National Energy Board | Office national de l'énergie

Reasons for Decision

Trans Québec & Maritimes Pipelines Inc.

RH-1-2008

March 2009

Cost of Capital

Canada

National Energy Board

Reasons for Decision

In the Matter of

Trans Québec & Maritimes Pipelines Inc.

Cost of Capital for 2007 and 2008

RH-1-2008

March 2009

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Table of Contents

List of Figures ii
List of Tables ii
List of Appendices iii
Abbreviations iv
Glossary of Terms vii
Recital and Appearances xi

1. Introduction 1
1.1 Background 1
1.2 The Application 2

2. Fair Return Standard 5
Views of the Board *6*

3. Application for Review and Variance of RH-2-94 8
3.1 The Board's Review Procedure 8
3.2 Context 9
3.2.1 Use of the RH-2-94 Formula 9
3.2.2 Changes in Business Circumstances, Financial Markets and General Economic Conditions 10
3.3 Suggested Approaches 12
3.3.1 After-Tax Weighted-Average Cost of Capital 12
3.3.2 RH-2-94 Formula and Similar Approaches 13
Views of the Board *16*

4. Implementation of the ATWACC Methodology 22
4.1 Cost of Equity Methods 22
4.2 Cost of Debt 25
4.3 Capital Structure 25
4.4 Corporate Income Tax Rate 26
Views of the Board *26*

5. Business Risk 30
5.1 Short-term vs. Long-term Risk 30
5.2 Supply Risk 31
5.3 Market Risk 35
5.4 Competitive Risk 37
5.4.1 Alternative Fuels 38
5.4.2 Market Competition and Export Risk for PNGTS 40
5.5 Operating Risk 42
5.6 Regulatory Risk 42
Views of the Board *45*

6. Interpreting the Return Information from Selected Samples 52
6.1 Relevance of Comparisons with U.S. Returns.....52
6.1.1 Integration of Canadian and U.S. Capital Markets.....52
6.1.2 Canadian and U.S. Regulatory Environment.....54
6.2 Regulatory Return Evidence.....59
6.2.1 Canadian Negotiated Returns 59
6.2.2 Canadian Litigated Returns.....60
6.2.3 Litigated U.S. Returns.....61
6.3 Financial Market Returns Evidence.....62
6.3.1 Description of Samples.....62
6.3.1.1 Canadian Utilities..... 63
6.3.1.2 Gas LDC 64
6.3.1.3 MLP Pipelines..... 64
6.3.1.4 Dr. Booth's Estimate..... 65
6.3.2 Unregulated Activities in Market Data from Selected Samples 65
***Views of the Board*.....66**

7. Fair Return for TQM for 2007 and 2008.....73
7.1 Total Return 73
7.2 Total Return and Capital Structure 75
7.3 Adjusting for the Embedded Cost of Debt.....77
***Views of the Board*.....78**

8. Disposition 83

List of Figures

1-1 TQM System Map.....4
3-1 An Aggregate Approach to the Fair Return Standard using the ATWACC Approach.....20
3-2 An Approach by Component to the Fair Return Standard using the RH-2-94 Formula ...21
5-1 Quebec Natural Gas Demand by Sector 36
5-2 TQM Base Case Domestic and Export Volumes.....50
7-1 Illustration of Factors and their Influence on the Board's Decision on a Total Return for TQM for 2007 and 2008.....79

List of Tables

3-1 Capital Market Conditions: 1994, 2001 and 2008 11
5-1 TransCanada's Estimated Flow Rates of Gas Supply.....33
5-2 TransCanada's Estimate of Ultimate Potential of Natural Gas 33
6-1 Cost of Capital Derived from Expert Witness Evidence 62
7-1 Summary of Returns Recommended for TQM for 2007 and 2008 74
7-2 Implications for 2008 Revenue at a 6.9 per cent ATWACC ($000) 75

List of Appendices

I Ruling 1 – 30 September 2008 84
II Ruling 2 – 2 October 2008 85
III Ruling 3 – 7 October 2008 86

Abbreviations

10^6m^3	Million cubic metres
$10^6m^3/d$	Million cubic metres per day
10^9m^3	Billion cubic metres
Act	*National Energy Board Act*
Alliance	Alliance Pipeline Ltd.
ATWACC	After-Tax Weighted-Average Cost of Capital
Bcf	Billion cubic feet
Bcf/d	Billion cubic feet per day
Board or NEB	National Energy Board
bps	Basis points
Canaport	Canaport LNG Terminal
CAPM	Capital asset pricing model
CAPP	Canadian Association of Petroleum Producers
CBM	Coalbed methane
CGA	Canadian Gas Association
CGPC	Canadian Gas Potential Committee
Dawn	Dawn Hub
DBRS	Dominion Bond Rating Service
DCF	Discounted cash flow
Dth	Decatherm
ECAPM	Empirical capital asset pricing model
Enbridge	Enbridge Pipelines Inc.
EUB	Alberta Energy and Utilities Board*
ERP	Equity Risk Premium
FERC	Federal Energy Regulatory Commission (U.S.)

* on 1 January 2008 became the Energy Resources Conservation Board and the Alberta Utilities Commission

Gaz Métro	Gaz Métro Limited Partnership
GDP	Gross Domestic Product
GP	General Partner
IGUA	Industrial Gas Users Association
IRR	Internal rate of return
LDC	Local distribution company
LNG	Liquefied natural gas
LP	Limited partner
M&NP	Maritimes & Northeast Pipeline
Mainline	TransCanada Mainline natural gas transmission system
MLP	Master Limited Partnership
Moody's	Moody's Investor Services
MRP	Market Risk Premium
NPV	Net present value
Ontario	Minister of Energy for the Province of Ontario
PNG	Pacific Northern Gas Ltd.
PNGTS	Portland Natural Gas Transmission System
Régie	Régie de l'énergie
ROE	Rate of return on common equity
S&P	Standard & Poor's
Spectra	Spectra Energy Transmission
TQM	Trans Québec & Maritimes Pipeline Inc.
TransCanada	TransCanada PipeLines Limited
Trans Mountain	Trans Mountain Pipe Line Company Ltd.
Tcf	Trillion cubic feet
U.S.	United States of America
Union	Union Gas Limited

WACC	Weighted-Average Cost of Capital
WCSB	Western Canada Sedimentary Basin
Westcoast	Westcoast Energy Inc., carrying on business as Spectra Energy Transmission

Glossary of Terms

Basis point (bps)	One-hundredth of a percentage point, used in reference to interest rates or rates of return on equity
Beta	A measure of the systematic risk of a security, which estimates the extent to which a stock's price fluctuates more or less than average when the market fluctuates
Bond rating	A quality rating assigned by credit rating agencies as an indication of creditworthiness
Book value	The amount at which an item appears in the books of account and financial statements
Business risk	The risk attributed to the nature of a particular business activity (as distinct from financial risk); For pipelines, it typically includes supply, market, regulatory, competitive, and operating risks
Capital asset pricing model (CAPM)	A method used to estimate the cost of equity capital by comparing the return and risk characteristics of an individual company's shares with the market average
Capital attraction requirement	The aspect of the Fair Return Standard that requires that the return of a regulated utility permit incremental capital to be attracted to the enterprise on reasonable terms and conditions
Capital structure	The way in which a business is financed; generally expressed as a percentage breakdown of the types of capital employed
Coalbed methane	An unconventional form of natural gas that is trapped within the matrix of coal seams
Comparable investment requirement	The aspect of the Fair Return Standard that requires that the return of a regulated utility be comparable to the return available from the application of the invested capital to other enterprises of like risk
Competitive risk	The business risk that results from competition for customers at both the supply and market ends of a pipeline system
Conventional gas	Natural gas that is found in the reservoir and produced through a wellbore with known technology and where the drive for production is provided by expansion of the gas or by pressure from an underlying aquifer

Cost of service	The total cost of providing service, including operating and maintenance expenses, depreciation, amortization, taxes, and return on rate base
Dawn Hub	An interchange, located in southern Ontario, where multiple pipelines interconnect and form a market centre
Deemed capital structure	A notional capital structure used for rate-making purposes that may differ from a company's actual capital structure
Depreciation	A non-cash expense charged against earnings to write off the cost of an asset during its estimated useful life
Discounted Cash Flow (DCF)	A method used for estimating the cost of common equity based on the expected dividend yield of the company's shares and the expected future dividend growth rate
Economic resources	That portion of the technical resources that can be developed economically under anticipated economic conditions
Embedded cost of debt	The weighted-average historical cost of long-term debt outstanding
Empirical CAPM (ECAPM)	A method used to estimate the cost of equity capital by comparing the return and risk characteristics of an individual company's shares with the market average. This method relies on a security market line that attempts to match more closely the results of empirical tests on the CAPM (higher intercept and smaller slope)
Fair Return Standard	A standard that must be examined when setting the return allowed to a regulated company; it is comprised of the comparable investment, financial integrity and capital attraction requirements
Financial integrity requirement	The aspect of the Fair Return Standard that requires that the return of a regulated utility enable the financial integrity of the regulated enterprise to be maintained
Financial risk	The risk inherent in a company's capital structure; financial risk increases as the proportion of debt increases
Flow-through tax methodology	A method of estimating income taxes payable for a period based on taxable income as opposed to accounting income
GH-1-97	NEB Proceeding on the TQM PNGTS Extension (Reasons for Decision dated April 1998)
Investment risk	The total of a company's business risk and financial risk

Market risk	The business risk that stems from the overall size of the market and the market share that a pipeline is able to capture
Market risk premium	Equity risk premium for the market as a whole (where the premium is the difference between the expected equity market return as a whole and a risk-free rate)
Operating risk	Risk to the income-earning capability that arises from technical and operational factors
Rate base	Amount of investment on which a return is authorized to be earned; it typically includes plant in service plus an allowance for working capital
Regulatory risk	Risk to the income-earning capability of the assets that arises due to the method of regulation of the company
Revenue requirement	Total cost of providing service, including operating and maintenance expenses, depreciation, amortization, taxes, and return on rate base
Return on rate base (return)	The return that a regulated company is authorized to earn on its approved rate base
RH-2-2004	NEB Proceedings on TransCanada's 2004 Mainline Tolls and Tariff Application (Phase I Reasons for Decision dated September 2004; Phase II Reasons for Decision dated April 2005)
RH-2-94	NEB Multi-Pipeline Cost of Capital Proceeding (Reasons for Decision dated March 1995)
RH-2-94 Formula	Formula used to determine the rate of return on common equity for certain NEB-regulated pipelines, established in the RH-2-94 Proceeding, as amended to eliminate rounding
RH-4-2001	NEB Proceeding on TransCanada's 2001-2002 Mainline Fair Return Application concerning cost of capital for the Mainline (Reasons for Decision dated June 2002)
Shale gas	A form of unconventional gas where the gas molecules are mainly trapped on the organic material in a host rock of fine-grained shale
Supply risk	Risk that the physical availability of economical natural gas volumes could affect a pipeline's income-earning capability

Tariff	The terms and conditions under which the services of a pipeline are offered or provided, including the tolls, the rules and regulations, and the practices relating to specific services
Technical resources	Natural gas resources estimated by having regard for the geological prospects in an area or basin and anticipated technology. They are the sum of cumulative production (portions already produced), reserves (portions discovered, but not produced) and future resources (portions still undiscovered), with all given as marketable volumes. Marketable volumes for the future resources are determined by applying the recovery factors and surface losses applicable to pools discovered in the past
Test Year	A forward looking 12-month period used for rate-making purposes
Tight gas	A form of non-conventional natural gas that is held in the pore space of a rock that has a lower permeability or ability to flow than usual for that type of rock
Ultimate potential	A term used to refer to an estimate of the marketable resources that will be developed in an area by the time that exploratory and development activity has ceased, having regard for the geological prospects of an area, known technology and economics. It includes cumulative production, remaining reserves, and future additions to reserves through extension and revision to existing pools and the discovery of new pools
Unconventional gas	Natural gas that is contained in a non-traditional reservoir rock that requires significant additional stimulus to allow gas flow; it may be that the gas is held by the matrix material such as coal, ice, or shale; or where the reservoir has an unusually low amount of porosity and permeability
Utilization rate	A rate determined by dividing system throughput by pipeline design capacity, expressed as a percentage

Recital and Appearances

IN THE MATTER OF the *National Energy Board Act* (Act) and the regulations made thereunder;

IN THE MATTER OF an application dated 17 December 2007 by Trans Québec & Maritimes Pipeline Inc. (TQM) pursuant to subsection 21(1), and Part IV of the Act;

AND IN THE MATTER OF National Energy Board Hearing Order RH-1-2008, dated 22 January 2008.

HEARD in Montréal, Quebec, on 23, 24, 25, 26, 29, 30 September 2008 and 1, 2, 3, 6, 7, 8 October 2008; and in Calgary, Alberta, on 20, 21, 22 October 2008;

BEFORE:

G. Caron	Presiding Member
R.R. George	Member
G.A. Habib	Member

Appearances	**Participants**	**Witnesses**
C.K. Yates, Q.C. L.-A. Leclerc D. Langen	Trans Québec & Maritimes Pipeline Inc.	S. Brett P. Cabana P.R. Carpenter J.J. Dueck A.M. Engen R.K. Girling A.L. Kolbe W.A. Langford P.J. Murphy B. Otis S. Pohlod J.H. Vander Weide M.J. Vilbert
N.J. Schultz	Canadian Association of Petroleum Producers	L.D. Booth J.D. Miller A. Safir
L.E. Smith, Q.C.	Canadian Gas Association	
P. Jeffrey	Industrial Gas Users Association	L.D. Booth P.G. Dottori M. Newton J.-B. Trahan
L.E. Smith, Q.C.	ATCO Utilities	

V. Regnault	Gaz Métro Limited Partnership
P.M. Keys	TransCanada PipeLines Limited
L.E. Smith, Q.C.	Union Gas Limited
E. Sweet	Ministry of Energy, Province of Ontario
M.A. Fowke	National Energy Board
M.A. Yuzda	National Energy Board

Chapter 1

Introduction

1.1 Background

Trans Québec & Maritimes Pipeline (TQM) operates natural gas transportation facilities as *mandatary*[1] of TQM Pipeline and Company, Limited Partnership, of which Gaz Métro Limited Partnership (Gaz Métro) and TransCanada PipeLines Limited (TransCanada) are the general partners.

The TQM facilities are located in the Province of Quebec and extend from a point of interconnection with the TransCanada Mainline system at Saint-Lazare to a point near Quebec City in the Municipality of Lévis on the south shore of the St. Lawrence River, and from Terrebonne, north of Montréal, to East Hereford on the border of the Province of Quebec with the state of New Hampshire, where it interconnects with the Portland Natural Gas Transmission System (PNGTS). See Figure 1-1 for a map of the system.

Prior to 1995, the National Energy Board (Board or NEB) generally approved pipeline tolls on an annual cost of service methodology for a forward test year basis. A pipeline company's cost of capital would typically be examined as part of a cost of service tolls application.

In the fall of 1994, the Board held the Multi-Pipeline Cost of Capital Proceeding (RH-2-94). In the RH-2-94 Decision[2] the Board approved a rate of return on common equity (ROE) for a low-risk, high-grade benchmark pipeline, based primarily on the equity risk premium test. The ROE for the benchmark pipeline was set at 12.25 per cent for the 1995 Test Year. The Board also adopted a formula for adjusting the ROE on an annual basis (RH-2-94 Formula).

The RHW-1-94 Decision[3] on the TQM Toll Application for 1995 and the RH-2-94 Decision, established TQM's final tolls for 1995. Similarly, the RHW-1-96 Decision[4] on the TQM Toll Application for 1996 and the RH-2-94 Decision resulted in TQM's final tolls for 1996.

In RHW-1-97, [5] the Board approved the "1997 and Multi-Year Tolls Agreement" as submitted by TQM and directed that the provisions of the Multi-Year Tolls Agreement be used to determine TQM's net revenue requirement and resulting tolls for 1997. TQM's Multi-Year Tolls

---

1 Roughly equivalent to "power of attorney". The person who grants the mandate is called the mandatar, and the person who accepts the mandate is called the mandatary. A mandate is a contract by which one person designates another person to represent him or her, in other words act on his or her behalf, in legal dealings with a third party. See http://www.justice.gouv.qc.ca/english/publications/generale/procurat-a.htm#definitions

2 National Energy Board, RH-2-94 Reasons for Decision, TransCanada PipeLines Limited et. al. Cost of Capital, March 1995 [hereinafter RH-2-94].

3 National Energy Board, RHW-1-94 Reasons for Decision, Trans Québec & Maritimes Pipeline Inc., Tolls, April 1995.

4 National Energy Board, RHW-1-96 Reasons for Decision, Trans Québec & Maritimes Pipeline Inc., Tolls, May 1996.

5 National Energy Board, RHW-1-97 Reasons for Decision, Trans Québec & Maritimes Pipeline Inc. 1997 Tolls and Multi-Year Tolls Agreement, April 1997.

Agreement covered a five-year period, from 1 January 1997 to 31 December 2001. In 2001, the Board approved a five-year extension (to 31 December 2006) of TQM's Multi-Year Tolls Agreement. Under these settlements, the ROE was governed by the RH-2-94 Formula.

In 2007, TQM operated under interim tolls which were established at the 2006 toll level. Effective 1 January 2008, TQM is operating under revised interim tolls, which were established based on the terms of a Partial Settlement for the years 2007 to 2009 and approved by the Board by Order TGI-04-2007 dated 20 December 2007.

By letter dated 19 November 2007, TQM submitted an application requesting approval of a three-year Partial Settlement that represented an agreement with interested parties on all revenue requirement matters for the period of 1 January 2007 to 31 December 2009, with the exception of the cost of capital. The Partial Settlement Application formed part of a three step filing process that TQM established for determining tolls on its system. The steps were:

- Partial Settlement Application that did not include the cost of capital;
- 2008 Interim Toll Application; and
- Application for Cost of Capital for 2007 and 2008.

TQM indicated that it would apply for final 2007 and 2008 tolls following the disposition of the Partial Settlement and the two-year Cost of Capital Application. The Board approved the Partial Settlement Application on 4 September 2008. The Cost of Capital for 2009 is to be resolved by negotiation between TQM and parties or, failing that, will be litigated before the Board.

1.2 The Application

On 17 December 2007, TQM applied to the NEB for approval of the Cost of Capital that would be utilized by TQM in the calculation of final tolls to be charged by TQM for or in respect of transportation services provided to customers between 1 January 2007 and 31 December 2008. Pursuant to subsection 21(1) of the *National Energy Board Act* (Act), TQM applied for a review and variance of:

- the RH-2-94 Decision;
- NEB Order TG/TO-1-95 dated March 16, 1995;[6]
- NEB approval dated 23 November 2006 of a ROE of 8.46 per cent for the year 2007; and
- NEB approval dated 29 November 2007 of a ROE of 8.71 per cent for the year 2008.

Effectively, the review and variance application was to allow for the determination of an overall fair return on capital for TQM for the years 2007 and 2008.

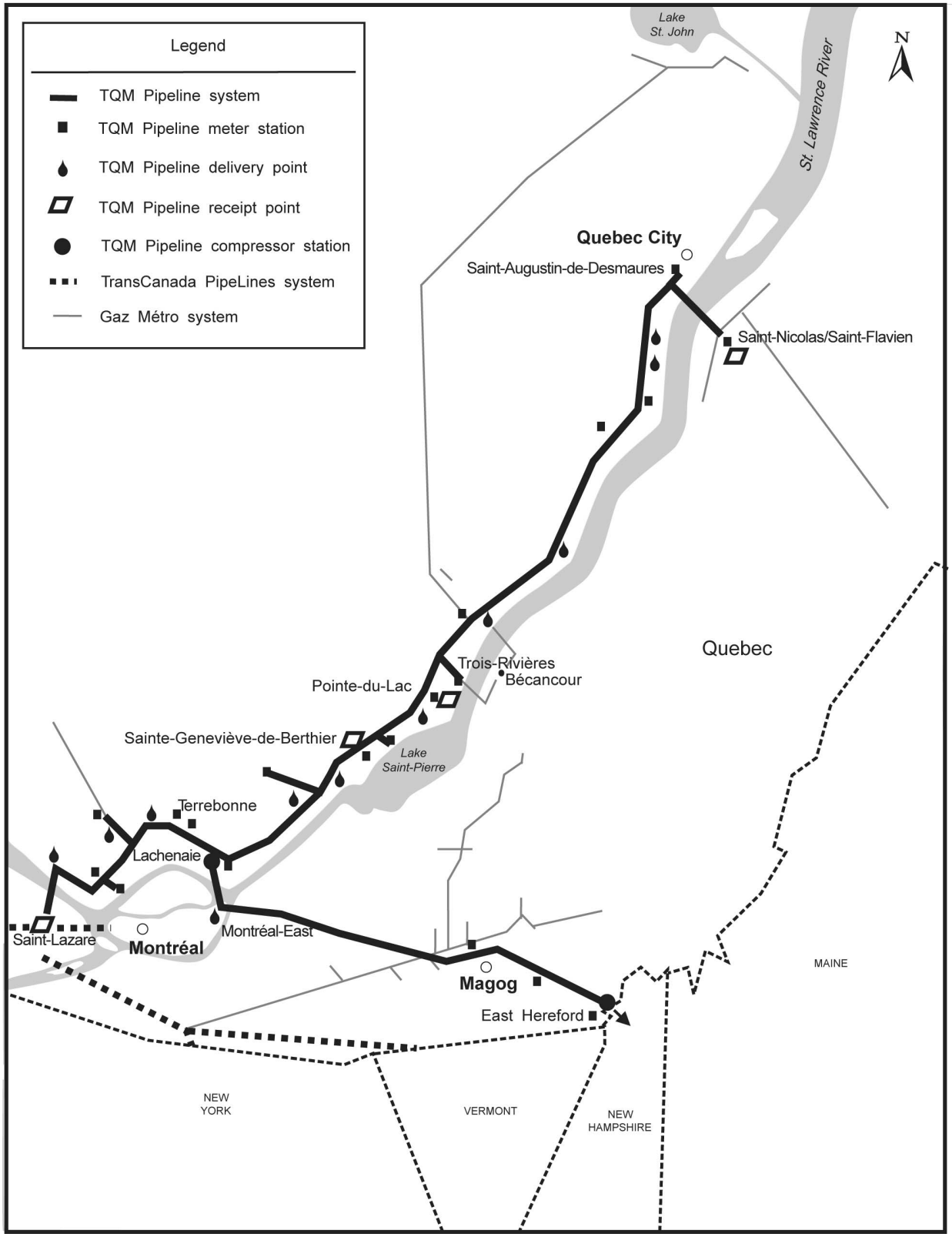
Pursuant to Part IV of the Act, TQM also applied for an order approving an overall fair return on capital for the years 2007 and 2008 resulting from the application of a rate of return of 11.0 per cent to a deemed equity component of 40 per cent of the TQM capital structure, together with the

6 From RH-2-94 Decision, *supra*, footnote 2, p. 35.

actual cost of debt of TQM. TQM stated that the requested overall return is equivalent to an After-Tax Weighted-Average Cost of Capital (ATWACC) of about 6.7 per cent (adjusted for the difference between the market cost of debt and the actual cost of TQM debt).

The Board issued Hearing Order RH-1-2008 on 22 January 2008 and scheduled an oral public hearing to begin on 23 September 2008 in Montréal, Quebec. The hearing commenced on 23 September 2008 and adjourned on 8 October 2008 in Montréal. The hearing reconvened in Calgary on 20 October 2008 and was completed on 22 October 2008. The hearing lasted 15 days.

Figure 1-1
TQM System Map



Chapter 2

Fair Return Standard

In the course of the hearing parties presented their views on the Fair Return Standard and the case law regarding it.[7] These cases, which underpin the Board's reasoning regarding the Fair Return Standard, and the Board's views on them, were discussed in the Board's RH-2-2004, Phase II Decision.[8] No party indicated that the reasoning in that Decision needed to be re-examined; indeed, TQM indicated that the determination of the return on equity of TQM for 2007 and 2008 should be guided by the principles that, in its view, were articulated in the RH-2-2004, Phase II Decision.

According to TQM, the following four principles are found in that Decision.

- The overall return on capital must meet the comparable investment, financial integrity and capital attraction requirements of the Fair Return Standard.
- Each element that goes into the determination of the overall return must be found by the Board to be reasonable. The Board then uses its judgment to ensure that a resulting return is a fair return in accordance with the legal requirements.
- Under the traditional methodology the fair total equity return is established by application of the rate of return on equity to the deemed equity component of the pipeline capital structure that reflects the business risk of a pipeline.
- The fair return is a cost to be determined without regard to the impact on tolls to be paid by customers.

The Canadian Association of Petroleum Producers (CAPP) in final argument submitted that when determining the fair return, there is a balance to be struck. It referred to the Board's RH-4-2001 TransCanada Decision which stated that a fair or reasonable rate of return should, in addition to meeting the comparable investment, financial integrity and capital attraction requirements, "achieve fairness both from the viewpoint of the customers and from the viewpoint of present and prospective investors".[9] In support of this submission, CAPP argued that the Federal Court of Appeal in *TransCanada v. NEB* looked at the 2001 Decision and the review of that decision[10] and stated that both decisions were correct.

---

7 *Northwestern Utilities Limited v. City of Edmonton*, [1929] S.C.R. 186; *TransCanada PipeLines Limited v. National Energy Board et al.* [2004] F.C.A. 149 [hereinafter TransCanada v. NEB]; *Bluefield Waterworks & Improvement Co. v. Public Service Commission of West Virginia et. al.* 262 U.S. 679 (1923) [hereinafter *Bluefield*]; *Federal Power Commission v. Hope Natural Gas* 320 U.S. 591 (1944) [hereinafter Hope].

8 National Energy Board, RH-2-2004, Phase II Reasons for Decision, TransCanada PipeLines Limited Cost of Capital, April 2005.

9 National Energy Board, RH-4-2001Reasons for Decision, TransCanada PipeLines Limited Cost of Capital, June 2002, at p. 11.

10 National Energy Board, RH-R-1-2002 Reasons for Decision, TransCanada PipeLines Limited Review of RH-4-2001 Cost of Capital Decision, February 2003.

