Alberta Utilities Commission

2009 Generic Cost of Capital Hearing

Application No. 1578571, Proceeding No. 85

Revised Written Evidence of

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on Behalf of

The Canadian Association of Petroleum Producers

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I. INTRODUCTION

Q1 Please state your name, business address and occupation.

A1 My name is Dr. Andrew Safir and I am President of Recon Research Corporation. My business address is Suite 1604, 6380 Wilshire Blvd., Los Angeles, CA 90048.

Q2 What is your educational background and experience?

A2 I received a Bachelor of Arts degree in economics and psychology from the University of Colorado in 1969, a Master of Arts in economics from Tufts University in 1970, and a Ph.D. in economics from Tufts University in 1975.

During the 1970s, I held a variety of positions with the U.S. Government. In 1972, I held a staff position on the President's Council of Economic Advisers. In 1973, I held a similar position on the White House staff. In 1974, I moved to the Department of Justice, where I served as a senior advisor on economic policy matters, including those pertaining to industrial organization and market structure. In 1975, I was appointed as the Assistant Director of the Office of International Energy Policy at the U.S. Treasury. I left that position in 1978 to join the Administration of Governor Edmund G. Brown, Jr., as Chief Business Economist for the State of California. However, I remained a special advisor to the U.S. General Accounting Office specializing in energy, international finance and national security matters throughout much of the 1980s. I founded Recon Research Corporation in 1980.

I have over 25 years of experience dealing with international energy issues. In 1984, I began providing consulting services on energy policy and market issues and expert testimony in natural gas deregulation proceedings in California. Since that time, I have continued to provide these services throughout the U.S., as well as in Canada, the U.K. and Australia. I have previously testified before the National Energy Board ("NEB" or the "Board"), including evidence given in RH-1-2008, RH-3-2004, RH-2-2004, RH-1-2002, RH-4-2001, RH-1-99 and RH-2-94. A list of selected testimony experience is provided in Attachment A.

Q3 What is the purpose of your evidence in this proceeding?

A3 The purpose of my evidence is to respond to comments that the use of a ROE formula methodology no longer provides fair returns to Canadian pipelines and utilities. In this regard, I have also been asked to compare and contrast the treatment of U.S. and Canadian pipelines.

Q4 How is your evidence organized?

A4 Section II summarizes my opinion on business risk issues. Section III examines the fair return standard and its relation to business risk. Section IV discusses the regulatory environment within which the utility services are provided.

II. SUMMARY OF OPINIONS ON BUSINESS RISK ISSUES

Q5 Could you please summarize your opinions on business risk in this proceeding?

A5 Yes. I believe that a crucial issue in the AUC GCC proceeding is the degree to which a formula determined ROE has provided Alberta utilities with an economically fair rate of return. A primary criticism of the formula determined ROE has been the historic discrepancy between the returns that Canadian utilities have been allowed under their respective formulas compared to the allowed rates that U.S. utilities have been awarded. Typically U.S. utilities have received higher allowed returns on equity than their Canadian counterparts, and this gap has widened in recent years. Citing this comparison, critics have suggested that the Canadian formula driven ROEs have fallen short of the "fair return" standards as they are legally defined in the Canadian system.[2]

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[1] Footnote no longer appropriate.

[2] See, for example: *Natural Gas Utility Return Determination in Canada: Time for a New Approach*, A Discussion Paper Developed by the Canadian Gas Association, April 2008; John C. Major & Roland Priddle, *The Fair Return Standard for Return on Investment by Canadian Gas Utilities: Meaning, Application, Results Implications*, March 2008; Canadian Energy Pipeline Association, *Perspective on Canadian Gas Pipeline ROEs*, February 2008; National Economic Research Associates, Inc. *Allowed Return on Equity in Canada and the United States An Economic, Financial and Institutional Analysis*, prepared for the Canadian Gas Association, February 2008; *A Comparative Analysis of Return on Equity of Natural Gas Utilities*, Concentric Energy Advisors, prepared for The Ontario Energy Board, June 14, 2007; and *Return on Equity: Allowed Returns for Canadian Gas Utilities*, A Discussion Paper Developed

It should be noted that this criticism explicitly assumes that Canadian regulators expose Canadian utilities to the same degree of risk that regulators in the U.S. expect U.S. utilities to bear. While I believe it is true that the basic objectives of regulation are similar in Canada and the U.S., differences in the effective application of regulation between these two jurisdictions results in substantive differences in the risk exposure of Canadian and U.S. regulated utilities. In fact, empirical analysis indicates that U.S. companies are subject to significantly greater degrees of regulatory and business risk.

