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FAIR RETURN FOR TERASEN GAS INC (TGI)

EVIDENCE OF

Laurence D. Booth

BEFORE THE

British Columbia Utilities Commission

August 2009

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1 EXECUTIVE SUMMARY

2 The Joint Industry Electricity Steering Committee (JIESC), the Commercial Energy Consumers
3 Association of British Columbia (CEC), and The British Columbia Old Age Pensioners
4 Organization et. al. (BCOAPO), collectively the British Columbia Utility Customers have asked
5 me to review Terasen Gas Inc's (TGI) rate application and associated evidence and to offer an
6 opinion as to the fair rate of return on common equity (ROE) and appropriate capital structure
7 and whether the ROE adjustment mechanism continues to be appropriate.

8 My overall assessment is:

- 9 • There has been no material change in TGI's business risk and I recommend that the
10 current deemed common equity ratio of 35% be maintained. Further the BCUC formula
11 ROE continues to give fair ROEs, but if it is to be rebased my recommended ROE is
12 7.75% and it should be reset at this level with the continuation of a 75% adjustment to
13 forecast long Canada bond yields. The recent confirmation of TGI's "A" bond ratings by
14 both DBRS and Moody's confirms that it remains an excellent credit, while the recent
15 stock market crash confirms the low risk nature of utility shares.
- 16 • My judgment is that the Canadian economy has bottomed out from a short but deep
17 recession that started in 2008Q4. In contrast the US economy has been in recession for
18 almost two years and has further to go in its deleveraging. The US recession was caused
19 by a credit crunch resulting from disastrous losses incurred by banks in the sub-prime
20 mortgage market. As major US and UK banks failed, the remainder reduced lending to
21 shore up capital, while investors reacted by shedding risky securities to invest in the safe
22 harbour of government securities. In response Treasury Bill yields collapsed, and even
23 turned negative in 2008Q4 in the US, and liquidity in many areas of the bond market
24 disappeared creating historically high spreads on even high grade credits. These US
25 problems spread around the world as US capital was repatriated creating the world's first
26 global economic recession.
- 27 • The US credit crunch exacerbated a normal cyclical recession and caused the biggest
28 stock market crash for 70 years and fears of a Great Depression II. However Herculean
29 efforts by the US Government and Treasury have restored investor faith in the US
30 banking system. Further, capital injections from the TARP program have allowed US
31 banks to return to their normal activities, so that liquidity has returned to the bond market
32 and both yields and spreads on investment grade credits have fallen dramatically. In this
33 respect it is important to note that the Company's evidence was prepared at a time when
34 the recession and financial market conditions were at their worst. However most of this
35 has now passed. The Canadian economy has now moved into recovery mode, dividend
36 yields on the TSX have dropped by over 1.0% as the TSX has itself rebounded by over
37 40% since its March lows and spreads on "A" bonds over equivalent maturity LTC bonds
38 have more than halved. Further long term Canada bond yields have recovered and I

1 expect them to increase to 4.5% in 2010. If there ever was any case for changing the ROE
2 adjustment mechanism that case has now collapsed.

3 • This stock market crash has been traumatic. However, the price performance of Canadian
4 utility shares during 2008 into 2009 reinforces their low risk characteristics. It has to be
5 emphasised that investors see utility shares as “defensive” and their share prices have
6 been supported by the significant drop in interest rates that have occurred, since their rich
7 dividend payouts become more attractive as interest rates drop. Consequently there is *no*
8 indication that investors perceive Canadian utility stocks to be any riskier than my
9 traditional beta range of 0.45-0.55; in fact the most recent estimates ending in 2008
10 indicate an average beta coefficient below this level.

11 • Estimates of the market risk premium based on the average excess of equity market
12 returns over bond market returns have dropped significantly in 2008 due to the very poor
13 2008 equity market performance. My Appendix F shows that the earned market risk
14 premium for the period 1926-2008 is now 4.5% for Canada and 5.6% for the US using
15 average arithmetic returns. This 1.0% difference between the US and Canada is partially
16 explained by lower average long term US treasury bond yields due to the special role of
17 the US as a reserve currency. The residual is due to the higher risk nature of the US
18 equity market. The fact that the US market risk premium is about 1.0% higher than in
19 Canada was confirmed by a recent survey of finance professors worldwide conducted
20 during the current market meltdown. The median US market risk premium was 6.0%
21 while that in Canada and Europe was 5.1% and 5.0% respectively. I have been using a
22 market risk premium of 5.0% for some time and am right in line with the consensus in
23 Canada. In contrast Ms. McShane’s estimated market risk premium is excessive and does
24 not reflect professional judgement in Canada.