CAPP argued that the U.S. cases cited by TQM and discussed by the Board in previous decisions also make it clear that there is a balance to be struck when a tribunal is exercising its judgment to determine the fair return. CAPP referred to the *Hope* decision, as cited in the Board's RH-2-2004, Phase II Decision, for the proposition that there is a "balancing of the investor and consumer interests."[11] Further, CAPP submitted that the *Bluefield* decision states that the utility is entitled to charge rates that are compensatory "but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures."[12]

Views of the Board

The Board has considered the arguments put forward by TQM and CAPP and continues to believe that the legal framework for determining a fair return is as set out in Chapter 2 of the RH-2-2004, Phase II Decision. The Board notes that these views were based on the Federal Court of Appeal Decision in *TransCanada v. NEB*.

When using the cost of service approach to determine tolls, the cost of capital is determined using the Board's sound judgment. Often the largest and therefore most important portion of cost of capital is the overall return on equity. While customers and consumers have an interest in ensuring that the cost of equity is not overstated, in the Board's view, this is factored in by having intervenors test and challenge the position the company has put forward. It does not mean that in determining the cost of capital that investor and consumer interests are balanced. In the Board's view, the Federal Court of Appeal was clear that the overall return on equity must be determined solely on the basis of a company's cost of equity capital, and that the impact of any resulting toll increase is an irrelevant consideration in that determination.[13]

Therefore, the Board reaffirms the Fair Return Standard as articulated on page 17 of the RH-2-2004, Phase II Decision. The Fair Return Standard requires that a fair or reasonable overall return on capital should:

- be comparable to the return available from the application of the invested capital to other enterprises of like risk (comparable investment requirement);
- enable the financial integrity of the regulated enterprise to be maintained (financial integrity requirement); and

11 *Hope*, *supra,* footnote 7, at p. 603.

12 *Bluefield*, *supra,* footnote 7, at pp. 692-693.

13 While it is true that TransCanada's appeal in the *TransCanada v. NEB* case was denied, this is only because, after examining the facts, the Court found that the Board did not improperly consider the impact on consumers of increasing tolls when determining the cost of capital. (See paragraphs 37 and 42.)

- permit incremental capital to be attracted to the enterprise on reasonable terms and conditions (capital attraction requirement).[14]

14 In previous decisions the Board used the word "standard" for each of the elements of the Fair Return Standard. The Board has changed the description to "requirement" to clarify that there are three requirements which should be met under the Fair Return Standard.

Chapter 3

Application for Review and Variance of RH-2-94

3.1 The Board's Review Procedure

Section 21 of the Act provides:

> (1) Subject to subsection (2), the Board may review, vary or rescind any decision or order made by it or rehear any application before deciding it.

The *National Energy Board Rules of Practice and Procedure, 1995* set out the requirements for a review application in section 44:

> (2) An application for review or rehearing shall contain...
>
> (b) the grounds that the Applicant considers sufficient, in the case of an application for review, to raise a doubt as to the correctness of the decision or order ... including
>
> (ii) changed circumstances or new facts that have arisen since the close of the original proceeding…

There is no automatic right of review of a Board decision. A decision to review is discretionary.

Normally, a review entails a two-step process: first, it must be determined whether a doubt has been raised as to the correctness of the impugned decision or order, and then, if that test has been met, the review is considered on its merits. These stages are commonly referred to as phases I and II and are analogous to seeking leave to appeal from a court, and subsequently having the appeal heard. In this case, the Board did not explicitly delineate the two phases of the review process, but considered both phases when deliberating on the evidence in this hearing.

This is the first time that the RH-2-94 Formula has been reviewed since *TransCanada v. NEB*. In that case, the Court confirmed that the Board's review procedure is the proper process for considering the RH-2-94 Formula and that as a result the burden of proving that the RH-2-94 Formula no longer applies rests with the Applicant which, in this case, is TQM.

As Justice Rothstein set out:

> In its 1995 decision, the Board stated that its automatic adjustment formula was to reflect a simplified procedure to determine annual adjustments to pipeline rates of return on common equity. It was therefore to continue indefinitely. When an affected party wishes to change the process, it has the onus to demonstrate that its

> proposal is preferable to the one which is the subject of a binding Board order. That is not an improper onus.[15]

It is with Justice Rothstein's words in mind that the Board considers TQM's request for a review of the RH-2-94 Decision as it applies to TQM for 2007 and 2008.

3.2 Context

3.2.1 Use of the RH-2-94 Formula

The Board held the RH-2-94 proceeding to put in place a means of improving the efficacy of the toll setting process for the year 1995 and beyond. In March 1995, the RH-2-94 Decision set the rate of return on common equity (ROE) for a benchmark pipeline at 12.25 per cent for 1995. In this context, a benchmark pipeline referred to a hypothetical utility whose overall investment risks are characteristic of a low-risk, high-grade regulated pipeline. The Board used this benchmark pipeline as the standard for determining the allowed ROE for the pipelines subject to the RH-2-94 proceeding. Under this methodology, company-specific business risk was to be accounted for in the equity component of the deemed capital structure of NEB-regulated pipelines. The Board approved a 30 per cent equity thickness for all gas pipelines subject to the RH-2-94 Decision, except for Westcoast Energy Inc. (Westcoast).

In addition, the RH-2-94 Decision established a mechanism to adjust the allowed ROE annually (RH-2-94 Formula). The RH-2-94 Formula directly links the ROE to a forecast of a long-term Government of Canada bond yield and adjusts the ROE for 75 per cent of the change in the forecasted yield. The forecast of a long-term Government of Canada bond yield is determined by averaging the 3-month-out and 12-month-out forecasts of 10-year Government of Canada bonds as published by *Consensus Forecasts* in November of each year. To this average is added the average spread between 10-year and 30-year Government of Canada bond yields as published daily in *The Financial Post* throughout the month of October of that year.

The Board did not find it necessary to specify a bond yield range outside of which the RH-2-94 Formula would not operate. Also, the Board did not set a time limit on the life of the RH-2-94 Formula. The Board indicated that its objective was to conduct detailed examinations of the pipelines' cost of capital only when significant changes had occurred in financial markets, business circumstances, or in general economic conditions. Furthermore, the Board was prepared to consider a reassessment of capital structures, likely on a pipeline-by-pipeline basis, in the event of a significant change in business risk, in corporate structure or in corporate financial fundamentals.

TQM was subject to the RH-2-94 Decision from 1995 until the end of 2006 and operated under a Multi-Year Tolls Agreement reached between TQM and interested parties between 1997 and 2006. As a result, the last time TQM's cost of capital and business risk were assessed by the Board was during the RH-2-94 proceeding.

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15 *Supra*, footnote 7, at paragraph 56.

3.2.2 Changes in Business Circumstances, Financial Markets and General Economic Conditions

Submissions of TQM

TQM submitted that new facts and changed circumstances since the RH-2-94 proceeding raise a doubt as to the correctness of the RH-2-94 Decision as it relates to TQM for 2007 and 2008. As well, TQM stated that all changes affecting the cost of capital, other than those taken into account by the mechanical relationship between the RH-2-94 Formula and the Government of Canada bond yields, have not been accounted for by the RH-2-94 Formula.

Changes in Business Circumstances

TQM was of the view that the market environment in which gas pipelines in North America operate has changed significantly since 1994 reflecting greater uncertainty in the supply of gas, greater uncertainty in the extent and timing of growth in demand and greater competition among pipelines for customers seeking transportation service. According to TQM, there has been no quantitative link between the amount that the deemed equity thickness has been increased by the Board, or in settlements relying on the RH-2-94 Formula, and the increase in the total return required by investors to compensate them for bearing that increased risk.

Changes in Financial Markets

Major events such as increased geopolitical instability, extensive corporate corruption and collapse of the technology, media and telecom sectors were cited by TQM as having impacted financial markets and having raised the risk premium for equities since 1994. Also, the ratio of Canadian government debt to Gross Domestic Product (GDP) saw a decline, which put a material downward pressure on bond yields. Furthermore, the world's capital markets, including Canadian financial markets, have become increasingly integrated resulting in capital easily flowing from one market to another in pursuit of the best investment opportunities and competitive returns. TQM submitted that this integration has lead to increased competition for capital for Canadian companies, including TQM.

Changes in Canada's General Economic Conditions

TQM expressed the view that Canada has undergone significant changes in general economic conditions since 1994. These changes were most evident in the rise and fall in interest rates, a drop in Government of Canada bond yields, and an appreciation and subsequent fall in the Canadian/US dollar exchange rate. Commodity markets (crude oil, natural gas and base metals) also showed material increases in prices and volatility.

Based on the above-mentioned changes in business circumstances, financial markets and general economic conditions, TQM was of the view that a review of the RH-2-94 Formula as it applies to TQM for 2007 and 2008 was warranted.

Submissions of Intervenors

Changes in Business Circumstances

Dr. Booth, an expert witness for CAPP and the Industrial Gas Users Association (IGUA), stated that at the time of the RH-2-94 Decision, the Board used the same 30 per cent common equity ratio for all the major natural gas pipelines. As a result, Dr. Booth was of the view that, while it might seem obvious that the TransCanada Mainline was the benchmark, in substance all major natural gas pipelines were. In Dr. Booth's opinion, the two major developments since 1994 have been the increased supply of natural gas outside of the Western Canada Sedimentary Basin (WCSB) and the increase in intra-Alberta demand. Both have resulted in lower throughput on the TransCanada Mainline. According to Dr. Booth, neither of these factors affect TQM to the same degree as the WCSB export pipelines. Dr. Booth was of the view that the development of the Dawn Hub provides TQM with much more flexibility than any of the WCSB export pipelines. Dr. Booth argued that a case could be made that TQM is the new low risk benchmark pipeline.

Changes in Financial Markets and Canada's General Economic Conditions

In comparing the capital market conditions between 1994, 2001 and 2008, Dr. Booth assessed the variables contained in the following table.

Table 3-1
Capital Market Conditions: 1994, 2001 and 2008

	1994	2001	2008
Long-term Canada bond yield forecast			
Consensus Forecast	8.35%	5.95%	4.61%
Dr. Booth (and Dr. Berkowitz*)	8.25%	6.00%	4.75%
Real Canada yield	4.62%	3.60%	1.65%
Market risk premium	3.5% - 4.0%	4.50%	5.00%
Beta estimates	0.45 – 0.55	0.42 – 0.60	0.45 – 0.55
Equity risk premium for pipeline	250 bps	250 bps	300 bps

* Dr. Berkowitz testified in the RH-2-94 and RH-4-2001 proceedings.

According to Dr. Booth, when comparing the three periods, the major changes occurred between 1994 and 2001. In 2001, Dr. Booth pointed out that after having carefully considered all of the evidence relating to rate of return on common equity, the Board maintained the RH-2-94 Formula since it continued to yield returns appropriate for the TransCanada Mainline. Furthermore, Dr. Booth was of the view that the change in financial market conditions is less since 2001 than what occurred between 1994 and 2001. Therefore, Dr. Booth saw no substantial change in market conditions that would warrant a change in the RH-2-94 Formula and supported its continued use.

3.3 Suggested Approaches

3.3.1 After-Tax Weighted-Average Cost of Capital

Submissions of TQM

TQM approached the analysis of the fair return in two different ways. The first way was the utilization of the ATWACC approach to cost of capital estimation. The second way was the traditional methodology that reflects business risk in the equity component of the capital structure and a separate estimate of the rate of return on equity. TQM stated that ATWACC and the traditional methodology, when properly applied, yield similar results in terms of overall return on capital. TQM submitted that the ATWACC approach is the one used by corporations in the analysis of investment opportunities.

According to TQM, the base criteria to compare investment opportunities for the company are the calculations of net present value (NPV) and internal rate of return (IRR). In this context, the ATWACC is the discount rate used to determine the NPV of an investment and the IRR is the calculated return over the life of an investment. If the NPV is positive, the investment opportunity adds value and if the IRR is above the ATWACC (which can be considered the hurdle rate), the investment opportunity will have a positive NPV and therefore will add value.

The ATWACC approach can be considered from two different perspectives. The first one is an "authorized ATWACC" where the capital structure and ROE used in the analysis are the ones authorized by a regulator. The second perspective is a "market-based ATWACC" where the capital structure, cost of equity and cost of debt are all based on market values or market costs.

It was the opinion of one of TQM's expert witnesses, Dr. Kolbe, that ATWACC is the most fundamental measure of the rate of return required for a given level of business risk. ATWACC was used as the starting point for his analyses. Dr. Kolbe submitted that a stock's risk depends in part on the amount of debt a company has in its capital structure since the presence of debt magnifies the risk equity holders bear. As a result, the extra risk for equity created by debt's magnification is known as financial risk. Therefore, Dr. Kolbe was of the view that when estimating the cost of equity from sample companies, differences in the level of financial risk between the sample companies and a particular regulated company must be considered and controlled for.

TQM stated that it is not advisable to assume an appropriate capital structure for a specific company when comparing returns on equity because a capital structure is specific to each company and an external observer cannot judge whether this structure is appropriate or not. As a result, TQM argued that the best way to compare investment returns of different businesses is the ATWACC approach which focuses on the total return on capital and adjusts for financial risk.

Submissions of Intervenors

Dr. Booth referred to the ATWACC approach as leverage adjustments and was of the view that this approach was an erroneous and irrelevant way of looking at the problem of different levels of risk between TQM and sample companies when determining a fair return. Dr. Booth

submitted that the ATWACC approach is not needed by any financial theory. He expressed the view that the reliance on an ATWACC approach, or leverage adjustments, to determine the return on capital for TQM for 2007 and 2008 was not necessary because the actions of regulators have equalized the risks between large classes of different types of utilities. In the event where there would be a difference in risk to the common shareholders between TQM and the sample firms, Dr. Booth argued that it would be possible to make an adjustment directly to the allowed return on equity without using an ATWACC approach. CAPP argued that an ATWACC approach does not avoid capital structure decisions since this approach requires the estimation of capital structure of sample companies.

Dr. Safir, a CAPP expert witness, submitted that the ATWACC approach is not as transparent as the traditional approach when determining a fair return, and that transparency was a valuable tool for a regulator. Dr. Booth argued that this lack of transparency created estimates for TQM for 2007 and 2008 that are beyond the range of reasonableness when compared to what other regulators have awarded to other Canadian utilities.

The Ministry of Energy of the Province of Ontario (Ontario) argued that there is no need to adopt ATWACC and that TQM's proposal in that regard should be dismissed. Ontario added that there are issues with ATWACC such as sample sizes, betas and relative risk of the Canadian sample, as well as the fact that ATWACC has not been adopted by other North American regulatory bodies.

3.3.2 RH-2-94 Formula and Similar Approaches

Submissions of TQM

According to TQM, the Board should grant the variance from the RH-2-94 Decision for the purpose of determining TQM's cost of capital for 2007 and 2008.

In addition to the changes in business circumstances, financial markets and general economic conditions discussed in Section 3.2 that were cited by TQM as reasons to review the RH-2-94 Decision, TQM submitted the results of Dr. Vander Weide's four tests regarding the validity of the RH-2-94 Formula. Dr. Vander Weide concluded the following.

- The RH-2-94 Formula currently understates the required equity risk premium in Canadian utility stocks by at least 200 basis points.
- The cost of equity for utilities declines by less than 50 basis points when interest rates decline by 100 basis points, rather than the 75 basis point decline as stipulated by the RH-2-94 Formula.
- The volatility and the realized return of Canadian utility stock indices have exceeded that of the market as a whole, implying that the RH-2-94 Formula understates the current cost of equity of Canadian utilities.
- The current forward-looking required equity risk premium on U.S. utility stocks is 150 basis points more than the 4.12 per cent offered by the RH-2-94 Formula.

Mr. Engen, one of TQM's expert witnesses, stated that sell-side analysts and credit rating agencies have displayed concern over the low ROEs produced by the RH-2-94 Formula but, on the other hand, analysts have supported the transparency of a formula such as the RH-2-94 Formula since this approach provides clarity and the resulting returns can be fully anticipated.

TQM also submitted that, absent strategic or franchise considerations, no pipeline company is investing new capital in new long-term projects at the returns currently allowed by the RH-2-94 Formula. As a result, embedded capital of existing Canadian pipelines receives significantly discounted returns relative to that of newly built projects. It was noted by TQM that negotiated settlements are consistently hundreds of basis points over the RH-2-94 Formula ROE.

Furthermore, TQM was of the view that financial risk (leverage) is important to consider and that comparing returns on equity without considering the financial risk affecting these returns is not sufficient. TQM suggested that the ATWACC approach, by determining the proper total return on the investment irrespective of financing, explicitly provides control for financial risk, as opposed to the RH-2-94 Formula or an approach by component relying on a stand alone cost of equity estimate. Finally, TQM noted that there is no empirical way to determine an equity thickness based on the business risk of a company.

Submissions of Intervenors

The Canadian Gas Association (CGA) expressed the view that the total returns based on the RH-2-94 Formula are no longer comparable to those returns enjoyed by investments of similar risk to Canadian utilities and do not meet the Fair Return Standard. The CGA submitted that annual adjustment factors, if any, should track not just factors such as interest rates, but also the returns enjoyed by other investments of similar risk. It was argued by the CGA that embedded capital trapped in an existing system should not earn inferior returns to discretionary capital committed to new services or expansions.

Spectra Energy Transmission (Spectra)[16] and Union Gas Ltd. (Union) argued that the current return on equity from the RH-2-94 Formula fails to meet the Fair Return Standard in terms of a total return which would be needed to be truly comparable to other investments available of similar risk. According to Union and Spectra, the cost of capital is determined by the interplay of many dynamic factors which are simply beyond the capacity of a single financial model to predict and which the RH-2-94 Formula cannot capture by itself.

In CAPP's view, the application to review the RH-2-94 Formula should be dismissed. CAPP supported the continued use of the RH-2-94 Formula and was of the view that the current allowed ROE is in fact generous. In addition, according to CAPP, the RH-2-94 Formula was and continues to be successful in reducing the amount of repetitive testimony in regulatory proceedings. CAPP submitted that the predictability, the stability and the understanding of the RH-2-94 Formula were all valued attributes of this approach. Dr. Booth presented the view that the Board cannot manage capital market risk for the pipelines under its jurisdiction and the Board has correctly used basic principles of finance to offset the business risk of these pipelines by allowing changes in their financial risk. By equalizing overall risk (combined business risk,

16 Carrying on business of Westcoast Energy Inc. (Westcoast).

financial risk and investment risk), the Board can then allow the same return on equity for different types of utilities relying on the RH-2-94 Formula.

CAPP stated that even if the RH-2-94 Formula operates mechanically, there is nothing mechanical in the way the RH-2-94 Formula was adopted in 1995 and reviewed in 2001 and 2004. To support this, it noted that since 1994, substantial investments have been made and continue to be made by pipelines and utilities subject to returns set by various formulae in different jurisdictions. Notwithstanding warnings of applicant witnesses in hearings, CAPP was of the view that debt and equity have flowed, and are continuing to flow, to investments subject to formula returns. Furthermore, CAPP argued that if the problem were so great and had gone on for so many years, then there would be clear and objectively observable market evidence of a problem of capital attraction and capital retention. CAPP stated that it saw no such evidence.

The view was expressed by Dr. Booth that the RH-2-94 Formula has generally resulted in a downward movement of the fair ROE as lower long Canada bond yields have caused a reduction in the risk premium in the long Canada bond yield with a corresponding increase in the market risk premium. As a result, Dr. Booth submitted that the 75 per cent adjustment mechanism to the RH-2-94 Formula has been remarkably accurate. He therefore judged the RH-2-94 Formula to be successful and recommended that it continue to be used with some minor downward adjustment in the level of ROE.

Dr. Booth submitted that he has consistently recommended that business risk be assessed in annual tolls hearings, where other firm specific information is heard and the appropriate capital structure or premium to the generic ROE is set. The generic ROE formulae, such as the RH-2-94 Formula, can then be assessed relatively infrequently based on changes in capital market conditions.

Regarding Dr. Vander Weide's results on the validity of the RH-2-94 Formula, CAPP argued that they do not form a sound basis for a determination of the cost of capital since evidence from low risk companies was ignored, adjusted betas were used in the estimates, and some of those discounted cash flow (DCF) estimates relied on analysts' growth forecasts which are known to be biased. CAPP also argued against the reliance on U.S. firms since they are more risky than TQM.

CAPP submitted that, if the RH-2-94 Formula were open to review, it would recommend a 7.75 per cent ROE for TQM for 2007 and 2008 and that the RH-2-94 Formula be rebased accordingly, based on Dr. Booth's ROE recommendation.

IGUA argued that the Board should not depart from the RH-2-94 Formula since it remains appropriate and has stood the test of time. According to IGUA, the RH-2-94 Formula generates results at the high end of the range of possible appropriate ROEs relative to the very nominal risks TQM bears.

Ontario argued that the RH-2-94 Formula should be retained since it is transparent, provides clarity and remains valid.

Views of the Board

Review and Variance of the RH-2-94 Decision

In considering an application for review and variance pursuant to subsection 21(1) of the Act, the Board takes into account the facts that could potentially raise a doubt as to the correctness of the original decision. Typically, the Board will look at changed circumstances or new facts that have arisen since the close of the original proceeding, or facts that were not placed in evidence in the original proceeding and that were then not discoverable by reasonable diligence. Furthermore, the Board stated in the RH-2-94 Decision that its objective in initiating the RH-2-94 proceeding was to conduct detailed examinations of a pipeline's cost of capital only when significant changes had occurred in financial markets, business circumstances, or in general economic conditions.[17] The Board also stated that it would be prepared to consider a reassessment of capital structures in the event of a significant change in business risk, in corporate structure or in corporate financial fundamentals.[18] The Board did not set a limit on the life of the RH-2-94 Formula and did not expect to reassess the rate of return on common equity in a formal hearing for at least three years from the time of the RH-2-94 Decision.

With regard to the variance application, the Board notes that TQM has been subject to the RH-2-94 Decision and the associated adjustment mechanism for 12 consecutive years (1995 to 2006, inclusive). The Board notes that the RH-4-2001 proceeding was the last time when the RH-2-94 Formula was challenged. The RH-4-2001 proceeding was specific to TransCanada, just as the RH-1-2008 proceeding is specific to TQM. As a result, the Board finds that it should assess the changes since 1994 instead of 2001 in this proceeding. In the Board's view, the 14-year period since 1994 is a significant time period in the context of financial regulation.

Also, the Board is of the view that there have been significant changes since 1994 in the financial markets as well as in general economic conditions. More specifically, Canadian financial markets have experienced greater globalization, the decline in the ratio of government debt to GDP has put downward pressure on Government of Canada bond yields, and the Canada/US exchange rate has appreciated and subsequently fallen. In the Board's view, one of the most significant changes since 1994 is the increased globalization of financial markets which translates into a higher level of competition for capital. When taken together, the Board is of the view that these changes cast doubt on some of the fundamentals underlying the RH-2-94 Formula as it relates to TQM.

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17 RH-2-94 Reasons for Decision, *supra*, footnote 2, at p. 2.

18 RH-2-94 Reasons for Decision, *supra*, footnote 2 at p. 32.

As explained in the RH-2-94 Decision, the initial return on equity determination was meant to be applied to a benchmark pipeline which was assumed to be a hypothetical utility whose overall investment risks are characteristic of a low-risk, high-grade regulated pipeline. The Board notes that the equity thickness of the benchmark pipeline was not explicitly specified in the RH-2-94 Decision. The Board approved a 30 per cent equity thickness for all gas pipelines subject to the Decision, except for Westcoast, which has been interpreted by some as implicitly assigning an equity thickness of 30 per cent for the benchmark pipeline. However, the role of the benchmark pipeline, its changing risk level and its specific equity thickness have not been considered explicitly, and that leaves a doubt as to the exact level of financial risk inherent in the return on equity as determined by the RH-2-94 Formula for the benchmark pipeline.

The RH-2-94 Formula relies on a single variable which is the long Canada bond yield. In the Board's view, changes that could potentially affect TQM's cost of capital may not be captured by the long Canada bond yields and hence, may not be accounted for by the results of the RH-2-94 Formula. Further, the changes discussed above regarding the new business environment are examples of changes that, since 1994, may not have been captured by the RH-2-94 Formula. Over time, these omissions have the potential to grow and raise further doubt as to the applicability of the RH-2-94 Formula result for TQM for 2007 and 2008.

The Board notes that there were two distinct aspects of the RH-2-94 Decision, namely the adjustment mechanism which applied to all pipelines subject to the Decision and the determination of the capital structure on a pipeline-by-pipeline basis. On the one hand, the Board views the adjustment mechanism as fully transparent and predictable. The Board notes that this adjustment mechanism has received for some time the praises of the investment community citing that this approach provides clarity, transparency and its results can be fully anticipated. On the other hand, the capital structure decisions made on a pipeline-by-pipeline basis are less transparent. The Board's original objective was to adjust the capital structure, hence adjust financial risk, to offset changes in business risk experienced by any given pipeline subject to the RH-2-94 Decision. The Board is of the view that while estimating the equity ratio based on business risk, separately from the determination of the return on equity, can be useful in a regulatory context, it does not reflect the way that much of the business world approaches capital structure and capital budgeting decisions.

Based on the above reasons, the Board has decided to grant the variance from the RH-2-94 Decision to TQM for 2007 and 2008 as it relates to its cost of capital.

Approach Used to Determine TQM's Return on Capital for 2007 and 2008

Beyond the RH-2-94 Formula, two other approaches have been presented to determine TQM's cost of capital for 2007 and 2008. TQM and its expert witnesses presented the ATWACC approach – an aggregate approach to the estimation of cost of capital. CAPP and its expert witness presented a stand-alone cost of equity estimate – an approach by component to the estimation of cost of capital.

The Board is of the view that the ATWACC approach is more aligned with the way capital budgeting decision making takes place in the business world as compared to an approach by component that would include a stand-alone cost of equity estimate. When comparing investment opportunities, TransCanada and Gaz Métro, both owners of TQM, submitted that they rely on an ATWACC to determine a hurdle rate and to make capital budgeting decisions. In the Board's view, the use of an ATWACC approach alleviates the need to attempt to estimate a deemed capital structure based on business risk in the initial step of the process as is required in the context of the RH-2-94 Decision. The Board also notes that the ATWACC approach enables the comparisons of returns on an equal footing between companies of comparable risk since the ATWACC approach neutralizes financial risk differences when comparing investment opportunities. The Board is of the view that this approach facilitates the comparisons of returns by removing the impact of financial risk. Consequently, the ATWACC approach better utilizes financial market information.