Q6 What is your opinion of the overall assessment of the business risk faced by the utilities in this proceeding ?

A6 The revenue protections afforded by the AUC to its regulated utilities are substantial and continue to provide them with a safety net that distinguishes their risk profile from comparisons with U.S. pipelines and LDCs.

III BUSINESS RISK AND THE FAIR RETURN STANDARD

Q7 How is business risk defined?

A7 In a broad economic sense, business risk relates to the uncertainty surrounding a company's profits or earnings.[3] This is typically reflected in the variability of a company's returns. With respect to regulated companies, business risk is directly concerned with the probability that the company will be unable to fully recover its revenue requirement, including invested capital and authorized return.[4] As a result, business risk is associated with the cost of capital.

Q8 What is the Fair Return Standard and how does it relate to business risk?

A8 The Canadian Supreme Court set the standard by stating that a fair return means that "the company will be allowed as large a return on the capital invested in its enterprise (which will be net to the company) as it would receive if it were

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by the Canadian Gas Association, May 2007.

[3] "Business risk represents the risk attributed to the nature of a particular business. It is made up of all the risks to which the income-earning capability of an asset is exposed." (RH-4-2001, *Reasons for Decision*, p. 24)

[4] RH-4-2001, *Reasons for Decision*, p. 28.

investing the same amount in other securities possessing an attractiveness, stability and certainty equal to that of the company's enterprise."[5] Consequently, the fair return standard requires that companies receive a return that a) is comparable to the return earned by similar companies subject to the same degree of risk; b) enables them to maintain their financial integrity; and c) allows incremental capital to be attracted under reasonable terms and conditions.[6]

Because business risk concerns the uncertainty in a company's operations, a fair return, which calls for a return that matches the "attractiveness, stability, and *certainty*" of the returns realized by other firms, must, by its very nature, compensate investors for their business risk. Consequently, a fair return is related to business risk in that it is one which allows a company to achieve the market opportunity cost of capital.

Q9 How is business risk related to the capital structure of a regulated utility in Canada?

A9 Regulatory bodies in Canada have for many years reflected changes in business risk by an adjustment in the capital structure of the pipeline company. In addition, Canadian regulatory agencies have used variations in capital structure to reflect differences in risk between similar but not identical utilities. In particular, this is done when the regulatory board sets the percentage of the capital base represented by equity, i.e., the "thickness" of the equity component. To the extent overall business risk is higher, the overall equity component of the rate structure would also increase.

Q10

A10

[5] *Northwestern Utilities Ltd v. Edmonton* [1929] S.C.R. 186 (*Northwestern*)

[6] *Reasons for Decision*, RH-2-2004 Phase II, p. 17.

[7] Footnote no longer appropriate.

Q11 Do you believe that it is appropriate to use recent settlements to indicate that a formula driven ROE is unfair or inappropriate?

A11 No, I do not. I believe a settlement ROE is determined through a different process than the regulatory ROE, and the two are not necessarily comparable. For example, when regulators set the ROE, they attempt to do so as objectively as possible. They make comparisons with benchmarks companies, review past demand and supply conditions, as well as future expectations, before arriving at a decision. Settlements, however, need not reflect any of these relatively objective considerations. Instead, parties may look at additional factors, trading them off against a negotiated ROE. Rather than remaining adversaries at a regulatory hearing, with all its attendant delays and animosity, settlements generally lead to both parties working cooperatively to enhance the benefits and values for each. For instance, producer-shippers may find themselves in a situation where they cannot get their product to market, even as product prices are rising. As a result, shippers may agree to a higher ROE in return for a pipeline's commitment and financial guarantees to complete the project in a shorter time period.

