market price volatility and provide security of supply. | Mitigates market price volatility for a portion of the supply portfolio for up to three years. Customers can benefit if market prices increase above the fixed price. | Limited counterparties may reduce the availability of this option. Partially dampens market price signals provided by the commodity rate. Customers do not benefit from market prices falling below the fixed hedge price. |
| ***Financial Tools*** | | | |
| **Fixed price swaps** | FEI enters into a financial swap transaction with 3-year horizon with a counterparty (such as a bank) and pays a fixed price while receiving an index price. | Mitigates market price volatility for a portion of the supply portfolio for up to three years. Customers can benefit if market prices increase above the fixed price. | Counterparty credit exposure must be monitored during periods of volatile market prices. Partially dampens market price signals provided by the commodity rate. Customers do not benefit from market prices falling below the fixed hedge price. |
| **Potential Tools** | | | |
| ***Optional Customer Rate Tools*** | | | |
| **Alternate commodity rate offerings** | FEI could provide the option to customers to purchase commodity supply from FEI at a fixed rate for up to 5 years. | Provides commodity rate stability for customers. Customers can benefit if market prices increase above their fixed rate. | Additional commodity offerings may be confusing to customers. Fixed rate dampens market price signals. Customers do not benefit if market prices fall below their fixed rate. |

| Price Risk Management Tool | Description | Degree to which Volatility is Mitigated | Limitations of Tool |
|---|---|---|---|
| ***Physical Contracting Tools*** | | | |
| **Volumetric Production Payments (VPP)** | The buyer pays an upfront lump sum payment to a gas producer in exchange for specific volumes delivered over the term of the agreement (up to twenty years). The buyer also receives a limited royalty interest in the production volumes which is returned to the seller once the volumes have been delivered. | Provides gas cost certainty for a portion of the commodity supply portfolio for a period up to twenty years. Provides long term security of supply. Customers can benefit if market prices increase above the VPP contract price. | Limited counterparties may reduce the availability of this option. Partially dampens market price signals provided by the commodity rate. |
| **Investment in Reserves** | The buyer enters into a joint venture with a gas producer for a term up to thirty years. The buyer would share in the cost of developing and producing the gas and earn the right to a portion of the production. | Provides gas cost certainty for a portion of the commodity supply portfolio for a period up to thirty years. Provides long term security of supply. Customers can benefit if market prices increase above the reserves costs. | Limited counterparties may reduce the availability of this option. Significant due diligence is required by the buyer to mitigate production variability and drilling and operating cost risks. Partially dampens market price signals provided by the commodity rate. |
| **Long term fixed price purchases** | FEI purchases supply from producers or marketers at a fixed price for terms up to ten years. | Mitigates market price volatility for a portion of the commodity supply portfolio. Provides long term security of supply. | Can result in higher than market costs if market prices move lower after locking in. Partially dampens market price signals provided by the commodity rate. |
| ***Financial Tools*** | | | |
| **Call options** | FEI enters into a financial transaction with a counterparty (such as a bank) where FEI will not pay more than a fixed cap price in exchange for FEI paying a call premium. | Limits market price volatility above the option cap price. | Buyer must pay a call option premium. Does not limit market price volatility below the option cap price. Partially dampens market price signals (above the cap price) provided by the commodity rate. |

| Price Risk Management Tool | Description | Degree to which Volatility is Mitigated | Limitations of Tool |
|---|---|---|---|
| **Costless collars** | FEI enters into a financial transaction with a counterparty (such as a bank) where FEI will not pay more than a fixed cap price in exchange for FEI paying at least a fixed floor price. | Limits market price volatility above the option cap price and below the option floor price. | Buyer does not benefit if market prices fall below the floor price. Does not limit market price volatility in between the option cap and floor prices. Partially dampens market price signals (above the cap price and below the floor price) provided by the commodity rate. |
| **Long term fixed price swaps** | FEI enters into a financial swap transaction with a counterparty (such as a bank) and pays a fixed price while receiving an index price. | Mitigates market price volatility for a portion of the supply portfolio for up to ten years. Customers can benefit if market prices increase above the fixed price. | Counterparty credit exposure must be monitored during periods of volatile market prices. Partially dampens market price signals provided by the commodity rate. Customers do not benefit from market prices falling below the fixed hedge price. |
| ***Rate Setting Mechanisms*** | | | |
| **Exceeding current deferral account limits during periods of extreme price volatility** | FEI allows the CCRA deferral account acceptable limit to increase from +/- $60 million to up to +/- $200 million in determining commodity rate changes. | In certain circumstances, can help delay need to change rates, therefore providing some temporary rate volatility mitigation. | Can delay commodity rate changes so that they are not aligned with market price changes. May not be required for extreme market price spikes given quarterly rate adjustments, $1/GJ rate change cap and 24-month criteria. Additional costs and monitoring required for managing credit facilities. |

# Appendix C

# DRAFT ORDER FOR MEDIUM-TERM HEDGING REQUEST

bcuc
British Columbia
Utilities Commission

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3
bcuc.com

P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

**ORDER NUMBER**
**E-xx-xx**

IN THE MATTER OF
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

FortisBC Energy Inc.
Application for Approval of the 2017 Price Risk Management Plan