Figure 3-1 illustrates how an aggregate approach, such as the ATWACC approach, may be used by the Board to determine TQM's total cost of capital for 2007 and 2008. This approach requires a business risk analysis that would be used to assess how the risks of TQM have evolved since they were last considered by the Board. The business risk analysis would also be relied upon to select firms of comparable risks based on the traditional five factors (supply, market, competitive, regulatory and operational risks). Once comparable firms are selected, information can be extracted from those firms, including cost of equity, capital structure and cost of debt to derive an aggregate cost of capital. At each step of this process, judgment is necessary to select the inputs that would ultimately inform the determination of the cost of capital for TQM for 2007 and 2008.

CAPP has presented an approach by component which relies on a stand-alone cost of equity estimate. CAPP has also suggested an equity thickness, based on its assessment of TQM's business risk, to which the ROE estimate would be applied.

Figure 3-2 illustrates an approach by component to the determination of a total cost of capital as endorsed in the RH-2-94 Decision. This approach requires two parallel decisions: an ROE determination and a capital structure determination. The ROE determination requires the selection of firms of comparable risks to TQM from which an ROE estimate could be derived. Parallel to this decision, a business risk assessment of TQM is made to determine a capital structure which would reflect its level of business risk. Once these determinations have been made separately, they are combined to derive the total equity return to which the embedded cost of debt is added, to produce the total return on capital.

The difficulty arises as to which of these two approaches is judged as the better tool to link the components impacting the determination of fair return. This, in the Board's opinion, is a matter of informed judgment. Having carefully considered both approaches, the Board finds that the ATWACC approach enables better comparisons of return on capital for companies of similar risk. This offers the potential to avoid separating two elements that are inevitably linked: capital structure and return on equity. Further, it is the Board's view that relying on an approach, such as ATWACC, that mirrors the business decision-making process contributes to its validity as an appropriate method for estimating the cost of capital. Accordingly, the Board will use the ATWACC approach to inform its judgment to determine TQM's cost of capital for 2007 and 2008.

In choosing to rely on an ATWAAC approach, transparency was an important factor considered by the Board in its decision. A single ATWACC number that incorporates the total return on capital on a comparable basis amongst companies assists the Board in making meaningful comparisons. This contrasts with simply looking at the return on equity which provides only a partial understanding of the total return on capital. Further, a capital structure is specific to each company and it is difficult for an external party to assess its appropriateness. The greater ease of comparison of using the ATWACC approach, in the Board's view, is less prone to error and enhances clarity.

The Board notes that an ATWACC approach can be implemented in various ways. The specific ATWACC methodology upon which the Board will rely in this proceeding will be described in Chapter 4 of these Reasons.

All of the evidence submitted by parties in this proceeding will be considered using an ATWACC approach to determine an appropriate aggregate return. The Board's determination on fair return will be made in Chapter 7 of these Reasons.

Figure 3-1
An Aggregate Approach to the Fair Return Standard using the ATWACC Approach

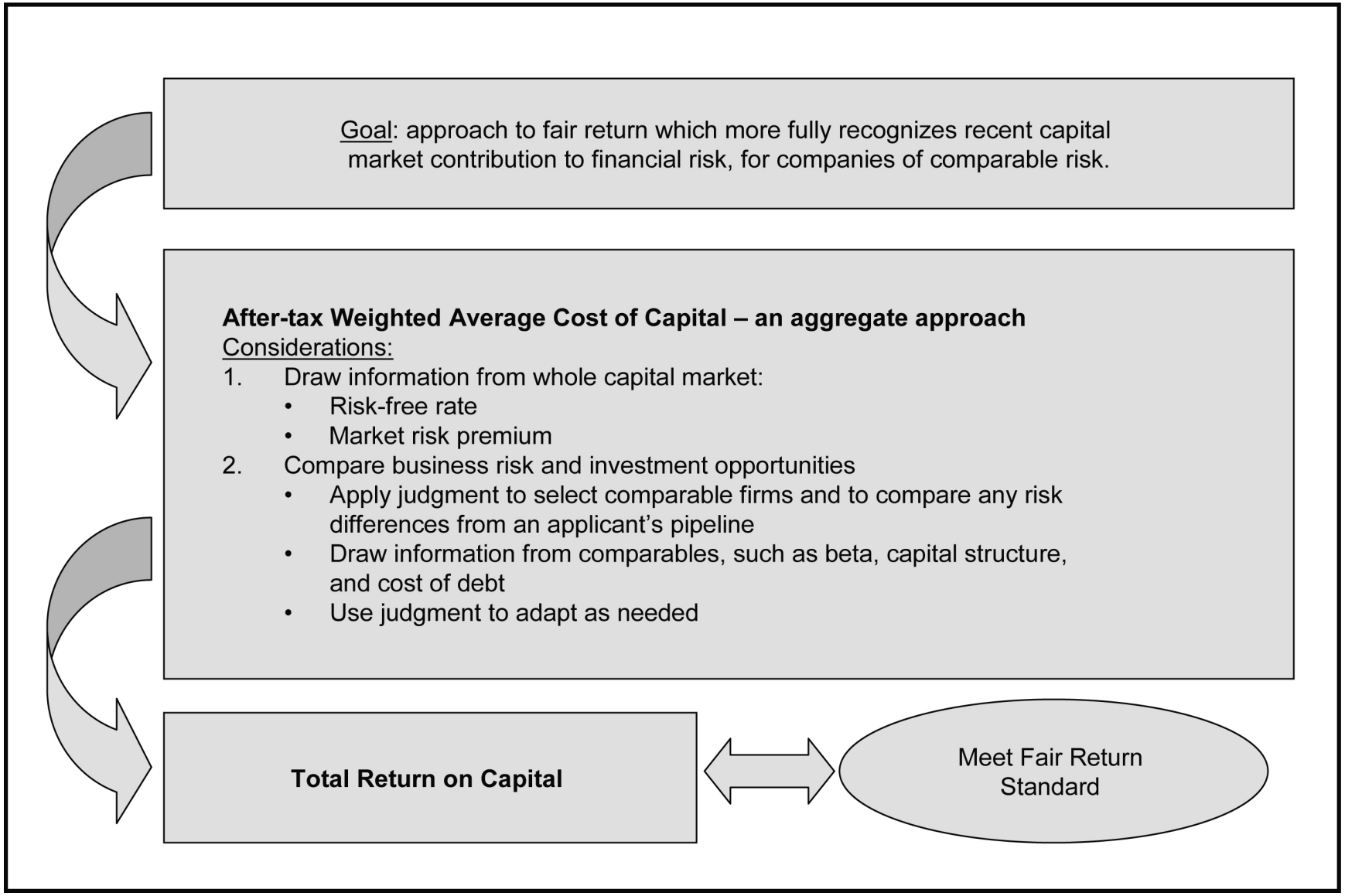
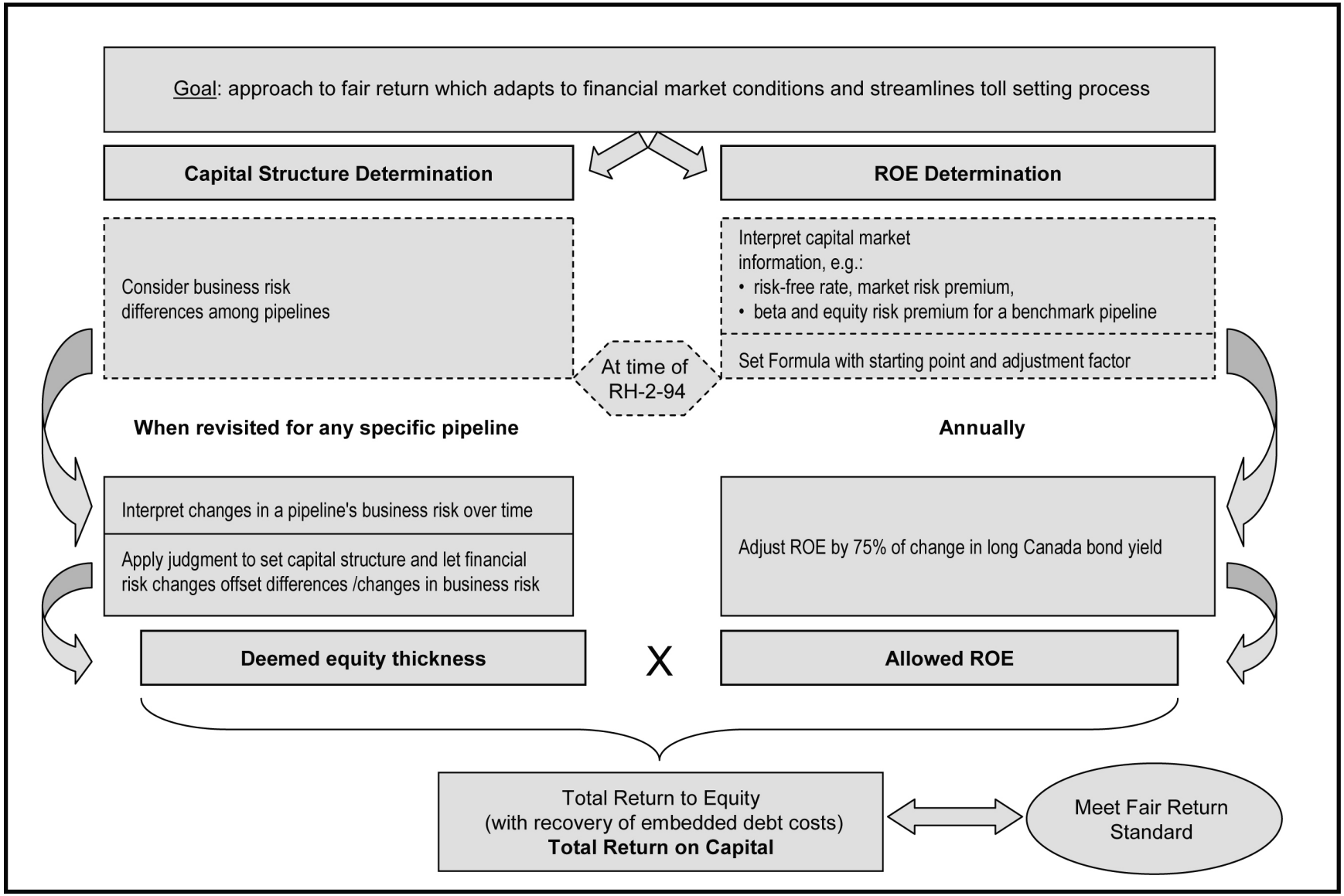


Figure 3-2
An Approach by Component to the Fair Return Standard using the RH-2-94 Formula



Chapter 4

Implementation of the ATWACC Methodology

In a regulatory context, the ATWACC approach relies on the comparison of total costs of capital of sample companies considered to be of similar risk to the regulated entity, which in this case is TQM. A specific ATWACC methodology is required to compute the ATWACC of each company in the sample and may involve many analytical steps. The resulting ATWACCs may be averaged to derive the total cost of capital of the sample. The resulting total cost of capital can then be applied to TQM with judgment on various adjustments to reflect differences in risk.

The ATWACC approach relies on the following equation to estimate the total cost of capital of a firm:

$$ATWACC^{19} = (r_e * w_e) + (CoD * w_d * (1\text{-}tx))$$

Where
- r_e: cost of equity
- CoD: cost of debt
- w_e: equity thickness in the capital structure
- w_d: debt thickness in the capital structure
- tx: corporate income tax rate[20]

In this chapter, the Board addresses each component of this equation and determines how it intends to use these parameters which, when combined together in an ATWACC methodology, will inform its judgment about TQM's cost of capital for 2007 and 2008.

4.1 Cost of Equity Methods

Submissions of TQM

Dr. Vilbert presented cost of equity estimates based on the capital asset pricing model (CAPM), the empirical capital asset pricing model (ECAPM) and the discounted cash flow model (DCF).

CAPM, as used by Dr. Vilbert, is represented by the following equation:

$$r_e = r_f + \beta * (MRP)$$

Where
- r_f: risk-free rate
- β: beta factor
- MRP: market risk premium

19 A potential and small contribution from preferred shares has been ignored for simplicity in this description, although it was addressed by the expert evidence submitted by Dr. Vilbert.

20 This is mathematically equivalent to pre-tax WACC of $(CoD * w_d) + (r_e * w_e)$ + (allowance for income taxes payable on the equity portion).

Dr. Vilbert contended that CAPM has not generally performed well as an empirical model, but that its shortcomings are directly addressed by ECAPM. Specifically, Dr. Vilbert submitted that ECAPM recognizes the consistent empirical observation that CAPM underestimates (overestimates) the cost of capital for low (high) beta stocks. The alpha parameter (α) in ECAPM would adjust for this fact. When using the long-term risk-free rate, as is the case in his analysis, Dr. Vilbert suggested that α values of 1 and 2 per cent are appropriate. These α values are at the low end of the spectrum suggested by research on this topic because the use of a long-term risk-free rate incorporates some of the desired effect of using ECAPM.

Dr. Vilbert relied on the following ECAPM:

$$r_e = r_f + \alpha + \beta * (MRP - \alpha)$$

Where
- r_f: risk-free rate
- α: alpha factor
- β: beta factor
- MRP: market risk premium

According to Dr. Vilbert, ECAPM estimates deserve the most weight because ECAPM adjusts for empirical shortcomings related to CAPM.

Dr. Kolbe indicated that shareholders of companies regulated on a book-value rate base receive compensation for inflation through an inflation premium in the rate of return rather than through appreciation of asset value as would the shareholders of non-regulated companies. Dr. Kolbe submitted that bondholders get inflation compensation in the same way, through an inflation premium in the interest rate. This similarity between bondholders and shareholders of companies regulated on a book-value rate base makes regulated company returns especially sensitive to fluctuations in the bond market.

TQM submitted that the measured betas of utilities regulated on a book-value rate base are underestimated since CAPM relies on a proxy for the market portfolio which consists entirely of common stocks. Dr. Kolbe recommended the use of adjusted betas to estimate the cost of equity for utilities regulated on a book-value rate base to correct for this estimation problem and commented that this is a directional adjustment only. Dr. Kolbe further stated that using adjusted betas is probably not enough, but it is an approach widely used. Dr. Vander Weide explained that the use of adjusted betas and ECAPM have the same type of effect as they compensate somewhat for the empirical observation that traditional CAPM tends to underestimate the cost of equity for companies with betas less than one.

The DCF model was relied upon by Dr. Vilbert as a check for his CAPM and ECAPM results. The DCF model was used by TQM's expert witnesses with company specific data and analysts' growth forecasts. Dr. Vander Weide contended that using composite data in the DCF model, as it was done by Dr. Booth, makes it impossible to match stock prices with the cash flows that are being valued at that price and that the data set might include companies for which the DCF model does not apply. To be consistent with the forward-looking nature of the DCF model, Dr. Vander Weide submitted that Dr. Booth should have estimated expected future growth using forecasted

growth rates rather than the reported values for the last year since analysts' forecasts of future growth are superior to historically oriented growth measures in predicting a firm's stock price.

Dr. Kolbe mentioned that multi-factor models, as used by Dr. Booth, are notoriously unstable and none of these models have garnered support in the financial community. Also, Dr. Kolbe expressed the opinion that a two-factor model understates the relative risk of U.S. electric utilities and Canadian rate-regulated companies against the broader market used by CAPM theory if the betas are left unadjusted.

Submissions of Intervenors

Dr. Booth relied on CAPM, using the same type of equation as Dr. Vilbert but with different parameter values, to derive a cost of equity recommendation for TQM for 2007 and 2008.

According to Dr. Booth, utility stocks have exposure to the bond market which creates sensitivity to interest rates, a sensitivity that is not captured by CAPM. Dr. Booth submitted that a two-factor model partly adjusts for the known estimation problems of CAPM by directly incorporating the risk of the long Canada bond through an interest rate risk premium. The two-factor model of Dr. Booth relied on the following equation:

$$r_e = r_f + (\gamma * IRP) + (\beta * MRP)$$

Where
- r_f: risk-free rate based on Treasury Bills
- γ: gamma factor
- IRP: interest rate risk premium (premium over Treasury Bills)
- β: beta factor
- MRP: market risk premium (premium over Treasury Bills)

The gammas, as presented by Dr. Booth, were more stable than the equivalent beta estimates. Dr. Booth judged the returns of utility stocks to have about half the exposure to the equity market as the average stock and half the exposure to the bond market as the long Canada bond.

The DCF model was also used by Dr. Booth as a check for his CAPM results and his DCF model was based on composite data and historical growth rates. The opinion of Dr. Booth was that any DCF estimates produced by using unadjusted analyst growth forecasts are seriously in error since it is generally accepted that analysts' earnings forecasts are biased high.

Dr. Booth submitted that Dr. Vilbert's ECAPM estimates are biased high since they rely on a 1 per cent add-on to the risk-free rate which is only valid if the short-term Treasury Bill yield is used as the risk-free rate, whereas Dr. Vilbert used the long Canada bond yield.

According to Dr. Booth, there is no indication that the utilities' betas are reverting to 1.0 as suggested by Dr. Kolbe. Consequently, Dr. Booth's view was that it is illogical to weight them with 1.0 as an "adjusted beta", as suggested by Dr. Kolbe, since there is no expectation that their risk is increasing to that of an average firm in the market.

4.2 Cost of Debt

In computing ATWACC of the sample companies, Dr. Vilbert used an estimate of the market cost of debt for each sample company. The estimation was based on the current yield on an index of utility bonds corresponding to each sample company's debt rating. No party disputed the use of these values.

4.3 Capital Structure

Submissions of TQM

The capital structure used when estimating the ATWACC of sample companies should, as submitted by Dr. Kolbe, reflect the level of risk in the cost of equity estimate. He stated that risk level depends on the sample company's market-value capital structure, not its book-value capital structure since beta and the resulting cost of equity depend on the market value of the firm's leverage.

It was Dr. Kolbe's opinion that market values directly determine the amount of financial risk equity investors actually bear. If a firm is partly financed by debt, as the total market value of the firm fluctuates, the market value of equity will fluctuate more than the market value of the firm. This leverage illustrates financial risk.

Dr. Kolbe stated that the use of market-value weights to calculate the ATWACC for rate-regulated companies would not be circular or lock in an excessive return. Furthermore, the use of market-value weights to calculate ATWACC would not imply an abandonment of regulation based on book value. Dr. Kolbe's view was that it is absolutely standard in rate regulation, even in North America, to apply a market-derived rate of return to a book-value rate base.

TQM argued that the U99099 Decision from the Alberta Energy and Utilities Board (EUB) (as it was then) accepted the ATWACC concept but applied it using book-value capital structure since it interpreted the specific terms of its enabling statute as requiring that the return on capital be on the book value of the rate base, and not the market value. TQM noted that the *National Energy Board Act* does not dictate the methodology to determine just and reasonable tolls.

When calculating CAPM and ECAPM estimates, Dr. Vilbert estimated each company's average market value of equity over the most recent five-year period in order to match the estimated betas to the degree of financial risk present during the period of estimation. Dr. Vilbert contended that this matching was optimal.

Submissions of Intervenors

Dr. Booth noted that the NEB's mandate is to set just and reasonable tolls and it should not be concerned with maximizing or enhancing shareholder value. If the Board wants to rely on ATWACC to estimate TQM's cost of capital, it should rely on the book-value weights of the sample companies since these weights should be approximately equal to the market-value weights in the long run. CAPP argued that the EUB in the U99099 Decision said it would be derelict in its responsibility to use market-value weights in cost of service regulation, a position

which according to CAPP should be adopted by the NEB. An ATWACC methodology based on market weights is fundamentally incompatible with the Canadian cost of service model of pipeline regulation.

According to Dr. Booth, the financial risk stems from the imposition of fixed interest charges since the firm has to pay these interest charges prior to distributing equity returns. This risk does not change as the market value of the firm changes; it only changes when book values change. As a result, financial risk only depends on the book value of a firm's capital structure. CAPP argued that using market weights would be unsustainable if market values were to fall. If this were to happen, CAPP submitted that utilities would revert to the age-old utility concern for a return sufficient to maintain financial integrity and the ability to attract capital under all market conditions. Furthermore, CAPP was of the view that relying on market value would promote circularity because investor expectations, as reflected in market values, would be confirmed. This, in turn, would lead to even higher market values, which would translate into still higher returns in the next regulatory proceeding. Ultimately, this would delay the adjustment to a fair and reasonable value for the allowed ROE.

4.4 Corporate Income Tax Rate

Dr. Vilbert used TQM's estimated marginal income tax rate of 31.9 per cent when calculating the after-tax cost of debt for the comparable companies.[21] No parties disputed the use of this value.

Views of the Board

In Chapter 3, the Board stated that it will use an ATWACC approach when determining TQM's cost of capital for 2007 and 2008. As is evident from the diverging views on the different ATWACC parameters discussed above, an ATWACC approach can be implemented in various ways. In the Board's view, these various ways could each represent a different ATWACC methodology. The Board will explain below its views on the various aspects of the ATWACC methodology for its determination of TQM's cost of capital.

Cost of Equity Methods

The Board is of the view that CAPM is widely accepted as a cost of equity model. This model has been relied upon by the Board in previous proceedings and was not contested in this proceeding as a method to estimate the cost of equity. In the Board's view, CAPM captures the risk equity holders have to bear when holding a common stock.

The Board notes Dr. Vilbert's position that ECAPM results deserve the most weight because this method adjusts for the empirical shortcomings of

21 TQM submitted that the income tax rates of its two partners average 32.185% for 2008. This differs by 0.285 per cent from the estimate used by Dr. Vilbert.

CAPM. In the Board's view, the fact that the long-term risk-free rate is used in CAPM already corrects for the empirical findings of this model, albeit possibly not perfectly. In order to rely on ECAPM to correct for this potential imperfection, the Board would need to be persuaded that the residual empirical shortcomings of CAPM, after using the long-term risk-free rate, are significant. The Board is of the view that the evidence presented in this proceeding did not enable the Board to make such a finding. As a result, the Board will not rely on ECAPM when using the ATWACC methodology.

The Board notes that both Dr. Vilbert and Dr. Booth have relied on the DCF model as a check on their results which are based on the methods discussed above. In the Board's view, even if the DCF model is intuitive and theoretically sound, challenges remain in its applicability since historical growth rates might not reflect the future and analyst expectations might be different than the aggregate expectations of all financial market participants. As a result of these challenges, the Board will not rely on the DCF model and will be informed by CAPM when estimating the cost of equity of sample companies using the ATWACC methodology.

In the Board's view, the cost of equity for utilities regulated on a book-value rate base is influenced by equity market fluctuations as well as bond market fluctuations. The Board finds that a model that successfully combines the two aspects would be useful to adequately consider the specific behaviour of a utility stock. The Board is of the view that a two-factor model offers a more intuitive approach to address the issue of interest rate sensitivity, but such a model is not sufficiently tested to be relied on in this proceeding. On the other hand, the Board was not persuaded that adjusted betas would adequately address the issue of interest rate sensitivity since that approach is an *ad hoc* rather than a systematic adjustment of an appropriate magnitude. The Board does not believe that TQM has demonstrated that utility betas ultimately revert to one, an assumption on which adjusted betas rely. When determining TQM's return, the Board will allow for interest rate sensitivity in the cost of equity estimates since, in the Board's view, the reliability of the estimates is improved with the recognition of the interest rate sensitivity of utility stocks.

Cost of Debt

The Board notes that the market cost of debt was assumed to be equal to the current yield on an index of utility bonds corresponding to each sample company's debt rating. In the Board's view, this assumption is reasonable given the considerable effort required to calculate the actual market cost of debt of each individual sample company. Accordingly, the Board accepts the estimated market cost of debt in the estimated ATWACC of sample companies.

Capital Structure

In the Board's view, one of the benefits of relying on an ATWACC approach is that it allows the Board to compare returns from different investment opportunities irrespective of financing decisions. This is consistent with the way decisions are usually made in the business world. ATWACC enables the comparison of returns while controlling for financial risk. As a result, the weights of the capital components used in calculating ATWACC should reflect the financial risk each of those components bear in a company's capital structure.

The Board notes that there have been two interpretations of financial risk presented in this proceeding:

- financial risk can be the variability of equity value resulting from the variability of the market price of a firm; or
- financial risk can be the variability of income to equity holders arising from the firm's fixed financing costs.

In the RH-4-2001 Decision, the Board expressed the view that financial risk is the risk inherent in a company's capital structure.[22] The Board was also of the view that financial risk increases as the proportion of debt increases in relation to shareholders' equity because debt interest and repayment obligations must be met irrespective of the overall profitability of the business. This definition is closer to the second interpretation of financial risk described above.

As explained in the *Cost of Equity Methods* Section in the Views of the Board above, the Board finds that the present value of the expected cash flows of a firm is an intuitive approach to estimate its current market value. However, the Board notes that markets have shown that the true model determining stock prices is more complex than the intuition implied by the present value of the expected cash flows. On balance, the Board is of the view that even though the present value of expected cash flows cannot determine the value of all firms in all circumstances, it is nonetheless a widely accepted principle in financial theory. This conclusion implies that the variability of future income, as expressed in the second interpretation of financial risk above, can be a reasonable representation of the market price of an asset. As a result, the Board concludes that the two interpretations of financial risk are consistent and the Board need not change its definition of financial risk which it expressed in RH-4-2001.

When drawing ATWACC information from sample companies, the Board is of the view that market-value weights should be used to emulate the

22 RH-4-2001 Reasons for Decision, *supra,* footnote 9, at p. 34.

actual financial risk which each capital component bears. In the Board's view, market values reflect the level of financial risk that equity holders bear for the sample companies. These market values, and ultimately the financial risk, are determined by aggregate expectations of all financial market participants. Furthermore, although the Board is conscious that trends in market valuation are not mitigated by using five-year averages, nonetheless, the Board finds that the reliance on a five-year average market-value capital structure mitigates the risk that a short-term anomaly in the share price of a sample company could unduly impact cost of capital estimations. In choosing to use market-value weights in determining the ATWACC of comparable companies, the Board is not concerned about the circularity that this could create since, in the Board's view, a firm's cost of capital, whether the firm is regulated or not, is determined by investors' expectations as observed in the financial markets.

The Market-Based ATWACC Methodology

In the Board's view, no methodology is a perfect means to implement an ATWACC approach; each methodology has benefits and shortcomings.

Based on the findings of this chapter, the Board has decided to rely on a market-based ATWACC methodology to interpret the information that can be extracted from different samples comparable to TQM and from the financial markets as a whole. The additional insights provided by the market-based ATWACC methodology concerning the workings of the financial market and their resulting impact on financial risk to equity holders significantly influenced the Board's determinations in this proceeding. CAPM will inform the Board's views on the market cost of equity. Further, this cost of equity and the after-tax market cost of debt, when combined with market-value capital structure, will produce the aggregate cost of capital for sample companies.