25 • With a market risk premium of 5.0% and a beta of 0.50 my best estimate of a utility risk
26 premium is 2.50%. Combined with my 4.5% long Canada yield forecast this means a
27 required rate of return of 7.0%. Adding in 0.50% for issue cost and 0.25% as a margin
28 for error, given the market risk premium estimates of my colleagues, I recommend a
29 7.75% fair ROE.

30 • My Appendix G looks at the risk characteristics of US utilities. Here it is clear that US
31 utilities, while they have higher allowed ROEs and less financial leverage than Canadian
32 utilities, have inferior bond ratings and financial market access. The typical bond rating
33 for a US utility is now “BBB,” whereas it is “A” in Canada. The only explanation for this
34 is that Canadian utilities have less regulatory risk due to the high degree of protection
35 afforded them by Canadian regulatory bodies. Only by carefully screening the total
36 population of US utilities is it possible to come up with a small *sample* of equivalent risk
37 US utilities to that of the total *population* of Canadian utilities. This sample is not typical
38 of US utilities and general conclusions can not be drawn from it except that it is possible
39 to find low risk outliers even in the United States.

40 • My recommended ROE is less than the 2009 allowed ROE that results from the
41 application of the BCUC formula. However, fairness has a variety of connotations, and I
42 would recommend that the BCUC maintain their ROE formula indefinitely since like

1 most such formulae in Canada it has done a remarkably good job of awarding ROEs that
2 are within a zone of reasonableness, while minimising repetitive testimony. It is also
3 broadly consistent with awarding allowed ROEs consistent with adjustment formulae
4 used elsewhere in Canada.

- 5 • There is no question that the globalisation of financial markets is continuing apace. The
6 motivation for this is diversification or “decoupling” which is the idea that national
7 economies do not move in tandem with the United States. This explains why it is a basic
8 insight from financial theory that globalisation lowers risk and with it the market risk
9 premium. My Appendix D discusses this but I am not aware of any financial theory that
10 indicates that the Canadian market risk premium would increase as a consequence of
11 increased globalisation, except if pathologically extreme values are used. Instead I prefer
12 to think of the US market risk premium as simply another estimate to consider when
13 forming my judgement as to the appropriate market risk premium. My best estimate is
14 that the market risk premium is 5.0%, but consistent with the received judgement of my
15 colleagues could be marginally higher.

- 16 • I do not see any increase in the relative riskiness of TGI since the BCUC increased the
17 deemed common equity ratio from 33% to 35% in 2006. If anything the drop in the price
18 of natural gas may have marginally decreased TGI’s risk. However, I do not regard this
19 as material since natural gas prices are volatile and recommend that the current deemed
20 common equity ratio be maintained. Since I regard the key issue in this hearing to be the
21 impact of the recent stock market volatility I relegate a discussion of TGI’s business risk
22 and financial health to Appendix H.

- 23 • Finally while the memories of Enron, PG&E, WorldCom, Duke and other utility holding
24 companies (UHCs) have started to fade, the enormous losses imposed on the world by the
25 failures of US bank regulation will haunt investors for decades. The problems at
26 Citigroup, Countrywide, NCC, Washington Mutual, Wachovia, Bank America, IndyMac,
27 Fannie Mae and Freddie Mac, Bear Stearns, and most notably the policy mistakes made
28 over the handling of Lehman Brothers show all too clearly that light-handed regulation in
29 the US is a world apart from regulation in Canada. Just because US firms use the same
30 technology as Canadian ones does *not* mean they are equivalent in risk as should by now
31 be patently obvious. I would urge the BCUC to disregard recommendations based mainly
32 on US evidence, and place primary weight on Canadian market experiences and policies
33 that have worked rather than US policies that have not.

34

1 **I INTRODUCTION**

2 **Q. PLEASE DESCRIBE YOUR QUALIFICATIONS AND EXPERIENCE.**

3 **A.** I am a professor of finance in the Rotman School of Management at the University of
4 Toronto, where I hold the CIT Chair in Structured Finance. A detailed resume is filed as
5 Appendix A. Further information and copies of my working papers can be can be downloaded
6 from my web site at the University of Toronto at <http://www.rotman.utoronto.ca/~booth>.