Settlements may also reflect agreements between shippers and pipelines on how to allocate risks. For example, shippers may agree to higher ROEs in return for the pipeline bearing a proportionately larger share of any cost overruns. Moreover, if the settlements involve oil pipelines, an additional consideration would be the greater risk that these carriers face compared to the risks facing gas pipelines.[9]

[8] Footnote no longer appropriate.

[9] *Reasons for Decision*, RH-2-2004 Phase II, pp. 68-69.

Q12 Will a comparison of the ROE's allowed newly constructed pipelines provide an indication of whether the ROE determined by a formula is fair?

A12 Not necessarily. Any comparison between the ROEs of greenfield pipelines to existing pipelines would have to be tempered by an analysis that reviews all the relevant risk characteristics of the new pipelines. There are generally more degrees of uncertainty associated with new pipelines. For instance, greenfield pipelines, which involve construction over new rights-of-way, typically have a greater degree of uncertainty with respect to construction costs. If the greenfield pipeline also involves a new supply source, another layer of supply risk uncertainty is added. Any comparison of a formula determined ROE to the ROE allowed newly constructed pipelines would require an adjustment to account for the higher risks generally associated with new construction.

Q13 Do you believe that U.S. LDCs might provide an appropriate benchmark for determining a fair return for Canadian utilities?

A13 No, I do not. As I explain in a later section, there is a measurable difference in the risks faced by U.S. LDCs relative to Canadian pipelines and Canadian LDCs.[11] U.S. LDCs, as a group, are subject to all sorts of different state regulations. None of these necessarily provide the same protection that Canada affords its regulated utilities.

Q14 Would there be economic repercussions if regulated pipelines or utilities received ROEs that were lower than a fair return standard?

A14 Yes. Over time, capital investment in the pipelines or utilities would diminish. In addition, credit ratings of companies receiving "inadequate" returns would begin to suffer, since many of the parameters used by credit agencies reflect an assessment of expected earnings on invested capital.

[10] Footnote no longer appropriate.

[11] Note that the FERC has determined that, even within the U.S., LDCs and pipelines are not appropriate comparison groups.

Q15 Have Canadian pipelines suffered from these problems?

A15 It does not appear so. Despite a formula driven ROE, Canadian pipeline companies have not been afraid to develop new projects, or put additional capital "at risk." For example, since 2006, Union Gas has continued to expand it Dawn-Trafalgar system at Ontario's formula driven ROE.[12] Similarly, for 2006 and 2007, TransCanada has expanded its Mainline system in Eastern Canada so as to increase capacity from Dawn at an ROE authorized according to formula adjustments.

Alberta regulated utilities apparently find that formula adjusted ROEs provide a fair enough return as they also continue to make large capital intensive investments. NGTL is currently investing over $2 billion in new facilities, including the North Central Corridor pipeline. ATCO has also indicated in its evidence that it will make investments of over $2 billion in electric transmission and distribution.[15] Beginning in 2003, and extending to 2009, capital expenditures for ATCO Pipelines will exceed $500 million.[16] These large scale investments are contrary to what one would expect if formula adjusted ROEs were not providing utilities with their opportunity cost of capital.

Moreover, bond ratings for Canadian pipeline companies give no indication of deteriorating credit. In fact, bond ratings for Canadian pipelines and utilities consistently exceed credit ratings for U.S. pipelines and utilities. As indicated in Figure 1, the current average credit rating for Canadian pipelines and utilities is A. This is clearly higher than the average credit rating (BBB+) for U.S. pipelines and utilities. A full 94% of the Canadian companies are rated A- or above. In comparison, only 47% of the U.S. companies receive the same rating. While no

[12] *Union Gas 2006 Annual Report* p. 16. *Union Gas 2007 Annual Report* pp. 19 – 20.

[13] Footnote no longer appropriate.

[14] Footnote no longer appropriate.