Chapter 5

Business Risk

The reliance on the ATWACC approach and the market-based ATWACC methodology requires a business risk assessment for two purposes. It is needed in order to identify firms with comparable risk, and to assess changes to TQM's risks since 1994. In these Reasons for Decision, the discussion of business risk has been divided into an assessment of supply risk, market risk, regulatory risk, competitive risk and operating risk. The various forms of risk are in some cases inextricably linked, and the boundaries between them are subjective. To avoid duplication, each concept is presented under only one form of risk, although the Board may have considered it under various forms.

5.1 Short-term vs. Long-term Risk

The concept of short-term versus long-term risk can assist in the presentation and analysis of business risks.

Submissions of TQM

To distinguish between the nature of various business risks, TQM characterized short-term risks as affecting year-to-year earnings of a pipeline or utility, and long-term risks as taking place over a period of time and causing permanent changes in the economic vulnerability of the regulated entity. TQM emphasized that these terms are not meant to distinguish between the time horizons, as long-term risks can still be realized in the short or medium time horizon and short-term risks can continue to be borne out in the longer time horizon. Dr. Carpenter, on behalf of TQM, suggested that Dr. Booth's characterization of short and long-term risks, outlined below, was consistent with TQM's.

TQM agreed with the view of its expert witness, Dr. Carpenter, that long-term risks should be given more weight when conducting comparative business risk analysis. Dr. Carpenter submitted that what distinguishes pipelines from other investments is their long-term sunk investment nature, and that short-term variability in the earnings of an equity investment is only a small part of the business risk picture. TQM also submitted that regulation can play a role in reducing short-term risk of earnings volatility but cannot ensure the long-term return on and of capital.

As an equity investor in a pipeline, TransCanada stated that its primary concern is the long-run return it expects to earn relative to the long-run risks it must bear. TransCanada suggested that this is quite a different perspective from bond holders who view differences in short-term earnings variability as a material difference. It emphasized that credit rating agencies are specifically concerned with the risks to bond holders. TransCanada acknowledged that a business with a higher risk from a debt holder's perspective would need to be compensated in the form of a higher return to avoid deterioration of credit quality.

Submissions of Intervenors

Like TQM, Dr. Booth distinguished between short-term and long-term business risks. Although he did not define these terms, he described several short-term risks caused by revenue and cost uncertainty, and submitted that the main long-term risks are bypass risk and capital recovery risk, with the latter driven mainly by the underlying supply and demand of the commodity. In Dr. Booth's submission, regulators have a variety of tools available to protect utilities from risks, and the history of regulation in Canada is that utilities are, in fact, protected specifically through the use of deferral accounts and rebalancing involved with the forward test year methodology. Dr. Booth provided the example of Pacific Northern Gas (PNG) to demonstrate the extent to which Canadian regulators protect utilities. In Dr. Booth's submission, PNG faces the most severe problems of any Canadian utility. Despite the British Columbia Utilities Commission's efforts to address PNG's situation, Dr. Booth suggested that a death spiral remains possible. He submitted that ultimately, there are limits to what a regulator can do, for example, if demand disappears.

In the opinion of Dr. Booth, investors do not always place a greater weight on either short or long-term risks; rather it is case specific. He also contended that the discounting process in security valuation reduces the amount of capital at risk in the future, which implies that if the risk is very far off, then it can effectively be ignored.

Dr. Booth expressed the view that equity and bond holders have very similar perspectives on long-term risk, although he suggested that bond holders take a more diligent long-term perspective. With respect to short-term risks, he suggested that bond investors generally look at cash flows and are more focused on fundamentals. He submitted that equity markets are influenced less by institutional investors, and that while equity markets are intrinsically long-term oriented, they react very violently to short-term swings in earnings. This is because they readjust their expectations about the future which is generally very difficult to predict. However, for utilities, Dr. Booth indicated that this is less true since low earnings caused by a factor such as weather shouldn't change expectations of the future.

Dr. Safir contended that Dr. Carpenter's distinction between short and long-term time horizons is inappropriate, since ultimately, risk realization over the long-term is just a culmination of yearly comparisons of actual and allowed returns.

5.2 Supply Risk

Supply risk is the risk that the physical availability of competitively priced natural gas volumes could affect TQM's income-earning capability.

Submissions of TQM

TQM indicated that its long-term business risk has increased, in part, due to an increase in its supply risk. As evidence, TQM indicated that WCSB supplies have declined since 2001 and that the projection is for a sustained production decline of conventional natural gas. Volatility in gas prices renders development of unconventional gas uncertain, further contributing to increased supply risk.

In TQM's view, the underlying natural gas market environment in North America has changed since 1994. In 1994, the WCSB was described as a prolific, low-cost supply basin with no significant supply risk. In this proceeding, the evidence of Dr. Carpenter indicated that the North American gas market now reflects greater supply and market uncertainty and that tighter supply/demand balances have led to substantially increased prices and price volatility.

In support of its position on gas supply, TQM submitted a Throughput Study prepared by TransCanada. This included an assessment of natural gas available to TQM via the TransCanada Mainline, which delivers gas produced in the WCSB. The study took into consideration both conventional and unconventional WCSB gas supply, potential Northern gas supply, the level of western Canada demand for natural gas, and possible imports of liquefied natural gas (LNG). The study investigated three cases: Base, Low and High to address the uncertainty with respect to gas supply.

TransCanada concluded that the WCSB is maturing and that production from conventional sources has already peaked. It submitted that this basin maturation and production decline is evident from the following factors:

- total productivity is declining;
- production decline rates for individual wells continue to increase;
- initial well productivity continues to decrease;
- the Reserves Life Index has remained constant while annual gas well connection rates have increased significantly from 2,700 in 1990 to 15,900 in 2007; and,
- finding and development costs continue to increase, making it difficult for industry to grow production.

All of these factors are contrary to the expectations of 1994, the time period with which this application must be compared.

For unconventional resources of CBM and tight gas, TransCanada submitted that most of the gas from those two sources was not considered to be economically viable, with current technology, within the forecast period. As for shale gas development, TransCanada's view was that while there is a possibility for such development, it is too early to estimate volumes. Shale gas in western Canada was projected by TransCanada to commence production in 2008 and to increase by a small amount to 2012.

Mackenzie gas flowing into Alberta was accounted for in TransCanada's projection, with a start date of 2014/15. No Alaska gas flowing into Alberta was accounted for in TransCanada's projection as that too was considered to be speculative at the time of filing.

During the proceeding, TransCanada acknowledged the possibility of gas resources being developed in Quebec, either from conventional or unconventional sources, and that its 2008 supply forecast would show a small volume of gas from Quebec sources due to recent developments in the province. However, TransCanada considered the volumes to be speculative and noted that there was no certainty that any Quebec volumes would even be connected to TQM, since they could connect directly to Gaz Métro.

The flow rates for supply from the various regions are provided in Table 5-1, while estimates of ultimate potential for the regions and gas types are shown in Table 5-2.

Table 5-1
TransCanada's Estimated Flow Rates of Gas Supply

$10^6 m^3/d$ (Bcf/d)

	Base Case			Low Case			High Case		
Region/Type	**2006**	**2012**	**2020**	**2006**	**2012**	**2020**	**2006**	**2012**	**2020**
WCSB Conventional	466 (16.4)	431 (15.2)	293 (10.3)	466 (16.4)	357 (12.6)	279 (9.9)	466 (16.4)	470 (16.6)	398 (14.1)
WCSB CBM	11 (0.4)	37 (1.3)	59 (2.1)	11 (0.4)	28 (1.0)	51 (1.8)	11 (0.4)	51 (1.8)	88 (3.1)
WCSB Shale Gas	0	NA	NA	0	0	NA	0	NA	NA
Mackenzie	0	0	34 (1.2)	0	0	23 (0.8)	0	0	51 (1.8)
Alaska	0	0	130 (4.6)	0	0	NA	0	0	NA
Canaport LNG	0	NA	20 (0.7)	0	NA	20 (0.7)	0	NA	8 (0.3)
Quebec LNG	0	8 (0.3)	10 (0.4)	0	0	0	0	14 (0.5)	20 (0.7)

NA Not Available

Table 5-2
TransCanada's Estimate of Ultimate Potential of Natural Gas

$10^9 m^3$ (Tcf)

Region/Type	**Base Case**	**Low Case**	**High Case**
WCSB Conventional- Technical	8,952 (316)	7,853 (277)	10,595 (374)
WCSB Conventional- Economic	7,839 (277)	7,326 (259)	8,586 (303)
WCSB CBM	635 (22.4)	NA	1,071 (37.8)
WCSB Shale Gas	NA	NA	NA
Mackenzie	1728 (61)	878 (31)	1728 (61)

TQM/TransCanada provided evidence on its ability to access other gas supplies including gas delivered to TQM from Dawn in Ontario, LNG from Quebec facilities or imported gas from the New England region via PNGTS.

Dawn has access to gas from the Rockies, Mid-Continent, WCSB and Gulf Coast regions. However, gas from those sources, delivered through Dawn, would not be as cost effective as past WCSB supplies.

As to the possibility of LNG from Quebec, there is uncertainty as to whether facilities will be constructed, notwithstanding the fact that the Board approved a new receipt point at the proposed Gros Cacouna LNG terminal. The Rabaska project intended for LNG imports may or may not materialize. TransCanada stated that there is a risk that it will not be built, or if built, whether supply would be delivered on a regular basis. In its Throughput Study, TransCanada assumed, in its Base Case, that one LNG import facility in Quebec would start operations in 2012. In the

High Case, LNG capacity would be twice that of the Base Case, while the Low Case would have no LNG coming into Quebec.

For gas imports from the New England region to materialize, PNGTS would need to be physically reversed. Any imported volumes would depend on volumes of LNG imports into facilities in that region, or into facilities in Atlantic Canada, such as Canaport LNG Terminal (Canaport), which would be importing LNG for the purpose of supplying the New England region.

TransCanada concluded that the possibility of any sources of supply, other than from the WCSB, flowing on TQM is uncertain.

Submissions of Intervenors

No intervenors provided evidence contrary to the WCSB conventional and unconventional supply evidence provided by the Applicant. This includes the estimates of ultimate potential, the changed supply outlook, and the increasing costs for new supplies. With respect to WCSB gas supply, CAPP noted the rapid development of shale gas resources in northeast B.C. as proof that the basin has additional potential for new gas supplies that where not fully recognized by TransCanada. CAPP argued that TransCanada did everything possible to cast a negative view on shale gas in this hearing. Local Quebec shale gas and conventional gas should also be recognized as a potential supply source, although volumes are likely to be low.

CAPP focused on the role of Dawn in diversifying TQM's supply, the role of LNG imports into the region, PNGTS reversibility and the recent proposals to connect Alaska gas to the TransCanada Mainline in its argument over supply. CAPP questioned TQM on the amount of supply that it is currently getting from Dawn. Dawn, itself, can access conventional and unconventional gas from the WCSB, Rockies, Mid-Continent and Gulf Coast, including LNG supplies delivered into the Gulf Coast or Mexico. Reversal of flows on the PNGTS would allow TQM to access gas from U.S. supply basins and to access LNG delivered into the U.S. Northeast or into Atlantic Canada. CAPP, IGUA and Ontario all suggested that this diversification of supply has, in fact, decreased the overall supply risk for TQM.

On the issue of underlying changes to the North American gas market, Dr. Safir, on behalf of CAPP, disputed TQM's view that prices are more volatile and uncertain and specifically took issue with the appropriate measure of volatility. Dr. Safir stated that the best statistical measure of volatility is the coefficient of variation rather than the standard deviation method used by TQM.

TQM's Reply

TQM stated that access to non-WCSB supplies at Dawn provides some supply flexibility to TQM (as compared to the Mainline markets upstream of Dawn), but that comes at the cost of putting at risk the future application of the integrated Mainline concept for TQM's toll design and cost recovery. Increases in tolls to the TransCanada Mainline would impact tolls to shippers with delivery points off the TQM system as well. Declining throughput on the Mainline, resulting from the declining supplies from the WCSB, would result in increasing tolls on the Mainline. In addition, sourcing gas at Dawn could displace some of the long-haul throughput on

the Mainline. This would increase tolls and hence, the delivered price of gas in Quebec, making gas less competitive in the markets served off the TQM system, including the PNGTS Extension. TQM noted that the TransCanada Mainline toll to the Eastern Zone has increased from 90 cents per GJ in May 1995 to $1.40 per GJ. TransCanada's view remained that the majority of gas sourced at Dawn would continue to be WCSB sourced gas. In addition, TQM argued that long-haul shippers on the Mainline would be dissatisfied in sharing the costs of the TQM system if suppliers to TQM are only using the Mainline downstream of Dawn and are only paying short haul tolls.

In response to Dr. Safir's concerns about the calculation of price volatility, Dr. Carpenter indicated that standard deviation is a measure of absolute price volatility which makes it more relevant than using the coefficient of variation which measures relative variation. Dr. Carpenter reasoned that it is absolute price risk that concerns customers.[23] He further asserted that utility hedging programs have grown during this decade and that this would be evidence that absolute price volatility is the relevant measure for end-use customers.

5.3 Market Risk

Market risk has two aspects: the business risk that results from the overall size of the market and the risk which results from the pipeline's ability to capture market share. The issue of market share, including the ability of natural gas delivered by TQM to compete in the Quebec market against alternative fuels and the ability of TQM, via its PNGTS extension,[24] to capture market share in the New England market will be discussed in Section 5.4, Competitive Risk.

Submissions of TQM

The position of TQM was that expected natural gas consumption growth in Quebec has failed to materialize, and in particular, losses in industrial loads since 1994 have resulted in significant uncertainty around the future use of TQM's assets to serve gas customers in Quebec.

TQM serves the Quebec market via Gaz Métro's local distribution system. Gaz Métro delivers 97 per cent of the gas volumes consumed in Quebec. TQM's evidence with respect to the Quebec market was based on Gaz Métro's historical usage and forecasts. Dr. Carpenter, on behalf of TQM, presented the historic, normalized natural gas usage per customer for several rate classes in Gaz Métro's market area, which showed a declining trend of utilization since 1994.

TQM has a relatively large resource-based industrial load which tends to be more variable and unpredictable than the residential and commercial sectors. TQM's evidence, based on Gaz Métro's historical usage, showed a decline in industrial customers and gas consumption since 1994. Electric power generation is a relatively new sector in Quebec, increasing the potential demand for natural gas. The Bécancour power generation station began operation in September

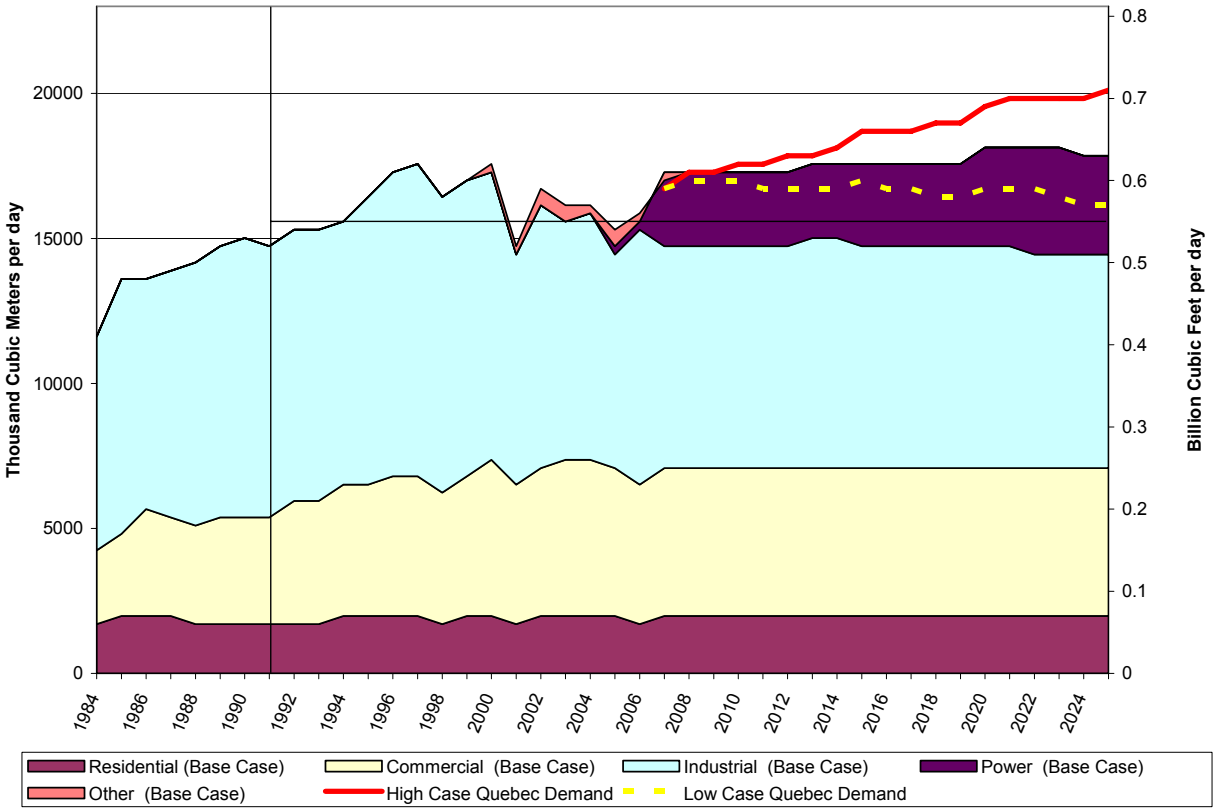
23 As an example, he asserts that a $1.50/Dth increase to an underlying $8/Dth price (yielding a cost of roughly 20 per cent) should not be considered less risky than a $.70/Dth increase to an underlying $2.20/Dth price (yielding a cost of roughly 30 per cent).

24 In 1997, the Board approved the construction and operation of additional natural gas transmission facilities to extend the TQM system from Lachenaie to East Hereford, near the Canada-United States border. This extension connected the TQM system to the PNGTS to serve markets in the U.S. Northeast. National Energy Board, GH-1-97 Reasons for Decision, Trans Québec & Maritimes Pipeline Inc. PNGTS Extension Facilities, April 1998.

2006 and was expected to make up for reduced demand in other industrial sectors since 1994. However, the Bécancour power generation plant suspended operation in 2008, making its future usage uncertain.

The Throughput Study offered three cases for Quebec gas demand. The Base Case showed 0.4 per cent annual average growth in Quebec demand, with relatively flat industrial demand at the lower end of its historical range. The High Case showed a one per cent annual average growth rate, and the Low Case showed a 0.2 per cent annual average decline rate. TransCanada did not forecast Quebec demand, by sector, for the High and Low Cases. Instead, overall Quebec demand was adjusted in the High and Low Cases to simulate a range of outcomes that TransCanada judged to be reasonable. Figure 5-1, below, shows TransCanada's forecast and historical natural gas use, by sector, in Quebec. Actual deliveries via TQM are a portion, albeit a considerable one, of the total Quebec demand.

Figure 5-1
Quebec Natural Gas Demand by Sector



Source: TQM Application

Submissions of Intervenors

In CAPP's opinion, there has been no change in TQM's market risk since 1994, and its position was supported by the evidence of Dr. Safir, Dr. Booth and IGUA. Dr. Safir stated that the demand for gas in Quebec has remained relatively stable since 1989 and TQM has actually been

able to increase its deliveries and capacity utilization over the intervening years. Dr. Booth and Dr. Safir stated that they expected demand would not be significantly different in the future.

CAPP added that the risk from the large industrial load has not increased since 1994 and that the lack of market diversification and the volatile, resource-based large industrial load was previously identified as a risk by TQM in 1994. There has been little historical, and no forecast change in Quebec demand mix among the residential, commercial and industrial sectors. On behalf of CAPP and IGUA, Mr. Trahan stated that he believed that the Bécancour electric power generation plant would return to production in 2010.

CAPP maintained that if the 2025 throughput, as forecast in the Base Case at 12.75 10^6 m^3/d (0.45 Bcf/d), were reduced to remove power generation entirely and further reduced for any remaining PNGTS export flow, the throughput is comparable to the 1994 throughput at around 8.5 $10^6 m^3$/d (0.30 Bcf/d) compared to 8.22 $10^6 m^3$/d (0.29 Bcf/d) in 1994.

Industry restructuring since 1994 has helped Quebec industrials compete and to be better positioned to do so in the future, explained IGUA. It further suggested that prospects for industrial load growth are favourable but provided no supporting economic forecast. IGUA also noted that the Gaz Métro forecast was for higher industrial growth in the near term than the TransCanada forecast, at 4.17 per cent per year between 2008 and 2011.

TQM's Reply

TQM was of the opinion that although TQM's overall usage has not declined (distributed volumes have remained flat over the last 14 years), the evidence also shows that both Gaz Métro and TQM had to considerably increase investments in their systems to maintain the same level of throughput. TQM's capital investments have included the tunnel from Québec City to the south shore of the St. Lawrence River in 1995/96, the 2006 Lachenaie compressor station expansion in Quebec and the addition of Montréal East as a delivery point along the TQM PNGTS extension. Gaz Métro has increased investments in its system by 45 per cent to maintain and grow its market

TQM also noted that IGUA was unable to provide data in support of its position that industrial demand in Quebec will increase because plant closures and rationalizations have been completed and as a result demand could only go up.

TQM said that the Quebec Régie de l'énergie (Régie) found that since 1999, the risk to the Quebec gas market had increased. The Régie cited higher, more volatile gas prices, the impact of these prices on competition with other sources of energy, and concern over the loss of industrial volumes.

5.4 Competitive Risk

Competitive risk refers to the business risk resulting from competition for customers at both the supply and market ends of the pipeline system. It directly affects business risk by providing customers with alternatives to ship or purchase natural gas. In these Reasons for Decision, the issue of market share, which includes the ability of natural gas delivered by TQM to compete in

the Quebec market against alternative fuels, and the issue of the ability of TQM, via its PNGTS extension, to capture market share in the New England market are discussed as part of competitive risk.

5.4.1 Alternative Fuels

Submissions of TQM

TQM submitted that over the long-term it will lose markets to competing fuels and to competing pipelines. TQM stated that the decline in natural gas usage in the Quebec market has been driven by a decline in the competitiveness of natural gas relative to electricity and fuel oil. It now has substantially greater risk that is unique to TQM. Industrials have decreased the size of operations in response to both macroeconomic conditions and fuel costs.

The declining competitiveness of natural gas in the Quebec market is in part driven by absolute price as well as by the stability of the price of electricity relative to the volatility in the natural gas price.

Gaz Métro estimated that approximately 90 per cent of its interruptible customers have the ability to switch to an alternate source of energy and the vast majority of these customers would switch to fuel oil, if it were economic to do so. At the end of 2007, Gaz Métro had 206 interruptible customers corresponding to annual consumption of 943.32 $10^6 m^3$ (33.3 Bcf).

TQM stated that electricity has historically been priced lower than natural gas in the Quebec market. Furthermore, TQM submitted that electricity prices receive an effective subsidy as a result of provincial policy. The lack of competitiveness of natural gas is likely to continue, argued TQM, as Quebec residential electricity rates are forecast to remain stable and predictable with an approximate annual increase of two per cent, which is less than the current rate of inflation.

Submissions of Intervenors

Dr. Safir stated that there was no real indication that the relative attractiveness of natural gas will fall in the future. The projection of the relative price of natural gas to residual fuel oil, used in the Throughput Study is lower than historical levels over the past 12 years. Over the past few years, the relative price of electricity for residential consumers has increased. Furthermore, Dr. Safir stated that the historical disadvantage of natural gas compared to electricity is already factored into equity thickness awarded to TQM in RH-2-94.

In IGUA's opinion, the Throughput Study did not sufficiently factor in the migration to natural gas of some of the volumes that were lost to #6 Fuel Oil since early 2000. The past competitive disadvantage of natural gas to #6 Fuel Oil has been significantly reversed recently. In addition, the program from the Agence de l'efficacité énergétique will reduce barriers to more Quebec industrials choosing natural gas. During the hearing, IGUA said the Quebec Energy Strategy and the financial incentive from the Green Fund will encourage industrial customers to switch from oil products to natural gas. Mr. Trahan submitted that, while these programs will improve the competitive position of natural gas, natural gas is still at a disadvantage in Quebec to electricity

but that gap would narrow because of those policies. Furthermore, IGUA argued since these programs and incentives did not exist in 1994, this aspect of TQM's market risk has actually declined. The Green Fund program is voluntary and the offer of subscribing to the program started in June 2008, and therefore, it was not possible to yet determine the level of participation.

IGUA explained that many industrials have separate thermal and electrical needs that are not interchangeable and that switching between natural gas and electricity is not possible. For some industrials, natural gas may be required for very specific applications that do not allow the use of alternative fuels. Electricity is not a direct competitor for industrial heating load needs. IGUA discussed how the magnitude of the costs to convert a plant from one fuel to another means that such investment decisions are not undertaken lightly; they are made based on a long-term analysis, not on any short-term volatility risk. Once a fuel decision is made and the capital invested at a particular location, the likelihood of reconfiguring a plant to a different fuel is unlikely. Furthermore, the Quebec government will limit the amount by which individual customers may convert energy sources to electricity service for existing operations. The new ceiling for an individual company will be set at 50 MW, down from the previous 175 MW.

The IGUA and CAPP witnesses discussed how, beyond 2008, the price of electricity in Quebec will rise as a consequence of the heritage supply now being capped, and the stated intent within Quebec of moving electricity consumers towards true cost pricing as a method of encouraging energy conservation. This will reduce the favoured pricing of electricity relative to natural gas in the future.

Ontario stated that a transformation is occurring within the Quebec electricity sector which will reduce the historic risk that natural gas faces when competing against electricity. Ontario also submitted that the overall level of risk TQM faces from electricity within the Quebec residential, commercial and industrial sectors has declined. Furthermore, the Quebec government's programs to reduce the reliance of industry on heavy fuel oil, and Gaz Métro's environmental initiatives, improve prospects for natural gas consumption and reduce TQM's risk.

TQM's Reply

Although recent environmental programs and policies instituted by the Quebec government favour cleaner energies such as natural gas, and may promote fuel switching from fuel oil to natural gas in the near term, it was TQM's view that such programs, over the medium to long-term, would encourage an overall switch from carbon-based fuels to electricity. Furthermore, it stated that hydroelectricity surpluses are expected to remain in Quebec, which is confirmed by the closure of the Bécancour power generation plant. TQM noted that gas consumers' annual contributions to the Green Fund were approximately $40 million, while electricity consumers were not required to make any contribution. Those contributions from gas consumers alone have caused an increase of two per cent in Gaz Métro's rates for 2008.