**BEFORE:**
[Panel Chair]
Commissioner
Commissioner

on Date

**ORDER**

**WHEREAS:**

A. On December 23, 2015, FortisBC Energy Inc. (FEI) filed with the British Columbia Utilities Commission (Commission) the 2015 Price Risk Management Application (2015 PRM Application), which included recommendations by FEI for price risk management strategies, which included the request for approval for the implementation of a medium-term hedging strategy based on pre-defined market price targets and maximum volume limits;

B. On June 17, 2016, the Commission Panel (Panel) approved the PRM Application in Order E-10-16, which included the medium-term hedging strategy based on the pre-defined price targets and maximum hedging percentages as defined within Section 2 of the Application. The Commission will hold confidential the hedging price targets and volumes;

C. On February 21, 2017, FEI filed a letter with the Commission, in which seeking clarification of Order E-10-16, FEI sought clarification that the implementation plan is rolled over each year during the hedging horizon and that there would no longer be a year 3 as the extension of the hedging horizon beyond approved timelines was denied in the Commission's PRM Application decision;

D. On February 28, 2017 the Commission confirmed FEI's interpretation of the hedging implementation;

E. On April 27, 2017 FEI filed the Price Risk Management 2017 Annual Report (Annual Report), which discusses the outcomes to date of the implemented tools and included some recommendations for enhancing the hedging strategies discussed in FEI's 2015 PRM Application that were approved by the Commission under Order E-10-16.

F. On June 13, 2017, FEI filed the 2017 Price Risk Management Plan (2017 PRMP), which includes requests for approval to extend and refine the current price risk management strategy outlined within the approved 2015 PRM Application as recommended within the Annual Report.

G. The Commission has reviewed the 2017 PRMP and determines that the proposed hedging strategy should be approved for the three year period ending October 2020.

**NOW THEREFORE** the Commission orders as follows:

1. FEI's proposal to extend the medium-term hedging horizon out beyond Winter 2018/19 to the three year period ending with Summer 2020 (i.e. out to the end of October 2020) is approved. The Commission will hold confidential the hedging price targets and volumes.

2. FEI is to adjust the hedging price targets to account for the seasonality in market prices.

3. FEI is to continue with the approved rate setting enhancements included in 2015 PRM Application.

**DATED** at the City of Vancouver, in the Province of British Columbia, this (XX) day of (Month Year).

BY ORDER

(X. X. last name)
Commissioner

Attachment (Yes? No?)

# Appendix D

# DRAFT ORDER FOR LONGER TERM HEDGING REQUEST

bcuc
British Columbia
Utilities Commission

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3
bcuc.com

P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

**ORDER NUMBER**
**E-xx-xx**

IN THE MATTER OF
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

FortisBC Energy Inc.
Application for Approval of the 2017 Price Risk Management Plan

**BEFORE:**
[Panel Chair]
Commissioner
Commissioner

on Date

**ORDER**

**WHEREAS:**

A. On December 23, 2015, FortisBC Energy Inc. (FEI) filed with the British Columbia Utilities Commission (Commission) the 2015 Price Risk Management Application (2015 PRM Application), which included recommendations by FEI for price risk management strategies, which included the request for approval for the implementation of a medium-term hedging strategy based on pre-defined market price targets and maximum volume limits;

B. On June 17, 2016, the Commission Panel (Panel) approved the 2015 PRM Application in Order E-10-16, which included the medium-term hedging strategy based on the pre-defined price targets and maximum hedging percentages as defined within Section 2 of the Application. The Commission will hold confidential the hedging price targets and volumes;

C. On February 21, 2017, FEI filed a letter with the Commission, in which seeking clarification of Order E-10-16, FEI sought clarification that the implementation plan is rolled over each year during the hedging horizon and that there would no longer be a year 3 as the extension of the hedging horizon beyond approved timelines was denied in the Commission's PRM Application decision;

D. On February 28, 2017 the Commission confirmed FEI's interpretation of the hedging implementation;

E. On April 27, 2017 FEI filed the Price Risk Management 2017 Annual Report (Annual Report), which discusses the outcomes to date of the implemented tools, recommended longer term hedging and included some recommendations for enhancing the hedging strategies discussed in FEI's 2015 PRM Application that were approved by the Commission under Order E-10-16.

F. On June 13, 2017, FEI filed the 2017 Price Risk Management Plan (2017 PRMP), which includes a request for approval to implement longer term hedges if certain market price targets are reached.

G. The Commission has reviewed the 2017 PRMP and determines that the proposed hedges up to five years in term based on pre-defined price targets and maximum hedging percentages should be approved.

**NOW THEREFORE** the Commission orders as follows:

1. FEI’s proposal to implement hedges up to five years in term based on pre-defined price targets and maximum hedging percentages is approved.

**DATED** at the City of Vancouver, in the Province of British Columbia, this (XX) day of (Month Year).

BY ORDER

(X. X. last name)
Commissioner

Attachment (Yes? No?)