7 I have appeared before most of the major utility regulatory boards in Canada including the
8 National Energy Board, the CRTC, the Ontario Energy Board (OEB), the Regie D'Energie and
9 the Alberta Energy and Utility Board (AEUB). I have also filed testimony before the Ontario
10 Securities Commission and in a variety of civil suits pertaining to financial matters. Along with
11 my late colleague Professor Michael Berkowitz I provided testimony to the BCUC when its first
12 ROE adjustment mechanism was instituted in 1993 and then on my own in 2005 I provided
13 testimony when it was reviewed and slightly altered.

14 **Q. PLEASE DESCRIBE THE PURPOSE OF YOUR TESTIMONY**

15 **A.** The Joint Industry Electricity Steering Committee (JIESC), the Commercial Energy
16 Consumers Association of British Columbia (CEC), and The British Columbia Old Age
17 Pensioners Organization et. al. (BCOAPO), collectively the British Columbia Utility Customers
18 have asked me to review Terasen Gas Inc's (TGI) rate application and associated evidence and to
19 offer an opinion as to the fair rate of return on common equity (ROE) and appropriate capital
20 structure and whether the ROE adjustment mechanism continues to be appropriate.

21 **Q. HOW IS YOUR TESTIMONY STRUCTURED?**

22 **A.** In its application TGI cites four reasons for a review of the benchmark ROE and TGI's
23 common equity ratio, briefly paraphrased as best I can I would interpret these as:

24

- 25 1. In December 2008 long term Canada (LTC) bond yields dropped to 3.4% and in January
26 the equivalent consensus forecast was 3.57% which would have produced an allowed
27 ROE below the 8.0% trigger mechanism previously set by the BCUC;

- 1 2. In March 2009 the NEB released RH-1-2008 a decision on TQM's fair ROE that
2 significantly increased TQM's implicit allowed ROE and common equity ratio based on
3 an ATWACC of 6.4%;
- 4 3. Legal requirement is that the allowed ROE and common equity ratio has to be fair and
5 TGI submits evidence that in its judgment indicates that the current BCUC formula ROE
6 is not delivering fair and reasonable (just) returns;
- 7 4. Capital market conditions have changed since the 2005 review in that allowed ROEs
8 have followed LTC yields down while debt costs have risen and there has been a "re-
9 pricing of risk" in the market.

10
11 In support of its application TGI has provided evidence heavily based on US "comparables," to
12 support a request for an allowed ROE of 11.0% based on a common equity ratio of 40%
13 increased from the current allowed 35%. It also requests that the current ROE premiums allowed
14 TGW and TGVI be continued.

15
16 In reviewing the four basic reasons for a review provided by TGI the core reason (1 & 4) seems
17 to be recent capital market conditions, since #2 simply refers to the NEB decision that as I will
18 show may not have any relevance to TGI, while #3 seems to be a standard reference to requiring
19 fair returns. I see very little in any of the four reasons or the evidence that indicates that there has
20 been any material increase in TGI's business risk, while it is difficult to see any change in its
21 financial risk given that on May 27, 2009 its bond rating was confirmed at "A" by DBRS and
22 then the next day May, 28, 2009 at "A" by Moody's. The focus of my evidence is therefore on
23 capital market conditions and the fair rate of return.

24
25 In doing this I first look at the current economic and capital market conditions, since the fair
26 ROE and capital structure stem from the ability of a utility to raise capital to finance operations
27 and this varies with the economy and capital market conditions. In this respect I pay much more
28 attention than is usual to current market conditions, since the US is suffering the after effects of
29 the worst stock market crash since 1937 and we are just recovering from record high "A" bond
30 spreads caused in part by a drastic drop in liquidity in the bond market. Although the situation in
31 Canada is nowhere near as bad as in the United States, it is still closing in on the serious
32 recession of 1982. However, it is important to put things in perspective and realise that some of
33 the things that we are observing are perfectly normal business cycle events that will pass as the
34 economy pulls out of recession, which it is beginning to do. As a result they do not constitute

1 “game changing” events that should cause the ROE mechanism to be abandoned or adjusted. In
2 particular they are similar to events that have occurred in the past while utilities have been on
3 ROE adjustment mechanisms.