5.4.2 Market Competition and Export Risk for PNGTS

Treatment of PNGTS

Submissions of Intervenors

CAPP noted that neither TQM, nor TransCanada for its Mainline, requested a change in their capital structure when TQM applied to build the PNGTS extension. CAPP and Dr. Safir asserted that this makes TQM's argument that the PNGTS extension increased its risks unpersuasive, and implies that the real question is only whether the risks related to the PNGTS extension have materially increased since the application to construct the facilities was made.

TQM's Reply

Recent environmental programs and policies instituted by the Quebec government favour cleaner energies such as natural gas, and may promote fuel switching from fuel oil to natural gas in the near term. It was TQM's view that such programs, over the medium to long-term would encourage an overall switch from carbon-based fuels to electricity. TQM noted that at the time of the application for the PNGTS extension, it had not been very long since the release of the RH-2-94 Decision, and argued that the RH-2-94 Formula returns were considered more reasonable at that time than they are today. Dr. Carpenter argued that following Dr. Safir's logic would imply that regulators would never consider changed circumstances in evaluating a company's allowed return.

Market Competition and Export Risk for PNGTS

Submissions of TQM

TQM argued that the business risk associated with TQM's PNGTS extension is a function of the competition for export demand in the New England market that did not exist for TQM in 1994. This competition will increase following the completion of the Canaport in New Brunswick, and the completion of other LNG facilities, like Gateway LNG, and pipeline expansions into New England, which will likely take market share away from WCSB gas, delivered via the PNGTS extension.

Dr. Carpenter explained that TQM invested $317 million in the PNGTS extension which now represents 53 per cent of its undepreciated rate base. He further stated that increased competition for transportation volumes through TQM's East Hereford extension increased the risk that costs and return associated with those assets will not be recovered over life of the assets. The Throughput Study forecast declining throughputs, in all cases, on TQM to East Hereford as a result of Canaport imports that were expected to begin in late 2008. The range of uncertainty in these forecasts is demonstrated by the High and Low Case results that depend heavily on whether and when Quebec LNG imports might be connected to and flowing on TQM.

Submissions of Intervenors

CAPP expressed the view that rather than increasing TQM's business risk, the PNGTS extension has provided more and better markets for TQM. Dr. Safir stated that by expanding markets,

TQM's risk is either the same as or lower than it was in 1994. Ontario shared this view. Dr. Safir argued that PNGTS was not operationally linked to TQM in 1994, and at that time, there were already risks that throughput levels on TQM could fall. TQM achieved growth beyond what was expected in 1994 and if throughput were to fall back to levels originally anticipated, TQM should not claim that it is in a more adverse position than when its original equity ratio was decided. CAPP argued that the PNGTS extension was presented as a "market opportunity" in 1997, and is now being presented as a "risk".

CAPP also noted that competition from Canaport via the Maritimes and Northeast Pipeline is not new; the risk in 1997 was the expected increase in production from offshore Sable Island. Presently, LNG deliveries at Canaport replace the production expected from Sable Offshore, and there is uncertainty with respect to Canaport volumes achieving levels expected by TransCanada in the Throughput Study. Cross-examination of TQM witnesses by CAPP, revealed the uncertainty in LNG imports to the U.S. Northeast, as existing new LNG facilities have not been utilized to date in 2008. Furthermore, the TQM witnesses discussed the price disparity between low North American gas prices and high LNG prices elsewhere in the Atlantic Basin and Japan.

The number of proposed projects presently coming into service or proposed to serve the U.S. Northeast also did not appear to CAPP to represent an increase in risk to PNGTS. CAPP believed that the availability of Canadian supply for export is the cause of the risk, not competition from other pipes. The High Flow Case of the Throughput Study showed less impact on PNGTS. TransCanada analysed all North American gas flows for its Throughput Study; competition from other projects was not identified as a risk factor in the Northeast market, only LNG deliveries from Canaport.

Finally, CAPP argued that PNGTS was built on 20-year contracts which give high incentive for shippers to use those contracts, and TransCanada, itself, continues to tell the market that PNGTS is among the paths to attractive U.S. markets.

Ontario submitted that the potential volume from Canaport is very small, relative to the New England market it was designed to serve, and therefore, does not increase TQM's risk. Ontario submitted that uncertainty about long-term LNG supplies also stems from the uncertainty of long-term LNG supply contracts for the U.S. LNG terminals.

TQM's Reply

TQM submitted that the overall throughput of TQM remains at 1994 levels only because of the combined demand in the Quebec market and the export market via the PNGTS extension. Furthermore, counsel for TQM argued that Gaz Métro wrote off more than 20 per cent of its investment in the PNGTS pipeline in 2008, which points to a significant change of the circumstances in which PNGTS operates, and to increasing uncertainty with regard to the recovery of the funds initially invested in that system.

TQM explained in reply evidence and in response to information requests, that when the PNGTS extension was being considered, the study completed by TransCanada focused only on natural gas demand in the U.S. Northeast and did not address gas production from Nova Scotia offshore. TQM further explained that, its focus at that time was on finding markets for excess gas supplies

from the WCSB, and a forecast of stronger demand growth in the U.S. Northeast.[25] Since that time, the forecasts for WCSB production and western Canadian demand have changed substantially, resulting in lower exports from that region, thereby deteriorating the expectations for stable throughput on the PNGTS extension.

With respect to the risk to PNGTS from LNG imports, Dr. Carpenter responded by stating that the LNG projects that will be competitors for TQM are either completed or under construction, while the projects that would supply TQM are still in the initial development stages or have been suspended.

5.5 Operating Risk

Operating risk is the risk to the income-earning capability that arises from technical and operational factors.

Submissions of TQM

The only submission by TQM on the issue of operating risk was in response to information requests regarding the reversibility of the PNGTS extension. TQM submitted that past evaluations of the reversal of the system found that it was physically capable of back-hauling volumes, and that under certain unusual or emergency conditions it would be possible to back-haul some volumes without any facility modifications. However, TQM stressed that these assessments had not been detailed to the point of examining potential restrictions, such as governmental, regulatory or physical, which might be particularly important in non-emergency type scenarios.

Submissions of Intervenors

CAPP submitted that while TQM remains a single line system, it now has compression which is a new feature compared with 1994. In this regard, CAPP noted that TQM is operated by TransCanada, an experienced operator of compression. CAPP suggested that counteracting these factors is the new operational security from the existence of the PNGTS extension and its potential reversibility. CAPP did not submit a view on whether there has been a net change in TQM's operating risks.

5.6 Regulatory Risk

Regulatory risk is the risk to the income-earning capability of the assets that arises due to the method of regulation of the company.

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25 When TQM applied for leave to build the PNGTS extension in 1997, it was expected that this investment would address the lack of market diversification for TQM and the forecasts expected an average annual growth rate of 2.7 per cent in Quebec natural gas demand and 1.0 to 1.7 per cent for the New England market. (See GH-1-97 Reasons for Decision, *supra*, footnote 24, at p.5.)

Treatment as part of the integrated TransCanada Mainline

Submissions of TQM

Since it began operating, the TQM system has been treated as a part of the integrated TransCanada Mainline. The contract underpinning this arrangement, whereby TransCanada holds virtually all of TQM's capacity, commenced in 1982. TQM submitted that this contract has been amended several times since, with the current principal expiration date in 2013, having been agreed to as an extension in 1998 due to the construction of the PNGTS extension. In addition to the principal volumes under contract until 2013, some are also under contract until 2017 and 2018. Individual shippers, rather than contracting directly with TQM, contract with TransCanada for deliveries to points off the TQM system. At present, over 99 per cent of TQM's revenue requirement is recovered from TransCanada in the form of 12 monthly payments, and TransCanada includes these payments in its revenue requirement as a Transmission by Others cost.

Dr. Carpenter presented evidence indicating that the contracts held by shippers on the TransCanada integrated Mainline with delivery points off the TQM system had a weighted average remaining contract duration of 3.2 years as of 15 November 2007. He noted the 2013 expiry of the principal volumes in the contract underpinning the integrated Mainline, and contended that the divergence between the 3.2 years duration and the 2013 expiry introduces uncertainty for the future of the integrated Mainline concept. Dr. Carpenter also submitted that the circumstances at the time when TQM's tolls were first set as part of the integrated Mainline, notably regulated gas commodity prices and the federal government's desire to promote the development of a gas market in Quebec, were much different than today. Another important difference in Dr. Carpenter's view is that unlike in 1994, WCSB supply is no longer growing, nor is there insufficient pipeline capacity out of the basin.

If decontracting were to occur for deliveries either to East Hereford or the domestic Quebec market, TQM argued that TransCanada could face pressure to change the toll design of the Mainline and to remove some or all of the capacity it currently holds on the TQM system from the integrated Mainline. Both Dr. Carpenter and TQM noted that there have been challenges to the integrated Mainline concept. TQM suggested that a variety of future changed circumstances could give rise to additional challenges to the integrated Mainline concept, such as, if volumes decline on the TQM system, if tolls rise on the TransCanada Mainline, or if TQM deliveries are increasingly sourced at Dawn.

If TQM were to be treated on a standalone basis rather than as part of the integrated Mainline, TQM submitted that this would result in higher tolls for deliveries off of TQM, thereby harming the competiveness of the TQM system. TQM submitted a range of potential toll impacts based on varying assumptions.

Submissions of Intervenors

In the submission of Dr. Booth, because of the contract TransCanada holds for TQM's capacity, TQM is protected from revenue fluctuations due to variances in throughput as well as from shipper-credit problems. CAPP cited the RH-2-94 Reasons for Decision in stating that the

arrangement "dilutes TQM's high unit cost and provides the Company with a high degree of assurance that its costs will be recovered."[26] CAPP argued that the NEB has been clear and consistent in its treatment of TQM as part of the integrated Mainline, and that the Board recently reaffirmed this treatment in the RH-1-2007 Reasons for Decision, which CAPP argued should quieten the debate. CAPP was of the view that the risk of the NEB disallowing this arrangement remains low and has not increased.[27] CAPP also alluded to the potential that in the future, TQM could have high volumes relative to the Mainline, for example as a result of Quebec LNG, such that TQM would benefit from ending the current integrated Mainline concept.

By virtue of TQM's contract with TransCanada, IGUA argued that TQM has been insulated from the impacts Gaz Métro experienced from industrial load losses, and continues to benefit from full assurance of cost recovery. IGUA also argued that this arrangement, which is not at risk of changing, is the biggest reason why TQM's overall risks have changed little since 1994, and until the arrangement changes it remains the overriding consideration for business risk, particularly for 2007-2008.

Ontario argued that it is inconsistent for TQM to suggest that TQM's financial health should be examined on a standalone basis, without influence of its parents, while also suggesting that the Board should consider the contracts held on TransCanada to TQM delivery points rather than only the contracts held on TQM itself. Ontario encouraged the Board to only look at the latter.

Competition between pipelines

Submissions of TQM

In TQM's submission, the 1998 approval of the Alliance Pipeline Ltd. (Alliance) pipeline[28] marked a significant change in Canadian regulatory policy, towards greater competition between pipelines. TQM argued that this increased its risks because of the impact on its access to WCSB gas supplies, the impact on Mainline tolls and hence Quebec delivered gas price, and because it increased the chance that it may face greater competition from other pipelines in the future.

Submissions of Intervenors

Ontario argued that TQM's reliance on the WCSB has ended, because its gas is being increasingly sourced at Dawn. With regard to the approval of Alliance, Ontario argued that it had no impact on TQM's risks.

Other aspects of year-to-year revenue and income risk

Submissions of TQM

TQM submitted that its 2007-2009 Partial Settlement has all the same deferral accounts as its previous settlements, and that these will cover only approximately 20 per cent of its cost of

26 RH-2-94 Reasons for Decision, *supra,* footnote 2, at p. 26.

27 National Energy Board, RH-1-2007 Reasons for Decision, TransCanada PipeLines Limited Gros Cacouna Receipt Point Application, July, 2007.

28 National Energy Board, GH-3-97 Reasons for Decision, Alliance Pipeline Ltd. on behalf of the Alliance Pipeline Limited Partnership Facilities and Tolls, November 1998.

service. TQM noted that it is at risk for in-year variations in depreciation and return, its term loan financial charges, and its fixed cost envelope. With respect to its term loan financial charges, TQM submitted that it had been lucky in the past to have benefitted from the risk, since it is based on the difference between the actual prime interest rates and those forecast by major banks.

With respect to assessing a pipeline's risks based on a comparison of actual and allowed earnings, TQM submitted that such a comparison is not appropriate since it reflects past rather than future circumstances and puts too much emphasis on short-term risks. TQM contended that historical comparisons of actual versus achieved earnings are of limited use in assessing a pipeline's forward-looking business risk, emphasizing that the predictive capability of such information would be dependant on the future earnings drivers being the same as past drivers. With regard to the circumstances which impact its business risk, TQM submitted that it had demonstrated that the future is not similar to the past. In noting that actual ROEs use accounting data, Dr. Carpenter suggested that that they often reflect extraordinary one-time events. TQM argued that accounting data returns are not the relevant measure of returns in assessing TQM's cost of capital; rather, a relevant measure would be TQM's achieved market returns on its unknown market value of equity.

Submissions of Intervenors

CAPP noted that TQM's actual ROE has exceeded its allowed ROE in every year since 1994, and Drs. Safir and Booth and IGUA noted the same going back further, to 1990.

In Dr. Safir's submission, equity investors in regulated companies are informed by variations in actual earnings relative to allowed earnings because they provide information about the level of regulatory risk and hence, possible changes in the valuation of the company. A history of earning allowed returns with little variation is, in his opinion, a strong indication of the effectiveness of regulation and low regulatory risk.

Going back to 1994, Dr. Safir suggested that there has not been any substantive change in the regulatory risk facing TQM, and in his view, TQM's regulatory-sanctioned revenue protections shield it from potential effects of competition. Dr. Safir submitted that by virtue of its recovering nearly all its revenues from TransCanada, TQM is provided with a high degree of assurance of cost recovery and is shielded from throughput fluctuations. According to Dr. Safir, the best evidence of TQM's effective revenue protections is its historical financial performance, and he submitted that between 1990 and 2007, TQM's actual ROE, minus its allowed ROE, was positive at a highly statistically significant level. Dr. Booth also contended that TQM earning above its allowed ROE in every year shows that TQM's risks are not material.

Views of the Board

Short-term vs. Long-term Risk

The Board accepts that it is useful to distinguish between the nature of risks in a manner as TQM and Dr. Booth have done, even if such distinctions may not be precise.

On the question of the appropriate weights for short versus long-term risks, the Board is of the view that because of the more limited ability of regulators to respond to the realization of long-term risks, there is a sense, in this aspect, that they are more important than short-term risks. Long-term risks are more structural. Therefore, they denote more fundamental factors and trends in the evolution of the overall risk landscape of a company, while short-term risks tend to be either more cyclical or individual events. However, the Board notes that generally, the relative importance of short versus long-term risks would depend on the relative probability, size and timing of the potential impacts arising from the specific risks being realized. The Board is of the view that, in practice, a plausible set of circumstances could result in either short or long-term risks weighing more heavily in the risk profile of a specific pipeline. Therefore, the Board finds that it must consider both long-term and short-term risks and weigh them based on the circumstances applicable to the pipeline.

Supply Risk

The Board is of the view that reasonable reliance can be placed on the range of conventional supply estimates as presented by TransCanada and that significant increases in WCSB conventional supply are unlikely. As a result, the Board finds that over the longer term, maintaining flows on the Mainline will depend, in part, on the development of unconventional or Northern supply. That dependence is greater today than was anticipated in 1994.

Unconventional supply, including CBM and shale gas, is more uncertain given their early stages of development. Although unconventional supply is expected to at least partially offset future declines in conventional production from the WCSB, the extent to which it will and when this may occur remains uncertain.

Similarly, gas from the Mackenzie Delta and Alaska may act to offset future declines in WCSB conventional production. Although TransCanada has included Mackenzie Delta gas in its Throughput Study, it is not clear when, or if, this gas will flow, and, if it does, the extent to which it would flow on the Mainline. It also remains unclear as to when, or if, Alaskan gas will flow and, if it does, the extent to which it would flow on the Mainline.

The Board notes that the import of LNG into Quebec is a possibility; indeed it has already approved a receipt point on TQM for the proposed Gros Cacouna regasification facility. Another proposal for a regasification facility, the Rabaska project near Quebec City, already has some approvals in place. The Board agrees with the Applicant that future LNG supply is uncertain, due to the need to confirm supply, finance construction, seek

regulatory approvals and construct pipelines to connect the proposed facilities to the TQM system.

On the issue of access to other gas supplies, the Board recognizes that TQM does have access to Dawn, which provides a mitigating factor for physical supply to TQM. TQM acknowledges that about 20 per cent of its gas supply comes from purchases from Dawn. Today, the supply of gas at Dawn is primarily sourced from western Canada. There was discussion by TQM witnesses regarding growing production areas that could supply Dawn. However, these witnesses explained that growing Dawn supplies will impact tolls on the Mainline for long- haul shippers of gas from the WCSB. Ultimately, the Board agrees with the view that, in these circumstances, the higher tolls would be passed on to the markets that are served off of the TQM system, further impacting the competitiveness of gas in the markets that TQM is serving.

In addition, the Board notes that while PNGTS is capable of flow reversal, which would deliver gas into TQM, there are issues involved. For this to occur there would have to be a fundamental change in market and price conditions. The Quebec market would require higher prices than the New England market, and that higher price would likely create an increased market and competitive risk. The Board places little weight on the concept that a potential reversal of PNGTS represents a reduced business risk for TQM.

The Board notes the significant change in the supply picture for the WCSB between 1994 and present day. In 1994, the WCSB was seen as a growing source of low cost natural gas and likely to remain so for some time into the future. Therefore, at that time, it was not considered that Canadian pipelines faced significant supply risks. However, in 2008, conventional production from the WCSB has passed its peak and unconventional supplies remain uncertain. At the time of the hearing, gas prices were significantly higher than in 1994, while the costs to develop new supply had also increased. As a result, industry is challenged to develop new economic supplies of conventional gas resources. Both CBM and unconventional gas in the WCSB remain speculative. For Northern gas, development remains uncertain. For LNG, development of facilities and expected levels of imports into Canada remain unclear at this time.

The Board views the economic supply as a crucial change that has occurred for the TQM system and the Quebec market.[29] Absolute gas price levels are higher, and declining conventional supplies from the

29 The RH-2-2004 Phase II Reasons for Decision, *supra,* footnote 8, at p.27, defines supply risk as the physical availability of natural gas. Also note that the NEB estimates and the CGPC estimates of Canadian resources consist of volumes of marketable gas assumed to be economic under existing and expected future conditions. TransCanada relied upon the CPGC estimates for Canada, which it calls economic.

WCSB have made this source of supply more uncertain than in 1994. Therefore, the Board concludes that the supply risk for TQM is higher than it was in 1994.

Market Risk

The Board notes that Quebec natural gas demand is relatively unchanged since 1994. TQM has a relatively large industrial load which has tended to be more variable and unpredictable than the residential and commercial sectors, as was the case in 1994. Further, the introduction of the Bécancour power generation plant has not made up for the losses in other industrial sectors; its future usage is uncertain. The Board is not persuaded by CAPP's argument that TQM's risk from the large industrial load has not increased since 1994.

IGUA did not provide quantitative support for its view that industrial customers will be better able to compete in the future. Although Gaz Métro, itself, had a more favourable short-term forecast of industrial growth than TQM, the Board finds that this evidence is not determinative of the long-term market risks facing TQM.

In light of the uncertainty of the Quebec industrial and electric power generation sectors demand for natural gas, the Board finds that the TQM pipeline is exposed to increased market risk compared to its position in 1994.

Alternative Fuels

Discussion of the distribution of electricity blocks to industrials and the nature of industrial fuel switching capabilities, provided by IGUA, was useful in enhancing an understanding of the landscape of energy demand in the province of Quebec. In particular the interaction between natural gas and electricity was most useful. The discussion of the Quebec Energy Strategy was also very helpful in understanding government policy impacts on energy demand in the province. It appears the program is too new to assess the actual impact on industrial gas demand.

The Board notes the declining competitiveness of natural gas in the Quebec market. This is, in part, driven by absolute price as well as by the stability of the price of electricity relative to the volatility in the natural gas price. Furthermore, on the residential side, the Board is of the view that this lack of competitiveness is likely to continue. Quebec residential electricity rates are forecast to remain stable and predictable with an approximate annual increase of two per cent.

The Board accepts TQM's arguments that the high industrial load as compared to total system load and the declining competitive position of natural gas compared to alternative fuels are significant risks to the TQM

system and these risks have increased since 1994. This was reflected in TQM's and Gaz Métro's customer data which showed a decline of about 50 per cent in interruptible customer consumption.

PNGTS

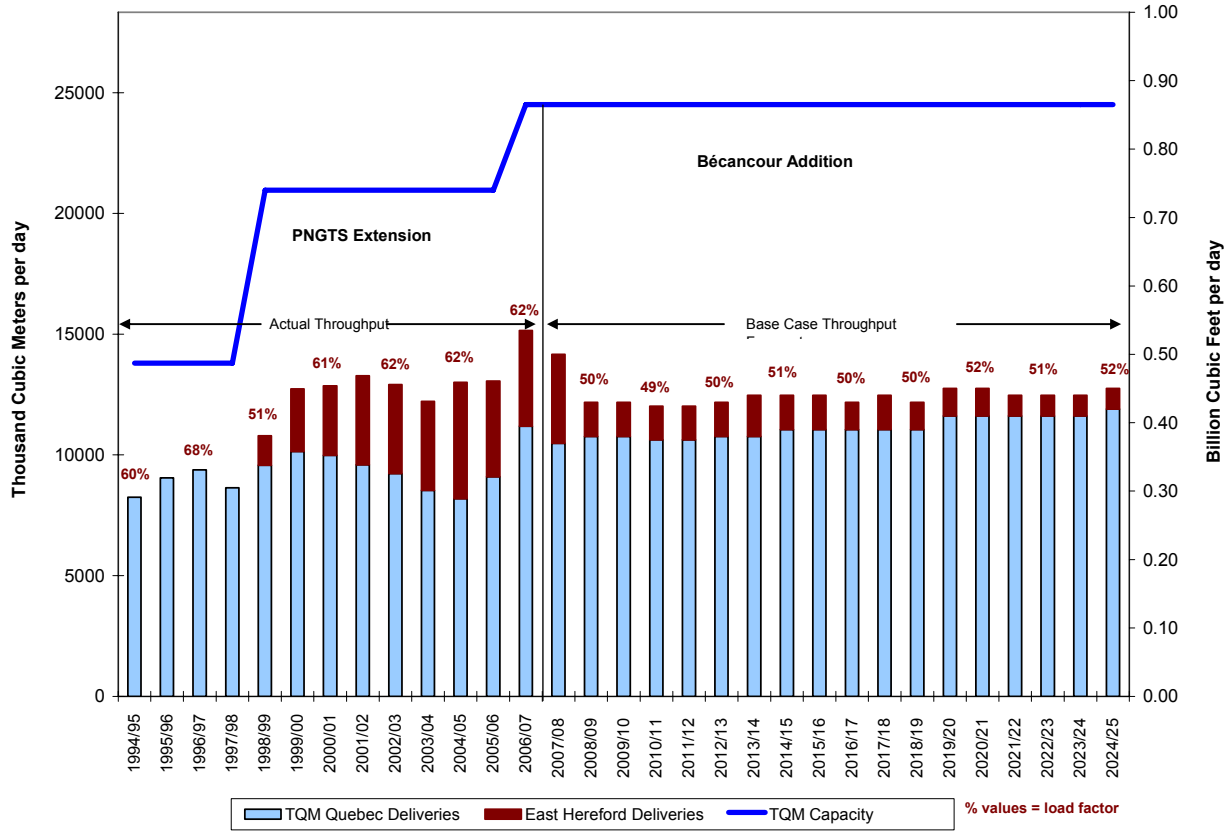
The Board is not persuaded that TQM, by not asking for an increase in its allowed return in 1997, accepted that the market circumstances related to the PNGTS extension did not increase the business risk of the TQM system as a whole. In the Board's view, a pipeline company should not have to come forward with an application every time that it perceives a change in its risk. Rather a pipeline company can exercise discretion in deciding when to come forward to the Board, knowing that it has no recourse to be retroactively compensated for past changes in risk.

In assessing changes to TQM's business risk, the Board is using TQM's risk at the time of the RH-2-94 proceeding as the point of comparison, which was the last time that the Board fully evaluated it. Consequently, the risk of the PNGTS extension, whether higher or lower than the rest of the TQM system, is treated as a new consideration.

The Board notes that in constructing the PNGTS extension, TQM made a significant investment. The Board is of the view that as time has unfolded, the supply and market situation related to the extension has changed and the risks have increased.

The total gas volume delivered on TQM has grown from 8.22 $10^6 m^3/d$ (0.29 Bcf/d) in 1993/94 to 15.01 $10^6 m^3/d$ (0.53 Bcf/d) in 2006/07, but the Board does not view TQM's market to be the same as it was in 1994. A significant portion of the gas deliveries are volumes exported through the PNGTS extension (see Figure 5-2). Capacity of the TQM pipeline system has grown from 13.88 $10^6 m^3/d$ (0.49 Bcf/d) in 1993/94 to 24.56 $10^6 m^3/d$ (0.867 Bcf/d) in 2006/07, leading to a utilization rate that has increased from 60 per cent to 62 per cent over the same time period (see Figure 5-2). However, it is not expected that TQM will maintain this level of utilization into the future due to competition in the U.S. Northeast.

Figure 5-2
TQM Base Case Domestic and Export Volumes



Source: TQM Application

The Board finds that the Canaport and other U.S. Northeast LNG facilities represent increased competitive risk to PNGTS. The future of LNG imports into the U.S. Northeast has an element of uncertainty due to global competition. However, significant infrastructure related to LNG imports, including an expansion of the M&NE pipeline to deliver gas from Canaport into the U.S. Northeast, is in place or under construction and these facilities represent a competitive alternative to PNGTS in delivering gas into the U.S. Northeast.

Throughput

The Board also finds that the Throughput Study generally supports the case that business risk has increased. The Board is not persuaded by CAPP's view that the appropriate conclusion to be drawn from the study is that risk has not increased because the forecast throughput remains unchanged from 1994. The Board's view is that significant capital costs have been incurred by the Applicant to facilitate the projected throughput and that when this is taken into account the Throughput Study tends to support an increased risk.

Operating Risk

The Board is of the view that there was insufficient evidence provided to conclude that there has been a change in the operating risk faced by TQM.

Regulatory Risk

The Board finds that TQM continues to benefit from its treatment as part of the integrated Mainline. In the Board's view, the risks related to TQM's costs continuing to be recovered principally through their inclusion as "Transportation by Others" on the TransCanada Mainline are the same as in 1994.

The Board is not persuaded by TQM's argument that its business risks have increased because of what TQM characterized as a change in regulatory policy toward more competition between pipelines. The Board is of the same view as expressed in the RH-4-2001 Reasons for Decision when it first examined the Mainline's risks following approval of the Alliance project. At page 27 of the RH-4-2001 Decision, the Board stated that:

> [T]here is nothing to suggest that the Board will alter its approach of considering significant changes to the regulatory framework only on the basis of a comprehensive, balanced and prospective examination of all relevant factors. Although the regulatory regime has permitted increased competition, there has been no indication that it has increased the possibility that prudently incurred costs will not be recovered.

The Board notes TQM's record of earning slightly above its allowed ROE in every year since 1990. The Board finds this history informative but not determinative for evaluating TQM's future risk of experiencing year-to-year earnings fluctuations. It is informative given that TQM indicated that its past deferral coverage was similar to its current coverage, and because TQM continues to be treated as part of the integrated Mainline. Conversely, TQM, for example, may not continue to benefit from its term loan financial charges risk. Overall, the Board finds that TQM's risks related to year-to-year earnings fluctuations are low, and have not appreciably changed.

Conclusion

The Board concludes that TQM's overall business risk has increased relative to 1994, as a result of increased market, supply and competitive risks.

Chapter 6

Interpreting the Return Information from Selected Samples

The selection of companies comparable to TQM is required to draw information that will ultimately be used to determine TQM's cost of capital. The return information, which is drawn from the comparable companies, can be categorized into two groups. The returns of the first group can be referred to as *regulatory* returns, meaning that they are returns allowed or earned on the book value of a regulated asset. This is distinct from the second group, whose returns can be characterized as *financial market* returns, since the return evidence in this group relates to how the stock price of a particular company fluctuates in response to company-specific events as well as events that affect the market as a whole. Investors' expectations are generally recognized to be the main driver of these fluctuations.

The evidence which falls into the first group is detailed in Section 6.2. It includes submissions on the regulatory returns of Canadian pipelines, and some other utilities, as determined by either litigation or negotiation. It also includes TQM experts' submissions on the regulatory returns of U.S. pipelines and local distribution companies (LDCs). Section 6.3 then describes the financial market return submissions related to three samples submitted by TQM experts, and to Dr. Booth's judgements regarding regulated utilities in Canada. The three samples submitted by TQM experts were comprised of Canadian utilities, U.S. Gas LDCs, and U.S. Master Limited Partnerships (MLPs) that own and operate natural gas pipelines (MLP pipelines).

Before addressing these two groups, Section 6.1 presents the submissions which address the relevance of comparisons with U.S. returns. This is a central question to determining the weight to be placed on U.S. returns, which are contained in both groups. Section 6.4 provides the views of the Board on all matters in this chapter.

6.1 Relevance of Comparisons with U.S. Returns

TQM's application relied in large part on U.S. comparisons. This resulted from TQM's submissions regarding both the globalization of capital markets and the similarities between the U.S. and Canadian pipeline and LDC industries. These two topics are addressed in Sections 6.1.1 and 6.1.2, respectively. The reliance on U.S. comparison is also based on TQM's views that Canadian returns suffer from circularity problems and that the companies in Dr. Vilbert's Canadian utilities sample are not pure plays in the natural gas pipeline industry, as will be discussed in Sections 6.2.1 and 6.3.1, respectively.

6.1.1 Integration of Canadian and U.S. Capital Markets

Submissions of TQM

Mr. Murphy, one of TQM's expert witnesses, argued that financial market deregulation supported the free flow of investment capital between countries, capital markets and investment

opportunities with the result that comparable financial assets are increasingly priced similarly in different countries. The determination of a fair return is no longer a Canadian market issue; it is becoming a North American and global issue. As a result, Canadian companies like TQM now compete with companies and projects throughout the world for capital.

TQM indicated that the increased integration of capital markets is evidenced by: significant purchase of foreign equities by Canadian investors, including pension funds; the changes in federal tax policies such as the elimination of the foreign property rule in 2005 and the elimination of the withholding tax for cross-border interest payments with the U.S.; and the significant Canadian securities issues outside of Canada with a particular focus on the U.S. TQM also submitted that the increase in cross-border merger and acquisition activities and the increased correlation of global market returns were other evidence of the globalization of financial markets.

In Dr. Vilbert's view, the return available to investors in Canadian utilities must increasingly be comparable to the returns available to investors in comparable risk entities in capital markets worldwide. Accordingly, TQM argued that the Board needs to acknowledge globalization and rely on evidence from the U.S. to determine TQM's cost of capital.

Submissions of Intervenors

According to Spectra and Union, recent market developments made clear the close linkage amongst North American and global markets, and Canada is no exception.

In terms of market integration, Dr. Booth submitted that currencies are freely convertible, investment restrictions have been removed and there has been an increase in the coverage of international stocks among investment advisors. These changes have been mirrored in Canada's international investment position.

According to Dr. Booth, there has been increasing international investment both in and out of Canada since 1990 but the trend since 1990 has been for the U.S. to lose its share of outward Canadian investment. For inward investment, the U.S. remains by far the dominant investor in Canadian stocks and foreign direct investment. Dr. Booth gave evidence that Canadian investors have diversified away significantly from their reliance on the U.S. that was typical in 1990, such that if an external yardstick is relevant today, it is no longer the U.S.

Dr. Booth expressed the view that Canadian markets will always be partially segmented from world markets in general and the U.S. market in particular. The result is a so-called "home bias" where residents of all countries have a disproportionate amount of their wealth invested in their domestic market and look to foreign securities to fill holes in their portfolios. In this context, Canadians are not likely to buy utility or pipeline stocks in foreign markets because the Canadian market has several first tier stocks of these types. Dr. Booth offered the opinion that there is almost no impact of international diversification trends for the utility and pipeline sector's fair ROE except for the tendency for the overall market risk premium to decline.

IGUA argued that the Canadian and U.S. economies and fiscal policies are not the same. In IGUA's submission, the differences have been recently evidenced by the Canadian economy and banking system being less vulnerable in the current credit crisis, as compared with the U.S.

6.1.2 Canadian and U.S. Regulatory Environment

An important question for all comparisons with U.S. pipeline and LDC investments is the extent to which the regulatory environment impacts risk differently in the two countries.

Submissions of TQM

Dr. Carpenter and Mr. Murphy both submitted that U.S. and Canadian transmission pipeline regulation is characterized more by its similarities than differences, and that overall the business risks for pipelines are similar in the two jurisdictions.

In Dr. Carpenter's opinion, the differences between Canadian and U.S. pipeline business risks due to regulation are generally short-term in nature, whereas regulation in the two jurisdictions has fundamentally the same design with regard to factors impacting what he argued were the more important long-term risks. With respect to the latter, Dr. Carpenter contended that unlike the rest of the world, the Canadian and U.S. regimes establish tolls based on the same historical cost rate base and cost of service approach, including a fair return. As additional evidence of similarities, Dr. Carpenter referred to both jurisdictions' use of the contract carrier model, and suggested that both U.S. and Canadian regulators have been actively promoting increased competition between pipelines which increases long-term risk on both sides of the border. Dr. Carpenter also submitted that the typical Canadian regulatory flow-through approach to income taxes results in greater long-term capital recovery risks since the taxes collected as a pipeline ages are typically higher, compared to the normalized approach employed in the U.S.

With respect to short-term risks facing pipelines, Dr. Carpenter indicated that unlike in the U.S. where deferral accounts are typically not used and where toll cases are relatively infrequent, pipelines in Canada generally benefit from annual determinations of their cost of service and have deferral accounts to adjust between forecast and actual revenues and costs in between rate cases. As a result, in his view U.S. pipelines can have more variable year-to-year returns. Dr. Carpenter also contended that there were aspects of U.S. regulation which cause lower short-term risks. He suggested that U.S. pipelines have greater flexibility in charging discounted and negotiated rates which in turn allow them to better respond to increased competition or risk of bypass. Overall, Dr. Carpenter concluded that considering these factors together, in general, U.S. pipelines have greater short-term risks than their Canadian counterparts covered by the RH-2-94 Formula.

Dr. Carpenter also submitted that although the Federal Energy Regulatory Commission (FERC) has accepted settlements in which pipelines shared some costs related to capacity non-renewal, discounting to meet competition, and one-time costs resulting from transition to competition, this is not the FERC's policy. He argued that such settlements are relatively few in number and that ultimately the FERC still allows for the recovery of such costs as they fall in the realm of prudently incurred costs. He submitted that the FERC has explicitly stated that it addresses risk-sharing proposals on a case-by-case basis.

Regarding Dr. Carpenter's evidence comparing the risk exposure of Canadian and U.S. pipelines, Mr. Murphy indicated that it was consistent with his experience as an investment banker. Mr. Murphy observed that pipeline investors view the business risks in Canada and the U.S. as similar. In his view, the regulatory systems are similar, although he too noted many of the same differences submitted by Dr. Carpenter. He also contended that the NEB and FERC have similar

policy objectives related to gas pipelines, that capacity charges are common in both countries such that even in the U.S. throughput has limited impact on revenues, and that construction cost incentives are common in both countries and their impact may be counter-cyclical. Additionally, in Mr. Murphy's opinion, TQM specifically, and Canadian pipelines generally, compete directly with U.S. pipelines for load, in what is appropriately characterized as a North American energy market. Mr. Murphy also highlighted his view that on both sides of the border, pipeline investments share the same fundamental long-term, inflexible and capital intensive nature, and are similarly subject to gas supply and competition risks.

Overall, Mr. Murphy was of the opinion that U.S. pipelines may bear higher short-term risks, but that any difference is small given that the duration and amount of additional risk is not significant. He argued that ultimately U.S. pipelines still have the right to return to the FERC with a rate filing if they are not earning their allowed ROE.

Specifically with respect to LDCs, Dr. Carpenter and Mr. Murphy submitted that overall, they tend to be lower risk than transmission pipelines. This is mainly because LDCs are not exposed to as much competition, due to their franchised territories and their mainly residential and commercial customer base which is not at risk of bypass. According to Dr. Carpenter, the FERC found in its 2006 Kern River decision that LDCs are of lower risk than interstate pipelines, and granted a 50 bps upward adjustment to the median ROE from the LDC companies.

In Mr. Murphy's opinion, U.S. LDCs and Canadian pipelines have similar risks because U.S. LDCs recover 100 per cent of their natural gas supply costs, and because their rate designs are increasingly decoupling revenues from volumes. Mr. Murphy also contended that compared with Canadian pipelines, U.S. LDCs have lower supply risk because they source gas supply from multiple pipelines and basins, whereas transmission pipelines are very reliant on a single basin, as is TQM on the WCSB.

Submissions of Intervenors

The CGA argued that while utilities in Canada and the U.S. are not identical, neither are utilities in different provinces identical to federally regulated Canadian utilities. With regard to many of the risks alluded to by CAPP, the CGA argued that they pre-date 1994.

In Dr. Safir's view, there are significant differences between Canadian and U.S. pipeline regulation, and overall Canadian pipelines face considerably less business risk. Dr. Safir was of the opinion that while pipeline regulation in the two countries was almost identical 30 years ago, some fundamental differences have since emerged due to actions taken by regulators, particularly the FERC. Dr. Safir suggested that the FERC has increasingly promoted a more competitive market-driven natural gas pipeline market, and that a key difference today is that rate cases have become infrequent and unnecessary. He took the position that today's U.S. approach is in contrast to the Canadian practice of setting tolls to recover all prudently incurred costs, with the protection of balancing or deferral accounts, and using frequent toll adjustments to keep earnings in line with allowed levels. While U.S. rate hearings can still be requested by either the pipeline or its customers, and can be initiated by the FERC, Dr. Safir submitted that the emphasis has been on negotiated settlements.

In instances when pipeline rate hearings do occur, Dr. Safir contended that the FERC makes few provisions for deferral or balancing accounts, leaving U.S. pipelines at greater risk for annual

return variations. In Dr. Safir's submission, as part of the FERC's push towards greater market signals, it has made it clear that revenue shortfalls resulting from uncontracted capacity have to be shared by the pipeline. He noted that with this has come the ability for pipelines to negotiate for shares of the upside, when revenues are increased due to higher throughput. CAPP argued that volumetric risk is simply a part of the FERC model.

In Dr. Safir's opinion, the U.S. practice of very infrequent rate hearings means that U.S. pipelines are exposed to a high probability that significant differences will emerge between allowed and achieved earnings. Additionally, he submitted that earnings variability results from the prevalence of discounted and negotiated rates in the U.S. Dr. Safir put forward an analysis comparing the difference between actual and allowed ROEs for Canadian and U.S. pipeline companies. The results, in his submission, showed a tighter distribution of actual minus allowed earnings for Canadian pipelines, exactly as one would expect if Canadian regulation results in lower business risks than the U.S. equivalent.

Dr. Safir also suggested that additional differences are perceived by the market between U.S. and Canadian pipeline risks, citing as an example the move away from the merchant gas function for pipelines in both countries. He observed that this restructuring process resulted in real losses for U.S. pipelines, unlike their Canadian counterparts.

With respect to U.S. LDCs, Dr. Safir submitted that they are subject to a range of different state regulations, none of which provide the degree of protection afforded to NEB regulated pipelines. He provided another analysis comparing actual ROEs minus allowed ROEs of Canadian pipelines, in this case, to those of U.S. LDCs. Dr. Safir was of the opinion that the lower variability of the Canadian pipelines demonstrated that U.S. LDCs would not be a very good comparator group for TQM. He also suggested that since 1994, the risks faced by U.S. LDCs have come down to some extent, because of some regulatory changes.

Regarding the FERC's view of LDC risks, Dr. Safir contended that the FERC had determined that LDCs are not appropriate comparators for U.S. pipelines. In support of this, he submitted the same FERC Kern River decision cited by Dr. Carpenter, but he reached a different conclusion on the matter.[30] Dr. Booth was of the opinion that LDCs in general, not just in the U.S., are higher risk than pipelines.

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30 The following excerpts from the FERC decision discuss the issue in question (FERC OPINION NO. 486, issued October 19, 2006):

> 2. … The median return of our revised proxy group is 10.7 percent. In addition, because this proxy group is small and includes companies with a relatively low proportion of pipeline business and substantial distribution operations, we approve a 50 basis point adjustment above the median to 11.2 percent. This accounts for differences in risk between Kern River and the proxy group companies. [emphasis added]
>
> 171. … We will therefore permit an adjustment above the median of the range to account for differences in risk between the pipeline and proxy group companies whose LDC operations account for a greater proportion of their business than previously occurred under our traditional policy.
>
> 172. The evidence in this case is undisputed that the risk profile of LDCs is different from the risk profile of typical interstate pipelines. No party disagrees that LDCs face lower risks due to the nature of their operations. As Kern River's witness testified, LDCs enjoy a natural service monopoly, with relatively low demand elasticity, price sensitivity and throughput risks. The franchise structure of an LDC results in lower overall business risk and lower investor expectations. In contrast, gas pipelines are one level removed from the end-use markets served by LDCs and retail utilities and enjoy no such service monopoly or territorial franchise [footnote removed].

CAPP argued that the U.S. regulatory approach is anything but safe for a utility, noting some utility bankruptcies which have occurred. CAPP noted Dr. Kolbe's past articles and text books which discuss U.S. regulatory risks, particularly related to the restructuring to end the merchant gas function for pipelines and the Duquesne instance of cost disallowance in a partial nuclear plant build.[31] CAPP also argued that comments that were made by Moody's Investor Services (Moody's) about the supportive nature of Canadian regulation and the Canadian business environment demonstrate the lower regulatory risks in Canada.

Another factor which CAPP argued lowers Canadian pipeline risks is the NEB approach to pre-approving projects before investments are made. CAPP argued that the Duquesne partial nuclear build, where costs were not ultimately allowed to be recovered, demonstrates the benefit of the NEB approach, and that today, significant efforts by U.S. project proponents are dedicated in the early phases towards avoiding eventual cost disallowances similar to those experienced by Duquesne Light Co.

With regard to U.S. LDCs, CAPP questioned why TransCanada Corporation had different views in front of the FERC regarding the comparability of pipeline and LDC returns, as compared with what was submitted to the NEB by TQM with TransCanada's support. CAPP argued that there are some fundamental parameters of regulation that are not the same across regulators, arguing that for example there is no uniform approach to rate base at the state level in the U.S. According to CAPP Counsel, when looking at a number of state decisions, one sees strange tradeoffs, for example where utilities make significant concessions in order to gain regulatory acceptance of proposals. Finally, CAPP argued that there is an ongoing debate regarding decoupling mechanisms, about such issues as whether they in fact reduce risk and what exactly is or is not a decoupling mechanism.

Overall, CAPP suggested that the significant differences between the U.S. and Canadian regulatory systems imply that U.S. pipelines and LDCs are poor comparators for TQM, with Dr. Safir emphasizing any comparison would have to be on a risk adjusted basis.

In the opinion of Ontario, U.S. pipelines are not appropriate comparators for Canadian pipelines because of significant regulatory differences, and because U.S. pipelines face higher financial liability risks.

IGUA submitted that U.S. LDCs and pipelines operate within a very different regulatory framework, implying very different regulatory risks. IGUA also argued that the U.S. and Canadian economies and fiscal policies are different.

TQM's Reply

In Dr. Carpenter's submission, the effects of the four FERC Orders, which Dr. Safir argued had substantially changed U.S. natural gas pipeline regulation, were primarily to end the merchant

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31 "The Duquesne instance" refers to the case where Duquesne Light Co. cancelled plans to build nuclear power plants, and then sought regulatory approval to recover the capital it had already invested. The Pennsylvania Public Utility Commission approved the amortization of the cancelled plants, but the state legislature passed a law which the effect of disallowing the recovery of those costs. The case was ultimately decided by the U.S. Supreme Court Decision in *Duquesne Light Co. v. Barasch,* 488 U.S. 299 (1989), and the costs in question were not allowed to be recovered by Duquesne Light Co.

gas function of pipelines. Dr. Carpenter noted that similar changes occurred in Canada, and additionally that all four FERC orders pre-dated 1994 which he argued meant that they would not explain any change in relative Canadian and U.S. risks since 1994. With respect to the differences in the frequency of rate hearings and use of deferral accounts cited by Dr. Safir, Dr. Carpenter put forward that they were consistent with his own evidence related to higher U.S. short-term risks.

As discussed in Section 5.6, Dr. Carpenter also argued that Dr. Safir's comparison of actual ROEs minus allowed ROEs was flawed both conceptually and at a computational level.

With regard to the losses experienced by U.S. pipelines as a result of the restructuring process to end pipelines' merchant function, and the nuclear build cost disallowances discussed, Mr. Murphy suggested that these were two of the most difficult periods in the history of the U.S. utility industry and were one-time events. He contended that such events are not reflective of how things normally unfold. TQM suggested that subsequent electricity deregulation efforts may have been evidence of regulators having learned from the gas merchant pipeline restructuring.

On the question of Moody's view of the supportive nature of Canadian regulation, TQM acknowledged that the Canadian regulatory environment is viewed as very supportive by both Standard & Poor’s (S&P) and Moody's. However, as discussed in Section 5.1, TransCanada suggested that rating agencies have a very different perspective than equity holders.

Mr. Murphy submitted that regardless of the legal question of whether or not a utility needs prior pre-approval to build a project, as with NEB regulated pipelines, in reality plenty of work is done in advance of any build such that it is a collaborative process where regulators and outside stakeholders are generally involved at an early phase. TQM emphasized that the important question is not the legal requirements, but what an investor can reasonably expect in terms of the practical risks.

With regard to TransCanada Corporation's submission to the FERC regarding the appropriate composition of a proxy group for pipelines, TransCanada submitted that the context of the FERC's inquiry was that it had been using a proxy group composed primarily of LDCs during a period of time where a growing number of MLPs were forming with concentrated interstate pipeline holdings. In that context, TransCanada suggested that TransCanada Corporation's position was that the MLPs represented a better alternative. With regard to TransCanada Corporation's expressed concern regarding the circularity of LDC returns, TransCanada stated that the concern is only of a closed system, such as a regulator looking only at its own rulings.

Regarding the question of whether rate base is treated in a consistent manner across states, Mr. Engen, on behalf of TQM, submitted the debate had been regarding whether rate base should be calculated on a fair market- or book-value basis, but that the debate had been put to bed in favour of the book-value approach.

6.2 Regulatory Return Evidence

6.2.1 Canadian Negotiated Returns

Submissions of TQM

TQM submitted that total returns derived from negotiated settlements should be used as part of a comparative analysis. TQM recommended making these comparisons on an aggregate rather than individual basis, since individual settlements contain tradeoffs that are unknown to those not involved in the negotiating process, tradeoffs which may result in returns above or below what would have otherwise been agreed to. Looking at settlements in aggregate, in TQM's submission, provides a directional indication of market expectations for acceptable returns, and avoids the risk that any one settlement might be providing returns that are reflective of very particular unknown circumstances or tradeoffs. In response to information requests and hearing questions, TQM also submitted that settlements may result in an exchange of value which may be over and above that available under traditional cost of service regulation, and that parties may agree to increased returns without a commensurate increase in risk.

TQM suggested that the Board should give greater weight to Canadian pipeline returns derived from settlements than to NEB-adjudicated returns to avoid circularity in approving returns, but cautioned that even settled returns may be below market levels because they are negotiated against the backdrop of the below-market-level RH-2-94 Formula.

On these grounds, TQM submitted evidence on the returns derived from a number of NEB-regulated pipeline settlements. Notably, all of the Canadian pipelines which TQM submitted as comparables had their returns determined in part or wholly by settlements. TQM suggested that the returns determined wholly by settlements consistently yielded returns in excess of those provided by the RH-2-94 Formula. TQM submitted that it could not describe the tradeoffs made in any of the individual settlements since it had not been party to the negotiations. However, TQM provided a comparative business risk analysis for the subject pipelines, and concluded that all of them had business risks that were similar to or lower than TQM's. To support this finding with respect to the oil pipelines in its comparator groups, TQM suggested a number of factors, explained further in Section 6.3.1.1, that should lead the Board to no longer hold the view that oil pipelines are riskier than gas pipelines, a view it articulated as recently as the RH-2-2004, Phase II Decision.[32]

Submissions of Intervenors

The CGA argued that settlements can be informative at the aggregate level, and that the Board can exercise its judgement in assessing the relative risks at that aggregate level.

In CAPP's view, the higher returns observed in negotiated settlements are a result of pipelines moving away from the traditional cost of service model and being rewarded for creating additional value or benefits for toll payers. CAPP emphasized that settlements are package deals and involve tradeoffs, and noted that the Board has recognized this in the past. A further point advanced by CAPP was that settlements are negotiated in confidence and typically expressly

32 RH-2-2004, Phase II Reasons for Decision, *supra*, footnote 8, at p. 7.

state that parties agree that a settlement is without prejudice and is not to be used as precedent. As a signatory to the settlements cited by TQM, CAPP argued that it is unfair that it had a limited ability to respond.

CAPP's position was that the Board would have to be very cautious in putting any weight on the information from settlements, and that a better approach would be to give them no weight. If the Board were to instead put weight on Canadian settlement evidence, CAPP put forward that there could be a chilling effect on future settlements.

Dr. Safir submitted that negotiated returns are determined through a different process than litigated returns. In his view, settlements do not have to reflect any of the same factors looked at by regulators, and that parties can trade off other factors against a negotiated return. He suggested that parties to settlements work cooperatively to enhance the benefits and values for all, which could influence agreed-to returns.

IGUA recommended that the Board give no weight to settlement returns. IGUA argued that it is not possible to identify the tradeoffs made in arriving at a final outcome, and noted that the Board accepts or rejects any settlement as a package. In IGUA's view, it would be inappropriate to, after the fact, isolate the return component. IGUA also warned that doing so would have a chilling effect on future settlement prospects.

Ontario argued that settlements contain unknown tradeoffs, and so the Board should not consider settlement returns.

6.2.2 Canadian Litigated Returns

Submissions of TQM

TQM argued that Canadian provincial regulators appear to follow the NEB's lead in setting returns and using ROE formulas. In TQM's view, this makes Canadian comparisons of limited relevance if not circular. TQM excluded from its comparisons a number of Canadian pipelines and utilities on the basis that their returns were set by either the NEB or provincial ROE formulas and thus suffered from circularity.

Submissions of Intervenors

CAPP submitted that the ROE formulas across Canada were not adopted in a mechanical way, and noted that there have been many hearings involved both with establishing and reviewing the formulas. According to CAPP, in each hearing there was a full and fair consideration of the evidence.

Dr. Booth noted that the NEB was not the first regulator to adopt an ROE formula. He suggested that while there is a degree of circularity in looking at returns awarded by other regulators, each regulator has heard different evidence from different experts, at various times, and ultimately reached its own conclusions. He advised that the awards of other regulators are appropriately used as a reasonableness check.

Evidence put forward by Dr. Booth compared the allowed returns for various Canadian pipelines and utilities, including from Quebec, Ontario, Alberta, and British Columbia. Dr. Booth recommended that TQM's equity ratio be increased to 32 per cent because he argued that the EUB had increased the "floor" for utility equity thickness to 32-33 per cent.

6.2.3 Litigated U.S. Returns

Submissions of TQM

Dr. Carpenter submitted a comparison between the allowed returns of TQM and those allowed to U.S. interstate pipelines and LDCs in litigated proceedings. As noted previously, in Dr. Carpenter's opinion, achieved-earnings data are fundamentally flawed because they rely on accounting data and are based on past, not future circumstances. In his comparison of allowed returns, Dr. Carpenter submitted two alternative measures of allowed returns: (i) ROE alone; and (ii) an ATWACC return that results from the allowed ROE and capital structure combined with an assumed after-tax cost of debt for all companies in all years of 3.75 per cent.