4
5 After discussing the current state of the economy and the capital markets I then discuss the
6 relative riskiness of utilities in Canada and my estimate of the market risk premium. Of
7 importance is that I provide new evidence on the validity of my market risk premium estimates,
8 which are right inline with professional judgment in Canada. Further the experience of utilities
9 during this market downturn demonstrates yet again their low risk nature and I see no evidence
10 whatsoever that there has been any change in the relative riskiness of the typical Canadian utility.

11 Following my ROE recommendations I spend a considerable amount of time discussing why my
12 estimates are reasonable and why the BCUC should ignore the recent behaviour of utility bond
13 yields relative to allowed ROEs and long Canada bond yields. Statements that indicate the ROE
14 formulae in use in Canada are broken because they lower allowed ROEs inline with lower long
15 Canada bond yields, while utility bond yields have increased are simply wrong. “A” bond yields
16 have increased for a variety of factors only some of which are related to the equity market and
17 fair ROE. Moreover spreads are now returning to normal levels consistent with the state of the
18 economy. I also judge it to be bad regulatory practise to link allowed ROEs with default risky
19 corporate bond yields, since doing so injects considerable volatility into allowed ROEs that
20 benefits nobody.

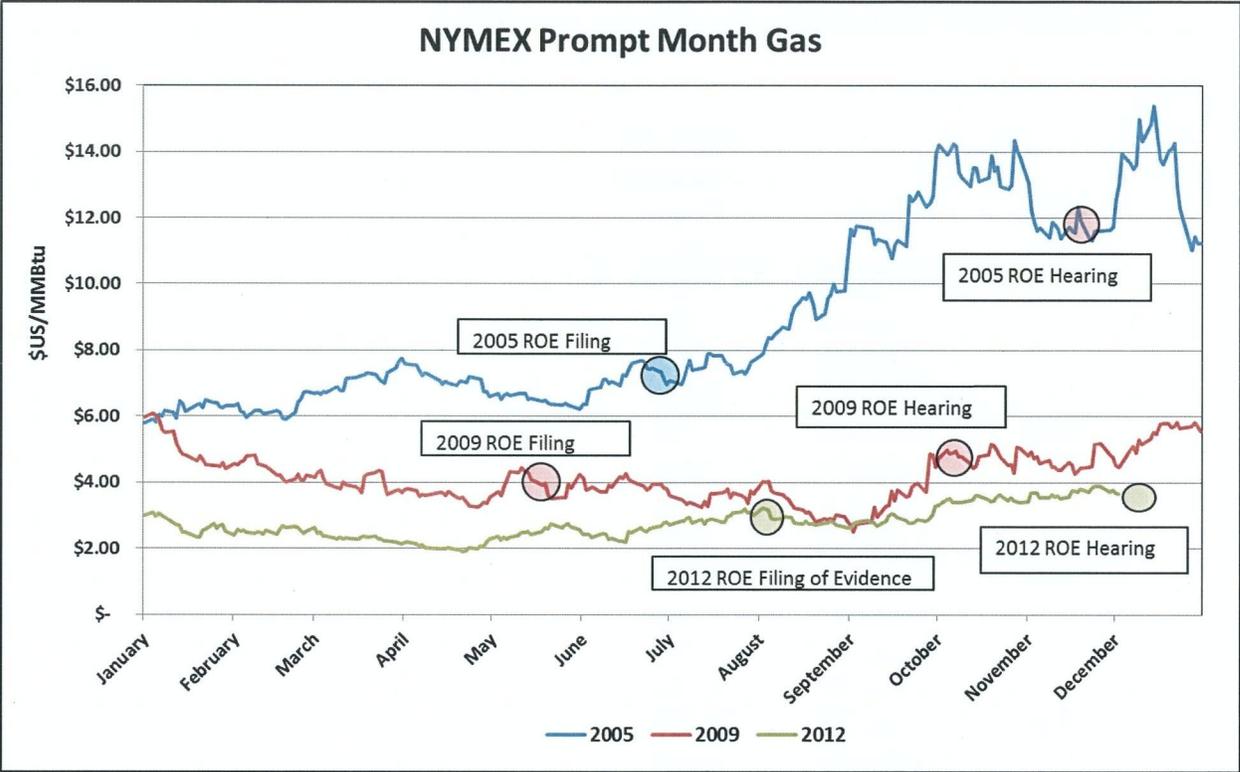
21 Most of the technical material to support my general testimony is contained in a series of stand
22 alone appendices.