In Dr. Carpenter's view, the current gap between the allowed returns of TQM and the U.S. comparables is not justified by differences in risk, and since 1994 there has been an unjustified divergence between the allowed ROE of TQM and the U.S. comparables. TQM argued that this divergence is not justified by any changes in relative business risks.

Mr. Murphy also provided litigated allowed returns data for both U.S. interstate pipelines and LDCs. For transmission pipelines, he submitted that his sample showed that U.S. allowed ROEs and equity thickness were both higher. In the case of LDCs, Mr. Murphy divided them into two groups depending on whether their rates featured what he referred to as revenue decoupling or weather normalization, respectively. He submitted that both groups had allowed ROEs significantly above the current RH-2-94 level.

Submissions of Intervenors

The CGA also argued that since 1994 a gap has grown between U.S. and Canadian allowed returns for utilities, a gap not justified by any changes in relative business risks.

CAPP, IGUA and Ontario all took the position that the higher U.S. allowed returns are appropriate based on their higher risks. These views are discussed in Section 6.1.2, under the heading *Canadian and U.S. regulatory environment*.

With respect to Dr. Carpenter's analysis of the allowed returns of U.S. interstate pipelines, Dr. Safir suggested that there were too few data points to conclude that there has been a systematic increase in the difference between TQM's allowed returns and the average allowed to the interstate pipelines.

6.3 Financial Market Returns Evidence

The following Section is a description of the three samples submitted by Dr. Vilbert as well as Dr. Booth's submission, Section 6.3.2 addresses the potential that the computed costs of capital might be affected by unregulated business activities.

6.3.1 Description of Samples

Table 6-1 summarizes the information drawn from the samples presented in evidence that were used by TQM and CAPP to derive their respective recommendation as to what return TQM should be allowed. The table partly reflects the following techniques which the Board determined it would rely upon in Chapter 4.

- The costs of equity (Lines 1 to 5), as derived by CAPM, rely on unadjusted betas and the respective risk-free rate and market risk premium suggested by Dr. Vilbert and Dr. Booth.
- Lines 1 to 3 rely on the market-value capital structure, market cost of debt (ranging from 5.4 per cent to 5.9 per cent) and assume the presence of preferred shares, if any, in the capital structure of the sample companies.
- Line 4 uses the same parameters as Line 1 except it uses Dr. Booth's cost of equity estimate.
- Line 5 is Dr. Booth's recommendation based on his assessment of TQM's business risk and TQM's weighted average of embedded cost of debt of 6.07 per cent for 2008, at 32 per cent equity thickness.

Table 6-1
Cost of Capital Derived from Expert Witness Evidence

Source	Description	Cost of Equity (Per cent)	Equity Thickness (Per cent)	ATWACC (Per cent)
TQM Evidence (Dr. Vilbert)	1. Canadian utilities	7.4*	51	5.7*
	2. Gas LDC	9.2	60	7.0
	3. MLP Pipelines	7.4	68	6.3
CAPP's Evidence (Dr. Booth)	4. Dr. Booth recommendation under a market-based ATWACC methodology	7.75	51	5.9*
	5. Dr. Booth recommendation	7.75	32	5.3*

* As computed by the Board

Submissions of TQM

Dr. Vilbert submitted that there is no ideal sample of publicly traded pure play Canadian natural gas transmission companies available. He submitted evidence for three samples: the Canadian utilities sample, the Gas LDC sample and the MLP pipelines sample. In determining the cost of equity of the sample companies, Dr. Vilbert used a risk-free rate of 5.0 per cent, which includes a

20 basis point maturity premium. This estimate was based on the Consensus Forecast issue of August 2007. Dr. Vilbert also used a market risk premium of 5.75 per cent based on his estimate of the long-term risk-free rate and current information on the historical market risk premium.

6.3.1.1 Canadian Utilities

Submissions of TQM

Dr. Vilbert submitted that the goal of his Canadian utilities sample is to represent companies whose primary business is as a regulated utility in Canada with business risk generally similar to that of TQM. Dr. Vilbert started with the universe of Canadian companies classified as being in the utility industry or in the oil and gas storage and transportation industry in the FPinfomart database. Companies were eliminated by Dr. Vilbert that were not listed in the FP500 Sales category on FPinfomart. This step eliminated a number of smaller companies that do not trade on the Toronto Stock Exchange. Dr. Vilbert subsequently applied additional selection criteria design to narrow the sample to companies with characteristics similar to that of TQM. The final sample resulted in the following five companies: Canadian Utilities, Enbridge Inc., TransCanada Corp., Emera Inc. and Fortis Inc. Despite the selection criteria used, Dr. Vilbert noted that several of these companies have non-regulated activities and assets, and have recently been engaged in acquisition activities. As indicated by Dr. Kolbe, the Canadian utilities sample is smaller than in the RH-2-2004, Phase II proceeding and small samples have larger measurement errors. For these reasons, Dr. Vilbert was of the view that additional samples were necessary to provide a more reliable estimate of TQM's cost of capital.

One issue of particular relevance to the Canadian utilities sample is that it contains Enbridge Inc., which has significant interests in oil pipelines. TQM noted that the Board has in the past regarded oil pipelines as having higher risk than gas pipelines, but submitted that a number of changes have caused the risks faced by oil and gas pipelines to become more similar, and that TQM's business risks are now comparable to those of Enbridge Pipelines Inc. (Enbridge). TQM submitted that new oil pipelines and expansions of existing oil pipelines are increasingly being underpinned by long-term contracts while the contract lengths on gas pipelines including TQM have been declining, such that the traditional differences in risk caused by the contract versus common carriage distinction have been diminished. TQM also submitted that Enbridge and Trans Mountain Pipe Line Company Ltd. (Trans Mountain) were traditionally exposed to greater earnings variations than is the case under their current settlement-based toll methodologies. In response to the Board's statement in RH-2-2004, Phase II regarding the "operational complexities arising from the multiproduct nature" of oil pipelines,[33] TQM submitted that in its view both Enbridge and Trans Mountain have tariff protections against costs related to such complexities. Finally, TQM submitted that there has been a divergence in the supply outlook for oil and gas, such that gas pipelines now face greater supply risk than oil pipelines. Mr. Engen submitted that the financial markets distinguish between oil and gas pipelines based primarily on supply risk, and hence now view oil pipelines as being less risky overall than gas pipelines.

33 RH-2-2004, Phase II Reasons for Decision, *supra*, footnote 8, at p. 68.

Submissions of Intervenors

In Ontario's submission, the circumstances which led the Board to view oil pipelines as riskier than gas pipelines in the RH-2-2004, Phase II Reasons for Decision remain unchanged. Namely, Ontario was of the view that: despite TQM's declining contract length, gas pipelines have long-term contracts, whereas oil pipelines remain common carriers supported only by monthly nominations; oil pipelines are exposed to operational risks because of their multi-product mix, and Enbridge's history of protection against these risks does not guarantee the same going forward; and oil pipelines operate under settlements which were negotiated with different financial parameters. Therefore, Ontario submitted that oil pipelines are intrinsically higher risk than, and inappropriate comparators for, gas pipelines.

6.3.1.2 Gas LDC

Submissions of TQM

Unlike the Canadian utilities sample, Dr. Vilbert stated that all companies in the Gas LDC sample have operations concentrated in the natural gas industry. In selecting the Gas LDC sample, Dr. Vilbert started with the universe of publicly traded natural gas distribution utilities covered by *Value Line Investment Survey Plus Edition*. Vectren Corporation was added to the initial group because, as Dr. Vilbert mentioned, it is often viewed as a natural Gas LDC. Companies with unique circumstances which may bias the cost of capital estimates were eliminated and Dr. Vilbert submitted a final sample comprising the following ten companies with the fewest reliability concerns: AGL Resources Inc., Atmos Energy Corp., The Laclede Group, New Jersey Resources, Northwest Natural Gas, Piedmont Natural Gas, South Jersey Industries, Southwest Gas Corp., Vectren Corp., and WGL Holdings Inc. Dr. Vilbert also considered a sub-sample with the fewest reliability concerns. All companies from this sample were from the U.S.

Dr. Carpenter submitted an assessment of the companies in Dr. Vilbert's LDC sample. He argued that they were relatively pure play LDCs, as described further below, and concluded based on their individual characteristics that their long-term risks were lower than TQM's. He submitted that TQM had lower short-term risks, though all the sample LDCs had weather normalization mechanisms and all but one had additional rate mechanisms to partially protect them from revenue loss related to certain volumes. Overall, Dr. Carpenter argued that the long-term risk differences outweighed the short-term differences, such that TQM's overall risk was higher than the companies in Dr. Vilbert's Gas LDC sample.

6.3.1.3 MLP Pipelines

Submissions of TQM

The MLP pipelines sample was selected by Dr. Vilbert by searching Dividend Detective and the Publicly Traded Partnerships website. Dr. Vilbert retained companies owning pipelines and having investment grade bond ratings. Companies with significant mergers and acquisition activities and having experienced distribution cuts were subsequently eliminated by Dr. Vilbert. The MLP pipelines sample was comprised of the remaining six companies: Boardwalk Pipeline Partners, Kinder Morgan Energy Partners, TC Pipelines, Oneok Partners, Enbridge Energy Partners and Enterprise Products Partners; none of these strictly being oil companies. According

to Dr. Vilbert, the MLP pipelines sample is the closest to a pure play natural gas pipeline sample currently available, and the universe of MLP pipeline companies is growing. Dr. Vilbert noted that MLPs in this sample operate on a national scale in the U.S. with pipelines crossing many states. Dr. Vilbert was of the view that cost of capital estimates from this sample are conservative because of the difficulty of estimating the market value of the General Partner (GP) share of the equity.

6.3.1.4 Dr. Booth's Estimate

Submissions of Intervenors

Dr. Booth did not rely on a specific sample of comparables to derive his cost of equity recommendation. Dr. Booth relied on the historical performance and behaviour of major utility holding companies and pure play utilities in Canada. Dr. Booth also relied on TSX/S&P Composite sub-indexes of Gas/Electric, Telco, Pipes and Utilities. Based on his professional judgment, a CAPM estimation and a two-factor model, Dr. Booth expressed the view that a "typical regulated utility" should be allowed an ROE of 7.75 per cent.

In estimating the cost of equity with CAPM, Dr. Booth used a risk-free rate of 4.75 per cent based on the Consensus Economics forecast and the 30-10 year spread. Dr. Booth also relied on a 5.0 per cent market risk premium based on the influence of earlier data, the recent unexpected performance of the bond market and a reduction in the risk on the bond market compared to a few years ago. Dr. Booth's cost of equity estimate includes a 50 basis point allowance for floatation costs.

6.3.2 Unregulated Activities in Market Data from Selected Samples

To the extent that the companies in the selected samples are engaged in both regulated and unregulated business activities, in addition to comparing the risks of their regulated activities with TQM's, it is also important to determine if and the extent to which their unregulated business activities could be expected to influence the estimated costs of capital.

Submissions of TQM

Dr. Carpenter submitted evidence on the degree of unregulated business activities of the companies in Dr. Vilbert's LDC sample, as well as for some of the MLPs in Dr. Vilbert's MLP pipelines sample, based on measures of both earning and asset shares. Dr. Carpenter judged the LDC sample to be a relatively "pure play" LDC sample based on two factors. First, he submitted that for 2006 the sample LDC companies each earned between 50 and 99 per cent of their net income from regulated gas distribution, transportation and storage services, and had 66 to 100 per cent of their assets committed to these regulated activities. Second, in Dr. Carpenter's opinion, his evidence showed that for the most part, the competitive transportation and storage services were insignificant parts of the companies' overall activities. Dr. Carpenter's evidence suggested that the non-regulated activities varied in nature, ranging for example, from natural gas marketing to power plant ownership.

With respect to Dr. Vilbert's MLP pipelines sample, Dr. Carpenter examined the business activities of the three MLPs that in his view were the most heavily involved in interstate natural gas transmission and storage, namely Boardwalk Pipeline Partners, LP; Oneok Partners LP; and TransCanada Pipelines, LP. Based on his evidence for up to five recent years, these MLPs earned between 59.2 and 100 per cent of their net revenues from interstate natural gas transmission and storage, while 80 to 100 per cent of their plant, property and equipment was invested in these same activities.

Dr. Vilbert attempted to control for the potential impact of unregulated activities in his cost of capital estimations by selecting sample companies with the highest levels of regulated assets. He suggested that non-regulated activities are in general expected to be somewhat higher risk than regulated activities, but argued that risk measures and estimated cost of capital may not reflect this expectation, for example because of estimation errors. He indicated that he does not know how large an adjustment, if any, should be made on the basis of sample companies' unregulated activities. Dr. Kolbe also suggested that a factor which could offset any potential bias in estimated costs of capital from the presence of unregulated business activities is that in cases where the unregulated businesses are experiencing difficulties, their measured cost of capital will tend to underestimate their true cost of capital.

In Dr. Vander Weide's submission, there are no adequate measures to delineate regulated from unregulated activities, mainly because of distortions in accounting measures and limited availability, in practice, of information which is fully segregated between regulated and unregulated activities. He also argued that unregulated activities are not necessarily higher risk than a low risk pipeline.

In response to a CAPP IR, TQM provided a Dominion Bond Rating Service (DBRS) report describing its utilities ratings methodology. In a section titled "Non-Regulated Activities", DBRS stated:

> given the higher business risk inherent in non-regulated activities, companies with larger exposures to non-regulated activities would be expected to have lower financial risk (i.e., lower balance sheet leverage and higher fixed charges coverage ratios) as a compensating factor in order to have a comparable credit rating.[34]

Similar methodology reports from the other major bond rating agencies were less explicit on this point.

Views of the Board

Integration of Canadian and U.S. Capital Markets

In the Board's view, global financial markets have evolved significantly since 1994. Canada has witnessed increased flows of capital and implemented tax policy changes that facilitate these flows. As a result, the

34 DBRS Rating Approaches -- Rating Utilities (Electric, Pipelines & Gas Distribution) at p. 2.

Board is of the view that Canadian firms are increasingly competing for capital on a global basis. The Board notes that Canada has been diversifying its business partners such that there is currently proportionally less Canadian foreign direct investment in the United States than there was in the 1990's. Nonetheless, the evidence is also clear that the United States is the single most important recipient of Canadian investments.

A fair return on capital should, among other things, be comparable to the return available from the application of the invested capital to other enterprises of like risk and permit incremental capital to be attracted to the regulated company on reasonable terms and conditions. TQM needs to compete for capital in the global market place. The Board has to ensure that TQM is allowed a return that enables TQM to do so. Comparisons to returns in other countries would be useful, but challenging, in terms of differences in business risks and business environment. As a result, the Board is of the view that pipeline companies operating in the U.S. have the potential to act as a useful proxy for the investment opportunities available in the global market place.

Canadian and U.S. regulatory environment - Transmission Pipelines

The Board is not persuaded that the U.S. regulatory system exposes utilities to notable risks of major losses due either to unusual events or cost disallowances. The Board views the losses and disallowances experienced by U.S. regulated entities as a result of the restructuring that took place to terminate the merchant gas function of pipelines, as well as some other circumstances such as the Duquesne nuclear build, to be, to a large extent, unique events. The Board also finds that such instances are not likely to weigh significantly in investors' perceptions today, and would thus have little or no impact on cost of capital.

The Board is of the view that volumetric risk is more a feature of the U.S. regulatory model than the Canadian one. However, the Board did not find that the evidence supported the conclusion that volumetric risk impacts long-term risks of capital recovery. The Board finds that volumetric risk clearly impacts short-term risks of allowed earnings not being achieved, and sometimes for consecutive years between rate cases. The Board also finds it significant that volumetric risk has a symmetric nature, presenting pipelines with some counteracting upside opportunities.

The Board notes that Dr. Safir's evidence points to greater variability in the actual earnings minus allowed earnings of U.S. pipelines compared with Canadian ones. Dr. Carpenter submitted that this is consistent with his view that U.S. short-term risks are higher. The Board agrees with this view and finds that the short-term risks faced by U.S. pipelines are higher than those borne by TQM specifically and by their Canadian counterparts generally.

Overall, the Board finds that the risks resulting from the regulatory environment are higher for U.S. pipelines than for Canadian pipelines, and finds that this was also true in 1994. However, the Board is of the view that the risks faced by TQM and those faced by U.S. pipelines are not so different as to make them inappropriate comparators. The Board accepts that there are many similarities between the risks faced by pipelines in the two countries. This is due to the two regulatory models sharing, to a large extent, the same fundamental principles. Moreover, Canadian and U.S. pipelines operate in what the Board views as an integrated North American natural gas market, which informs the choices made by regulators in the different jurisdictions.

Canadian and U.S. regulatory environment - LDCs

The Board notes that Dr. Safir's evidence suggested that the short-term earnings variation of U.S. LDCs was higher than that of Canadian pipelines, although lower than U.S. pipelines. The Board also notes that Dr. Carpenter submitted that TQM had lower short-term risks than the companies in Dr. Vilbert's LDC sample. The Board concurs that U.S. LDCs have higher short-term risks than TQM.

On the question of Dr. Safir's and Dr. Carpenter's divergent views on what the FERC found with respect to the relative risks and comparability of U.S. interstate pipelines and LDCs, based on the Board's consideration of the FERC decision presented in evidence, most notably the excerpts provided in the footnote in Section 6.1.2, the Board accepts Dr. Carpenter's submission that the FERC accepted companies with high proportions of LDC operations in the proxy group and adjusted their returns upward by 50 bps, having judged LDCs to have lower risks than interstate pipelines. The Board is informed by the FERC's view on this matter.

The Board notes that there was no evidence showing that LDCs have higher long-term risks than transmission pipelines. However, there were views suggesting the opposite due to the nature of LDCs' market and supply risks. The Board is of the view that the evidence did not support a clear finding on the relative long-term risks of TQM versus U.S. LDCs.

The Board is satisfied that the evidence establishes that TQM and U.S. LDCs are sufficiently similar in risk so as to make comparisons meaningful. In assessing the comparability of U.S. LDC returns, the Board's view regarding the higher short-term risks of U.S. LDCs meant that, overall, the Board viewed the regulated LDC activities of this group as somewhat higher risk than TQM. The Board would have benefited from additional information on the comparability of this group with TQM.

Canadian Negotiated Returns

The Board's policy is to approve or reject settlements as a whole, recognizing that there are unknown tradeoffs made in arriving at what ultimately comes to the Board as a package deal. When the Board finds that the resulting tolls would be just and reasonable, the Board does not approve each component as just and reasonable on a standalone basis. The Board is of the view that the evidence in this proceeding has highlighted the fact that negotiated tradeoffs cannot be observed or deduced by outside parties, and that any one aspect of a settlement, including the allowed return, cannot be presumed to have been independently acceptable to parties.

The Board is not persuaded that looking at a number of settlements in aggregate alleviates this fundamental problem. The Board finds that the uncertainty related to the tradeoffs is a great barrier to the informative value of settlement returns. Therefore, the Board has placed no weight on the returns derived from Canadian negotiated settlements.

Canadian Litigated Returns

On the question of whether litigated Canadian utility returns are similar because of problems of circularity, or whether they provide a valid signal because they represent independent conclusions reached on similar questions, the Board finds that there was no evidence that conclusively supported either view. Faced with contrasting opinions on the matter, and with the option of relying on returns from other submitted comparables, the Board placed no weight on Canadian litigated returns.

Litigated U.S. Returns

As detailed more fully in other Sections, the Board has placed principal weight on the market-based return data. Nonetheless, the Board found that litigated U.S. returns were useful as a check against the results from the analyses which relied upon market returns.

Financial Market Data Results from Selected Samples

In determining what weight to assign the Canadian utilities sample, the Board considered the relevance of the factors which led it to place no weight on Canadian negotiated and litigated returns. The Board finds that financial market data results, properly derived, yield estimates of sample companies' true underlying costs of capital. This is because, in the Board's view, the underlying cost of capital is driven by investors' expectations as expressed in financial markets, and allowed returns are only one of many factors influencing these expectations. As a result, the Board finds that market-based estimates of cost of capital largely circumvent the problems

which the Board found to be associated with direct comparisons to Canadian negotiated and litigated returns.

The Board also considered whether the risks faced by companies in the Canadian utilities sample have changed, relative to TQM's, as a result of some of their business segments being governed by negotiated settlements. In the Board's view, the evidence did not establish that settlements, at an aggregate level, have caused either a systematic increase or decrease in business risks. As a result, the Board compared TQM with the companies in the Canadian utilities sample based on other underlying business risk considerations, such as supply, market and competitive risks

In considering the Canadian utilities sample's inclusion of Enbridge Inc., the Board finds TQM's submission regarding the changes that influence the relative risks of oil and gas pipelines to be persuasive in suggesting that the relative risks of oil and gas pipelines have directionally come together. However, the Board did not find that TQM established that its risks, nor those of gas pipelines generally, are today at the same level or higher than those of oil pipelines. Given the Board's view that the relative risks have become more similar over time, and the fact that Enbridge Inc. also has interests beyond oil pipelines, the Board finds it acceptable to include Enbridge Inc. in this sample.

Given these views related to the Canadian utilities sample, and because in the Board's view the sample companies operate in a similar environment (regulatory, financial and political) as TQM, the Board found the Canadian utilities sample helpful.

Dr. Booth's cost of equity estimate of a "typical regulated utility", as shown in Table 6-1, was of assistance to the Board in its interpretation of the ATWACC results. The Board recognizes some limitations in combining this cost of equity estimate with market-value capital structure since the capital structure might not perfectly match the one of a "typical regulated utility" in Canada. Nevertheless, the Board is of the view that Dr. Booth's evidence regarding a "typical regulated utility" can reasonably be representative of the utility industry in Canada, an industry of which TQM is a part. However, the Board views TQM as being part of a larger business environment than one delineated by the Canadian border.

The Board accepts that TQM can be compared to some degree with the Gas LDC sample since the operations of the sample companies are concentrated in the natural gas business and the differences in respective business environments can, in the Board's view, be reasonably understood and accounted for.

The Board found the MLP pipelines sample informative as it was presented as a sample being the closest to a pure play natural gas pipeline

sample currently available. In the Board's view, the higher short-term business risks of U.S. pipelines, which the MLP pipelines sample is subject to, can be offset to some degree by what the Applicant submitted was an underestimation of the MLP equity value due to the difficulty of estimating the market value of the GP. Since the MLP pipelines sample seems to be a promising sample for future proceedings, the Board is of the view that it would benefit from a thorough examination of the General Partner/Limited Partner relationship.

Unregulated Activities in Market Data from Selected Samples

In principle, the Board does not believe that comparables necessarily need to be all, or mostly, regulated. Rather, the important question is how comparable the risks are. If there were completely non-regulated companies with risks that were similar to a pipeline's, or if risk differences could be accounted for, the Board would be open to such comparables, because they would provide information on the perspective of participants in competitive markets with regard to risk.

The Board notes that Dr. Vilbert acknowledged that the risks of unregulated operations are generally expected to be higher than regulated operations. The evidence also showed that DBRS views the unregulated portions of utility businesses to be of higher risk and that DBRS requires that utilities offset their exposures to unregulated activities with lower financial risk, in order to achieve a comparable rating. Despite Dr. Vilbert's contention that the unregulated activities' higher risks would not necessarily mean that the estimated cost of capital would be higher, the Board is of the view that in the case of his samples, on average it would be expected to mean exactly that.

As a consequence, the Board is of the view that in the context of all the samples presented in this case, the presence of unregulated operations in the sample companies implies that the estimated costs of capital are likely capturing to some extent the higher cost of capital of the unregulated activities.

Conclusion

In light of the Board's views expressed above on the integration of U.S. and Canadian financial markets, the problems with comparisons to either Canadian negotiated or litigated returns, and the Board's view that risk differences between Canada and the U.S. can be understood and accounted for, the Board is of the view that U.S. comparisons are very informative for determining a fair return for TQM for 2007 and 2008.

The Board was informed by all of the financial market returns comparable groups presented as evidence by both parties. Consistent with the Board's

decision in Chapter 4 to rely on a market-based ATWACC methodology, the Board has put principal weight on market-determined returns as opposed to regulatory returns. These market-determined returns of companies found to be of comparable risk to TQM, combined with the market-value capital structure, provide the Board with crucial information for determining TQM's cost of capital for 2007 and 2008. How this information was used to determine the fair return for TQM is explained in Chapter 7.

Chapter 7

Fair Return for TQM for 2007 and 2008

Reliance on an aggregate approach to cost of capital involves comparing total costs of capital of comparable companies, rather than comparing the costs of individual cost of capital components. This Chapter first addresses the total fair return for TQM for 2007 and 2008, and then the manner in which the return may be implemented.

7.1 Total Return

Table 7-1 summarizes the recommendations made by various parties for the cost of capital for TQM for 2007 and 2008. One implication of using an ATWACC methodology is that the returns recommended by parties may be conveniently examined on a comparable basis. Some parties (CAPP, IGUA and Ontario) made recommendations for individual components of cost of capital, while others (TQM and CGA) stated the aggregate cost of capital implications of their recommendations. For ease of comparison all are presented using ATWACC or ATWACC equivalence in Table 7-1.

Submissions of TQM

As outlined in Section 1.2 of these Reasons, TQM requested return on capital components of 11 per cent ROE on 40 per cent equity thickness, plus the embedded cost of debt on the remaining 60 per cent of the capital structure. TQM's current embedded interest rate on the 60 per cent funded debt is 6.14 per cent. A further (unfunded) 10 per cent was set at 5.69 per cent in 2007 and 5.5 per cent in 2008. TQM indicated that it started with an ATWACC of 6.65 per cent, which is based on the market value of debt. The Application included an adjustment for the difference between market and embedded costs of debt, resulting in an ATWACC of 6.9 per cent. However TQM indicated it could accept a 6.65 per cent aggregate return when using market returns for both debt and equity.

TQM submitted that the financial integrity requirement is met when the total return allows TQM to maintain its financial integrity, including acceptable bond ratings and coverage ratios, on a stand-alone basis. Acceptable bond ratings and coverage ratios impact a utility's cost of capital which is ultimately reflected in the reasonableness of the terms and conditions upon which the utility can attract capital. Currently, S&P and DBRS rate TQM at BBB+ and A (low) respectively, both investment grade ratings. TQM submitted that these ratings reflect the implicit credit support of its parents which could potentially violate the stand-alone principle. According to Mr. Murphy, if Moody's were to apply a credit rating to TQM, it would assign a Ba1 rating which is below investment grade.

Table 7-1
Summary of Returns Recommended for TQM for 2007 and 2008
(per cent, unless specified otherwise)

Party	Equity Thickness[1]	Return on Equity	Debt	Equivalent Total Return After-tax[2]
TQM	40	11	Embedded	6.9
	n/a	n/a	Embedded	6.9
	57.5 to 60	RH-2-94 Formula [4]	Embedded	6.9
TQM [3]	n/a	n/a	Market	6.65
CGA				200 to 300 basis points above current [6]
CAPP	30 to 32	RH-2-94 Formula [4] or 7.75 [5]	Embedded	5.4 to 5.5 (2007) [7] 5.5 to 5.6 (2008) [7] 5.2 to 5.3 [7]
IGUA	32	RH-2-94 Formula [4]	Embedded	See CAPP above
Ontario	36	RH-2-94 Formula [4]	Embedded	5.7 (2007) [7] 5.8 (2008) [7]

1 Book equity / (book equity plus book debt)
2 Where the after-tax return is impacted by tax rates, e.g. when computing an after-tax debt cost, a tax rate of 32 per cent is assumed.
3 The TQM recommendations had started from the analysis of Dr. Kolbe and Dr. Vilbert which derived an ATWACC range of 6½ to 6¾ per cent, before adjusting from market to embedded cost of debt, an adjustment of 0.24 percentage points.
4 The RH-2-94 Formula return on equity is 8.46 per cent (2007) and 8.71 (2008).
5 If the RH-2-94 Formula were to be re-opened, then CAPP recommended that the current value of the return on equity be 7.75 per cent.
6 The current value for TQM is 5.4 to 5.5, as computed by the Board.
7 As computed by the Board.

Submissions of Intervenors

CGA argued that, regardless of any possible change in approach, it is necessary to eliminate the 200 to 300 basis point deficit in total returns that has emerged in Canadian formula-based returns.

Spectra and Union indicated their support for the TQM position. They recommended that the Board carefully examine whether the RH-2-94 Formula continues to represent a fair return. They did not recommend a specific return for TQM for 2007 and 2008.

In CAPP's view, the ROEs determined by the RH-2-94 Formula of 8.46 per cent and 8.71 per cent provide a more than fair return for TQM for 2007 and 2008. As to equity thickness, CAPP offered a range, based on Dr. Booth's assessment, of 30 per cent if the basis of comparison were whether TQM's business risks have changed since the RH-2-94 Decision, or 32 per cent based on comparisons with Alberta transmission operators and the EUB 2003 decision on AltaLink. CAPP took no position on the cost of debt as applied for by TQM, arguing that use of embedded debt and the RH-2-94 Formula remains valid. CAPP did not dispute TQM's submission regarding debt ratings and argued that the current return allowed to TQM cannot be unfair since TQM has been able to maintain good and stable investment grade bond ratings.

According to Ontario, as a stand-alone entity, TQM continues to be capable of attracting sufficient capital. An increase in the company's equity thickness to 36 per cent and the retention

of the RH-2-94 Formula would be more than sufficient to maintain TQM's ability to attract capital on favourable terms for both the short and long-term.

IGUA recommended that the Application for any increase in the equity thickness beyond 32 per cent be denied, noting that in its 2006 Annual Report, TQM stated that a 36 per cent deemed equity thickness would be appropriate, not the 40 per cent sought in the Application. IGUA contended that even the increase to 36 per cent was unnecessary, given its views on TQM's risks as outlined in Chapter 5. IGUA further noted that in its 2006 Annual Report TQM was not looking for any increase in its ROE. IGUA submitted that a request for anything more than the RH-2-94 Formula should be denied.

7.2 Total Return and Capital Structure

The total return determined to be fair could be granted in a number of different ways. The Board sought perspectives from parties on whether they had preferences regarding returns granted as a total return, or as distinct returns on equity and on debt, with a Board deemed capital structure.

Submissions of TQM

As shown in Table 7-2, TQM demonstrated that the three combinations discussed in the Application ("11 on 40", "Formula on 60" and single ATWACC) were approximately equivalent in terms of revenue requirement, and could result in only one possible toll. TQM indicated that in all cases the after tax return would need to be grossed up for taxes, by dividing the equity return by 1 minus the approximately 32 per cent tax rate, the average tax rate of the TQM owners. In the third case shown in Table 7-2, the income taxes treat the return on capital as though it were 100 per cent based on equity with no tax deductions for debt payments.

Although TQM had a preference for the 11 per cent on 40 per cent equity, it viewed the three alternatives as equivalent because the sum of returns and taxes would not change.

Table 7-2
Implications for 2008 Revenue at a 6.9 per cent ATWACC ($000)

Three Alternative Cases Presented by TQM	Return on Capital	Income Taxes		Sum of Return and Income Taxes
		Related to Return on Capital	Timing Difference and Other [1]	
11 on 40 calculated using the traditional approach	36,644	9,459	2,109	48,212
Formula on 60 calculated using the traditional approach	34,797	11,241	2,109	48,147
6.9% ATWACC, with no ROE or capital structure specified [2]	31,254	14,833	2,109	48,196

From TQM's Notes:

1. The $2,109,000 Tax on Timing Differences and Other is not sensitive to return and is the same in all 2008 cases.
2. In the 6.9% ATWACC case, return is the 2008 rate base ($452,962,000) times 6.9%, and the income taxes related to return on capital use a gross up percentage of 47.46% times the return on capital.

Each of TQM's owners, TransCanada and Gaz Métro, indicated that they address their total debt on a consolidated basis, and target a specific rating and contended they would not have the same incentives to consider the tax benefits of debt as a non-regulated company.

TransCanada indicated that, dependent on how the total return was granted to TQM, it would possibly reconsider how it financed its investment in TQM. For example, if TQM were granted the Formula on 60 per cent equity thickness, TransCanada indicated that it would not actually carry 60 per cent equity for the TQM investment in the TransCanada capital structure as that level is not required to satisfy rating agencies. TransCanada currently has roughly 40 per cent equity thickness in its market value capital structure. Gaz Métro also indicated that, regardless of the manner in which the award was granted, it is likely to carry a corporate equity thickness of 40 per cent.

With regard to the tax benefits from optimizing TQM's financial leverage, TransCanada acknowledged that at least part of its benefit from offshore financing refers to the structure called double dip, where an entity can legally deduct interest in two jurisdictions, in this case interest paid in Canada and interest paid in the U.S. However, TransCanada indicated that TQM's position remains consistent with the regulatory standard of looking at an entity as stand-alone, and not considering TQM as an integrated part of a larger corporation. As each of their alternative proposals for a fair total return would result in the same revenue requirement, TQM indicated that there would be no wealth transfer.

Submissions of Intervenors

CAPP suggested that the capital structure decisions could produce a wealth transfer dependent on who benefits from optimizing TQM's capital structure. Regulated companies have traditionally been allowed to include in their revenue requirement an allowance for income taxes, reflecting the deemed capital structure, allowed cost of equity and actual cost of debt. As interest is tax deductible, an aggregate cost of capital can be minimized through the use of debt. Traditional regulatory approaches have explicitly assigned this reduction in aggregate cost of capital to the shippers. CAPP expressed concern that, if a total return were granted without specifying the capital structure, the revenue requirement would include provision for taxes which may not necessarily be paid, particularly as the regulated company is held within a holding company structure.

CAPP submitted that granting an aggregate cost of capital allows a holding company, as owner of the regulated utility, to use some leverage at the holding company level, rather than at the subsidiary level where it could benefit shippers. This has been referred to as double leverage. Dr. Booth indicated that this occurs in Canada, and demonstrates that full leverage is not used at the regulated business unit level. Further, a holding company with international businesses may be able to reduce income taxes by utilizing additional deductions.[35] However Dr. Booth agreed that any such leverage would not impact what is charged to toll payers, as long as the ATWACC was constant.

35 Some of such deductions involve structures referred to as double dip.

Dr. Safir suggested that granting a total return without specifying a capital structure would alter risks, and that it would be better and more efficient to see the components even if the results were the same.

For both CAPP and IGUA, separately addressing the rate of return on equity and the appropriate capital structure is convenient and useful, and should be retained.

7.3 Adjusting for the Embedded Cost of Debt

Submissions of TQM

In its application, TQM asked that its allowed return be adjusted for the difference between the market cost of debt and the actual cost of TQM debt.[36] TQM acknowledged that a pure ATWACC approach would be based on the market value of each component, and would not adjust for the embedded cost of debt. Dr. Kolbe indicated that a pure ATWACC methodology would be superior from an economic perspective to a hybrid methodology that uses the ATWACC and the embedded cost of debt. On a conceptual basis, under an ATWACC regime, TQM argued that a utility would come back to the regulator when there are changes in the cost of capital, as driven by the market cost of equity or debt.

If the Board were to award returns on market-based ATWACC including the market cost of debt, Dr. Kolbe urged the Board to think about transition issues and decide whether the difference between market and embedded debt costs reached a level of materiality needing a transition adjustment from the past approach. TQM indicated that, if required, it would accept a return that did not provide for the difference between embedded and market cost of debt. TQM indicated that if it were allowed an ATWACC with the market cost of debt it would not return to the Board for a change in cost of capital even if its debt costs changed for 2007 and 2008, since the decision in this case is being made on a retrospective basis.

Submissions of Intervenors

Dr. Booth submitted that the use of a single market-based ATWACC to grant a return would make the utility accountable for the timing of its debt issues. Providing this implicit allowance for the market cost of debt would be a significant departure from regulatory practice in Canada, and would tend to make the equity more risky, altering many aspects including volatility and betas observed in the market. He submitted that in the traditional practice, shippers bear the risk that embedded debt costs rise above market debt costs, and are compensated for bearing that risk by a lower cost of capital in the tolls. Dr. Booth considered that moving that risk to the pipeline had implications for the use of deferral accounts and other components of the regulatory bargain, and that the added risk imposed on the system would not be offset by obvious benefits.

IGUA indicated that it preferred using the actual cost of debt, rather than regularly adjusting to market rates. This view was expressed in the context of continuing to use the current methodology for determining the return on common equity. Similarly Ontario noted the Board's

36 TQM's current embedded interest rate on the 60 per cent funded debt is 6.14 per cent. A further (unfunded) 10 per cent is financed at the prime rate less 0.5 per cent, that is, 5.69 per cent in 2007 and 5.5 per cent in 2008. Dr. Vilbert used 5.5 per cent for the market cost of debt.

standard practice of allowing TQM to include the actual cost of debt in its revenue requirement for recovery from customers through tolls and had no objection to continuing this practice along with continued reliance on the RH-2-94 Formula.

Views of the Board

In determining the fair return for TQM for 2007 and 2008, the Board used judgment to bring the evidence together to reach an overall conclusion. The Board has not assigned quantitative values to the adjustments made for individual elements of the evidence nor has it assigned quantitative weights to the various opinions presented in this hearing. Figure 7-1 was prepared to provide an overview of the factors that the Board considered and the extent of their influence on the Board's decision.

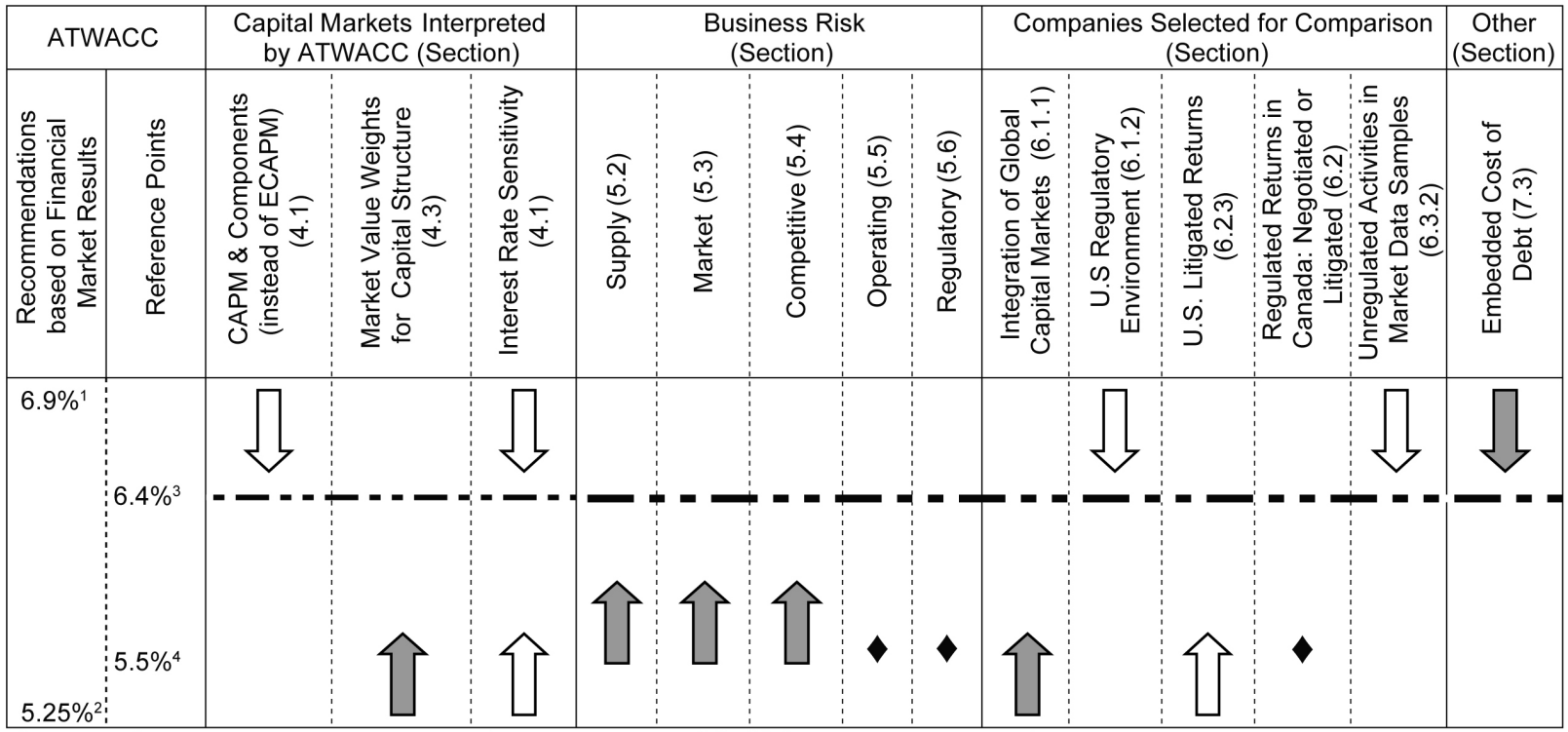
The factors included in Figure 7-1 have been discussed in greater length in earlier sections. Having decided, as described in Chapter 3, to vary from the RH-2-94 Formula, the Board considered all evidence on the estimation of cost of capital. The Board examined the evidence in ATWACC terms to reach a finding on the fair return in this particular case.

In the Board's opinion, an ATWACC methodology enables the comparisons of aggregate returns on an equal footing between companies of comparable risk by substantially neutralizing the effect of financial risk attributable to different capital structures. Consequently this methodology better utilizes financial market information. Further, it produces a single number which aligns with the manner that many businesses assess capital projects.

As explained earlier, the Board relied on CAPM for the market cost of equity. The Board considers the market value capital structure to be the appropriate way to combine the estimated market costs of equity with the market cost of debt, on an after-tax basis, to derive market-based ATWACC estimates for sample companies. The Board recognizes that there is interest rate sensitivity in regulated utility returns. However, for reasons discussed in Chapter 4, the Board did not rely explicitly or exclusively on either of the methodologies offered (adjusted betas or a two-factor model) in this proceeding.

These factors were taken into account when examining the recommendations which were based on financial market results from samples of companies. These recommendations are included in the first column of Figure 7-1. However, not all of the proposed comparable companies have risk at the level of TQM, and as discussed in Chapter 6, the Board has considered such differences in weighing the estimated costs of capital of the various samples.

Figure 7-1
Illustration of Factors and their Influence on the Board's Decision on a Total Return for TQM for 2007 and 2008



1. Each of the combinations requested by TQM match an ATWACC of 6.9 per cent, see Table 7-1.
2. The result of CAPP's recommendation of the 7.75 per cent on 30 to 32 per cent equity, if the request to vary the RH-2-94 Formula were granted, see Table 7-1.
3. The total return set by the Board.
4. The status quo, with 30 per cent equity and the (2008) RH-2-94 Formula. CAPP's recommendation of the RH-2-94 Formula on 30 to 32 per cent equity, if the request to vary the RH-2-94 Formula were denied, would be in a 5.4 to 5.6 per cent range for ATWACC. (See Table 7-1)

Legend: The size of the arrows has no implication for quantitative contribution to the Board's decision. Arrows are positioned to show movement from a starting point.

Material Influence

Limited Influence

♦ No Influence

In the Board's opinion, many factors interact in natural gas markets and provide the context for the business risk of TQM. While the Board found no change since 1994 in TQM's regulatory and operating risks, the changing dynamics of the natural gas end-use markets, pipeline competition and changing potential supply sources have combined to create greater business risk for TQM.

The Board did not take into account the stated results from negotiated settlements for Canadian pipelines, nor did it rely on the allowed returns determined in Canadian litigated proceedings. However the market returns for Canadian utilities were helpful to the Board since these returns demonstrate the market's assessment of the firms' costs of capital.

The Board found market returns of U.S. companies to be relevant to the cost of capital of Canadian firms, as U.S. market returns can be a useful proxy for investment opportunities in the increasingly integrated global capital markets. In the Board's view, Canadian and U.S. natural gas markets have many similarities. For instance, these markets operate in similar regulatory environments. However, as discussed in Chapter 6, the Board found that generally TQM faces less risk than U.S. companies which were proposed as comparables.

Fair Return Determination

Having carefully considered the evidence and assessed the factors influencing TQM's total return, the Board concludes that an ATWACC of 6.4 per cent on rate base is the fair total return for TQM for 2007 and 2008.

In the Board's view, the total return of 6.4 per cent will be in line with those of North American pipelines found to be of comparable risk. The resulting risk-reward profile of TQM will be in line with those of other comparable investments presented as evidence. The Board is therefore of the view that the aggregate return of 6.4 per cent will ensure that TQM's total return on capital meets the comparable investment requirement.

The Board is also of the view that the total return of 6.4 per cent will help TQM maintain its credit rating on a stand-alone basis. As a result, the Board believes that TQM will continue to maintain its financial integrity and its ability to attract capital on reasonable terms and conditions.

The Board finds that the total return of 6.4 per cent satisfies the Fair Return Standard, as articulated in Chapter 2 of these Reasons.

A Single Market-Based Return

The Board accepts TQM's demonstration that the alternative capital structures provided in the Application each produce the same revenue and

toll results, for a constant market-based ATWACC. All parties indicated that, irrespective of the capital structure chosen, there can be only one toll for a given ATWACC number.

The Board notes that the provision for actual or embedded debt costs, and the allowance for estimated income taxes payable based on the deemed capital structure, are part of the traditional approach to toll making which considers the individual components of the cost of capital. However, the Board has decided to set an aggregate return on capital, guided by market-based principles. The Board is not specifying TQM's capital structure for 2007 and 2008. In keeping with that perspective, the Board finds that a fair treatment of embedded debt costs is to consider such costs to be accounted for in the market-based ATWACC number. In this regard, the Board subscribes to the views expressed by Dr. Kolbe to the effect that, notionally, this is the superior way from an economic perspective.[37]

The Board's decision to grant an aggregate return on capital without specifying capital structure has the result of transferring to the pipeline company the decision to determine its optimal capital structure and choose specific financial instruments without regulatory oversight. The freedom for a company to choose its optimal capital structure is consistent with the Board's philosophy of regulating pipeline companies on a goal-oriented basis. Exercise of that freedom does not, in the Board's view result in a wealth transfer, and is supported by the longstanding stand-alone principle.

The difference between market cost of debt and embedded cost of debt in this case is small and therefore does not require consideration of a grandfathering or transition phase for TQM for 2007 and 2008.[38]

In support of transparency, the Board requires that TQM report the amount of leverage that is supported by TQM in the owners' capital structures as of the end of 2008.

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37 At transcript volume 9, para. 11562 Dr. Kolbe stated: "a pure ATWACC methodology would be economically superior to a hybrid methodology that gives you the ATWACC and the embedded cost of debt from an economic point of view."

38 To facilitate comparisons, the table below provides some combinations of ROE and equity thickness which, when combined with actual debt costs, are equivalent to the market-based ATWACC of 6.4 per cent set by the Board.

Equity Thickness, per cent	Return on Equity, per cent
40 (As requested by TQM)	9.7
32 (As recommended by CAPP)	11.2
50.5	8.46 (Using 2007 ROE from the RH-2-94 Formula)
49	8.71 (Using 2008 ROE from the RH-2-94 Formula)

Decision

The Board is allowing TQM to include in its revenue requirement for 2007 and 2008 a provision for after-tax weighted average cost of capital of 6.4 per cent.

TQM is directed to file for final tolls for 2007 and 2008 using this information, and to report the amount of leverage that is supported by TQM in the owners' capital structures as of the end of 2008. These filings are due by 30 April 2009.

Chapter 8

Disposition

The foregoing chapters constitute our Reasons for Decision in respect of the application considered by the Board in the RH-1-2008 proceeding.

G. Caron
Presiding Member

R.R. George
Member

G.A. Habib
Member

Calgary, Alberta
March 2009

Appendix I

Ruling 1 – 30 September 2008

Yesterday, the Board heard submissions by counsel for TQM and counsel for CAPP regarding the use that can be made, during an oral proceeding, of documents filed in response to IRs, but which remain available in a "reading room" established at the office of counsel for TQM.

Counsel for TQM stated that documents from the reading room and referred to during the hearing may be referred to in their entirety on the record during a proceeding.

Counsel for CAPP took the position that only those portions of the reading room documents put to witnesses by a cross-examiner and then expanded on by the witnesses with further related portions of the documents are considered to be accepted onto the record.

This is the Board's ruling on the matter.

The Board's traditional practice is that where a party seeks to use a document for the purpose of aiding their cross-examination, subject to relevance being established, the Board will allow the document to become an exhibit only for the excerpts that have been put to the witnesses and discussed between the examiner and the witnesses.

In this instance, TQM through its counsel has established a reading room to ensure that documents referred to in IRs, which would otherwise be filed on the record and which would be voluminous, remain accessible to all parties without creating a record that might otherwise become unwieldy. The Board finds this approach acceptable and encourages the concept of such a reading room.

The reading room documents, in the Board's view, are different from those produced by a cross-examiner as an aide to cross. The documents associated with IR responses and placed in a reading room have been made available in the information exchange as part of the evidence filed in response to IRs and are available to parties to examine ahead of the hearing. They are, in essence, the evidence of the party answering the IRs.

As such, the Board is of the view that documents or portions of documents from the reading room reproduced and presented in the hearing for the purpose of cross-examination, should be admitted in their entirety. That is, the entire document or excerpt of the document if it is lengthy (such as a text book) will be considered to be on the record, not just the passages which are brought to the witnesses' attention.

The witness to whom the document is being put may draw the Board' attention to other portions of the document either in the excerpt version produced by the cross-examiner, or if needed, by producing a longer or different version of an excerpted document.

The cross-examiner who introduced the original, shorter document will be given the opportunity to cross-examine on the other portions.

The Board recognizes that this is somewhat a change in process mid-stream of this hearing. Therefore the Board is willing to hear from parties if they have any concern regarding the documents entered to this point in time.

Appendix II

Ruling 2 – 2 October 2008

Yesterday, Mr. Yates objected to questions by Mr. Schultz on the reply evidence of TQM. The evidence cited the argument of CAPP in an EUB hearing in 1994. This argument was based on the evidence of CAPP's expert in that proceeding, Mr. Hugh Johnson.

In the Board's view, as this evidence was submitted as TQM's reply evidence, Mr. Schultz is entitled to cross-examine on it.

However, the Board notes that

- neither TQM nor CAPP are relying on Mr. Johnson's evidence for the truth of the content;
- Mr. Johnson is not here to speak to the evidence; and
- there has been a significant passage of time since that evidence was filed and the argument based on that evidence was made, which may mean that there are changes which would have affected Mr. Johnson's position.

Therefore, the Board is inclined to give little weight to this portion of the reply evidence. The Board would also point out, for guidance to counsel, that it finds helpful that cross-examination which assists it in understanding the evidence before it and the current position of parties.

The Board directs counsel to govern themselves accordingly in the way in which they cross-examine on this evidence. Mr. Schultz, if you have some limited questions on this matter, you may proceed.

Appendix III

Ruling 3 – 7 October 2008

Yesterday, Mr. Schultz objected to questions Mr. Yates posed to the CAPP policy witness regarding the adoption of the evidence presented by Dr. Booth and Dr. Safir as that of CAPP.

Mr. Schultz argued that a party presenting expert evidence is not required to accept that expert's evidence as their own although that party adopts the conclusions reached by their expert.

Mr. Yates put forward the view that if a party is not willing to accept its expert's evidence in its entirety, then that evidence should not be accepted by the Board and should therefore be struck. Otherwise, what would a party have the Board do with the expert evidence that is not accepted by the party submitting that evidence.

Expert evidence is submitted for two main reasons. First, an expert can provide information necessary for a further understanding of technical issues before the Board. Second, an expert's evidence can further aid the Board drawing inferences from the technical information presented.

When presenting expert evidence for the Board's consideration, the Board expects that CAPP would develop a degree of comfort with the methodology used by CAPP's experts to reach the conclusions which CAPP relies on. In other words, the Board would expect that CAPP, in seeking to rely on the conclusions of Drs. Booth and Safir, would hold compatible views on the opinions and methodology as those presented by the experts.

An expert is generally retained because of the complexity of the matter in question. The Board does not expect that CAPP's policy witnesses would be able to speak to the specifics of the expert's evidence nor defend the details presented in the current proceeding or in future proceedings.

Further, should a party seek to discredit CAPP's position in a future hearing by using CAPP's expert evidence from this hearing, the Board is of the view it would be incumbent upon the impugning party to produce the witness whose evidence they seek to demonstrate is contradictory.

Additionally, as noted in the Board's earlier ruling in this hearing regarding questions of an expert of CAPP in a previous proceeding, if there has been a significant passage of time since the evidence was filed, the Board understands that changes may have occurred which would have altered that expert's opinion.

The Board is of the view that an expert's evidence must be adopted by the party filing that evidence within the parameters discussed in this ruling.

Mr. Schultz, do you wish to have CAPP's policy witnesses adopt the expert evidence that they sponsored in this proceeding? Feel free to take some time to consider this matter.