23

FortisBC Energy Inc.
Historical Commodity Rate

Year	Date	Approved Commodity Rate ⁽¹⁾ (\$/GJ)
2005	1-Jan-05	7.005
	1-Apr-05	7.005
	1-Jul-05	7.658
	1-Oct-05	9.292
2006	1-Jan-06	9.774
	1-Apr-06	7.662
	1-Jul-06	7.662
	1-Oct-06	7.662
2007	1-Jan-07	7.662
	1-Apr-07	7.662
	1-Jul-07	7.662
	1-Oct-07	6.926
2008	1-Jan-08	6.926
	1-Apr-08	8.287
	1-Jul-08	9.780
	1-Oct-08	7.536
2009	1-Jan-09	7.536
	1-Apr-09	5.962
	1-Jul-09	5.962
	1-Oct-09	4.953
2010	1-Jan-10	4.953
	1-Apr-10	5.609
	1-Jul-10	4.976
	1-Oct-10	4.976
2011	1-Jan-11	4.568
	1-Apr-11	4.568
	1-Jul-11	4.568
	1-Oct-11	4.005
2012	1-Jan-12	4.005
	1-Apr-12	2.977
	1-Jul-12	2.977
	1-Oct-12	2.977

(1) BCUC approved commodity rate in effect for each quarter beginning with the indicated dates.





Terasen Gas Inc. ("TGI"), Terasen Gas (Vancouver Island) Inc. ("TGVI") and Terasen Gas (Whistler) Inc. ("TGW), collectively the "Terasen Utilities" or the "Companies Return on Equity "ROE" and Capital Structure Application	Submission Date: July 20, 2009
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22.0 Reference: Exhibit B-1, Tab 1 p. 2 Competitiveness

TGI states that "Natural gas no longer enjoys a substantial operating cost advantage over electricity." However the Figures on pages 21 through 23 seem to indicate that natural gas is enjoying its largest margin in 10 years against BC Hydro Tier 2 rate.

22.1 Please reconcile the statement with the Figures.

Response:

Before responding directly to the question some background and clarification is needed. Figure 3.1.1 is a comparison of the total natural gas consumed by an average residential customer (95 GJ), not just the energy used in space heating applications. With the recent establishment of the BC Hydro RIB structure the actual operating cost difference between a natural gas home and an electricity home with the same applications has been complicated. To determine this operating cost difference one would need to look at the specific use pattern of the dwelling related to its total natural gas consumption and superimpose this on their existing electricity use to determine the appropriate electrical rate to use in the comparison. Terasen Gas would agree that in most cases for single family homes the BC Hydro RIB Step 2 rate is a reasonable comparison for space heating applications. The RIB Step 2 rate, however, is not necessarily a good comparison for the space heating requirements of a townhouse, condo or apartment. Much of the space heating energy consumption from these types of dwellings may come from the RIB Step 1 rate. Given this backdrop Terasen Gas addresses the question.

As stated in the Business Risk section of the Application (Tab 1, page 18), the annual operating cost of advantage of natural gas compared to electricity in B.C. from 1998 to 2008, has declined from 63% to 18%. This operating cost decline has had an impact on Terasen Gas' competitive position relative to electricity. An operating cost advantage is needed for natural gas to pay for the difference in capital costs to provide space heating capability in a natural gas home versus an electrical heated home.

With the establishment of the BC Hydro RIB rate in October 1, 2008 and the recent decline in the actual and forecasted natural gas commodity prices, the short term competitive position of natural gas has improved.

However, this current operating cost advantage (as outlined in Figures 3.1.1 comparing the Terasen Gas April/2009 rates against the BC Hydro Step 2 rate) may decline with an expected increase in natural gas commodity prices from the current natural gas prices that are used in setting Terasen Gas commodity rates for April/2009 (\$5.966 Cdn/GJ). Natural gas prices are forecast to rise from current levels as outlined in the table below.



Terasen Gas Inc. ("TGI"), Terasen Gas (Vancouver Island) Inc. ("TGVI") and Terasen Gas (Whistler) Inc. ("TGW"), collectively the "Terasen Utilities" or the "Companies" Return on Equity "ROE" and Capital Structure Application	Submission Date: July 20, 2009
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AECO (Cdn\$/GJ) Historical and Forward (Forecast) Month Prices

	Year	Averages	
Actual	2004	\$	6.44
	2005	\$	8.04
	2006	\$	6.62
	2007	\$	6.26
	2008	\$	7.70
	2009	\$	4.16
Forecast as of July 1, 2009	2010	\$	5.80
	2011	\$	6.76
	2012	\$	7.08
	2013	\$	7.27

Note: 2009 prices includes actuals for Jan-June (\$4.40 Cdn/GJ) and forecasted prices for July-Dec (\$3.91 Cdn/GJ)

The reason for the expected increase in natural gas prices is related to the future recovery of the US and Canadian economies, which has the potential to change the current supply/demand picture for natural gas. Also, effective July 1, 2009 the B.C. carbon tax increases from its current levels of \$.50 Cdn/GJ to \$.75 Cdn/GJ and this tax will continue to increase through 2012 to \$1.50 Cdn/GJ.

There are other factors beyond operating costs (as displayed in Figure 3.1.1) that have an impact on the competitive position of natural gas as compared to electricity over the long term. These include: differences in upfront capital costs for a natural gas space heated home versus an electrical heated home and changing customer perceptions towards natural gas. These factors are discussed below.

On page 30-31 of the Business Risks section (Tab 1 of the Application), Terasen Gas outlines why an operating cost advantage is need for a home heated with natural gas compared to one heated by electricity. It is clear from Figure 3.1.1 that since January 1, 2001 through January 2009, natural gas has not experienced the operating cost advantage it needs to make natural gas the economical choice for customer to meet their space heating requirements. Further, Figure 3.1.1 is calculated on total energy use in the home not just the operating cost advantage related to space heating. This conclusion is further supported by the BC Hydro CPR 2007, that states:

"No fuel switching measures were achievable. In other words, the measure payback period either exceeds the life of the measure or the measure never pays back the original investment."¹²

¹² BC Hydro Conservation Potential Review 2007, Fuel Switching: Residential Sector, November 20, 2007, Page 112, Achievable Potential is defined: The portion of savings identified in the Economic Potential that could realistically be achieved within the study period through government and utility-led interventions and programs given institutional, economic and market barriers.



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Finally, the GHG reduction targets, the Carbon Tax, the frequent public discussion of the role of GHGs in climate change and potential future increases and volatility in natural gas prices have changed customers' perception towards natural gas in B.C. This is supported by statements made by customer groups such as BCOAPOs which state:

*"BCOAPO recognizes that Terasen's current rate compares favorably against BC Hydro's trailing residential rate. Right now, customers choosing natural gas for space and water heating are seeing a definite financial benefit as compared to their electricity-using counterparts. However, given the volatile natural gas prices, this could change at any time and customers would again find themselves in a situation where natural gas is no longer even the most economic choice."*¹³

¹³ BCOAPO, Final Argument in BC Hydro 2008 LTAP, dated April 27, 2009, page 8



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The forward curve will change to some degree each day as new information regarding future supply and demand factors is determined in the marketplace. When forward prices ultimately settle, and become historical prices, they may be significantly different than were presented in the forward curve due to the multitude of short term supply and demand variables that can influence prices in the near term.

33.2 The difference between May and July is provided to reflect the fact that the market reflects substantially different price differentials at different times. Has the natural gas commodity reflected this sort of volatility from time to time for say the last ten years?

Response:

The difference in the forward AECO price curves as of May 11, 2009 and July 2, 2008 reflects the ability of forward prices to move substantially over time. The volatility associated with the changes between these two price curves can be measured by the percentage difference in the average prices. The average of the forward prices out to 2014 as of May 11, 2009 is \$6.69/GJ while the average as of July 2, 2008 is \$9.71/GJ. This represents a \$3.02/GJ or 45% difference from May 11, 2009 to July 2, 2008.

The historical AECO monthly prices for the past ten years have also displayed a significant amount of volatility. One method of measuring this volatility is by comparing the standard deviations of prices (as an indication of variability about the mean) relative to the average prices over the past ten years. For the ten year period of August 1999 to July 2009, the AECO monthly index standard deviation is \$2.10/GJ on an average of \$5.98/GJ, which yields a volatility factor of 35%.

When selecting a shorter time horizon, such as the past twelve months (from August 2008 to July 2009), the volatility factor is higher, given the significant run up in energy prices last summer. The volatility factor on AECO historical prices for this period is 45%.

Therefore, while the historical volatility over the ten year period is less than that experienced in forward prices from July 2, 2008 to May 11, 2009 (due to the longer term horizon which has the effect of dampening short term price volatility), the historical volatility over shorter periods of time has reflected similar volatility to that reflected in the forward price curve changes.