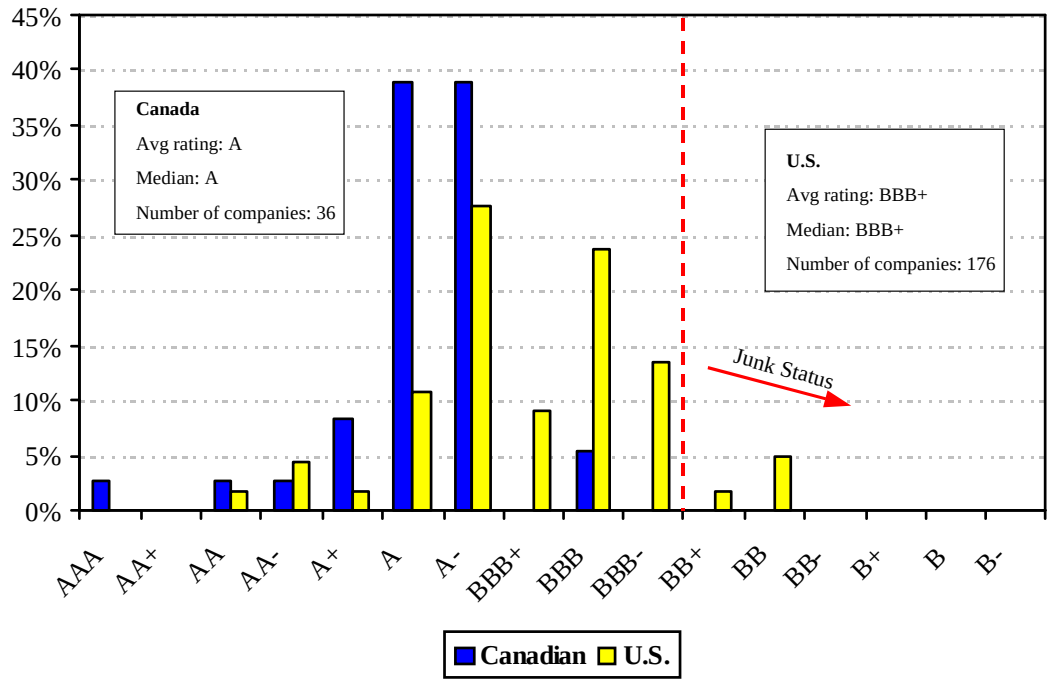
[15] *Direct Testimony of Kathleen McShane on Behalf of the ATCO Utilities*, 2009 Generic Cost of Capital Proceeding, Nov. 20, 2008, p. 34.

[16] CAPP-ATCO-1.

Canadian companies received a less than investment grade rating, about 7% of the U.S. counterparts have their issues rated as junk.[17]

Figure 1

Distribution of Credit Ratings: Canadian v US Pipes & LDCs



Q16 Do you find any clear evidence that use of a methodology relying on formula adjustments to determine Canadian ROEs has failed to compensate Canadian utilities for the business risk that they face?

A16 No, I do not. I believe that evidence presented by the utilities in this proceeding that attempts to show a discrepancy between a fair return, as determined by the formulas developed by Alberta and other Canadian regulatory bodies, and the ROE for other purported comparison groups is flawed. The alleged discrepancies stem from differences in business risk faced by the comparison groups, not from a deficiency in the formula methodology. Moreover, there is no evidence of the

[17] "Junk bonds" refer to bonds rated below investment grade status, which in the S&P rating categories would be any rating at BB+ or below.

economic repercussions, such as a flight of capital, that would be expected if the formula were not providing returns commensurate with the business risks.

IV. REGULATORY ENVIRONMENT

Q17 What is regulatory risk?

A17 Regulatory risk can be defined as the "risks to the income-earning capability of the utility that arise due to the method of regulation."[18]

Q18 What is your opinion on the regulatory risk facing Alberta utilities?

A18 I do not believe there has been any substantive change in the regulatory risk facing Alberta utilities since 2004.

Q19 What is the basis for that opinion?

A19 Current revenue protections – sanctioned by regulation – still shield the utilities from the full brunt of competitive circumstances, just as they have done in the past. As a result, under current regulatory policy, regulated utilities are still unlikely to suffer any revenue loss due to fluctuating demand.

Q20 What evidence do you have that revenue protections are effective in buffering Alberta's utilities from competitive risks?

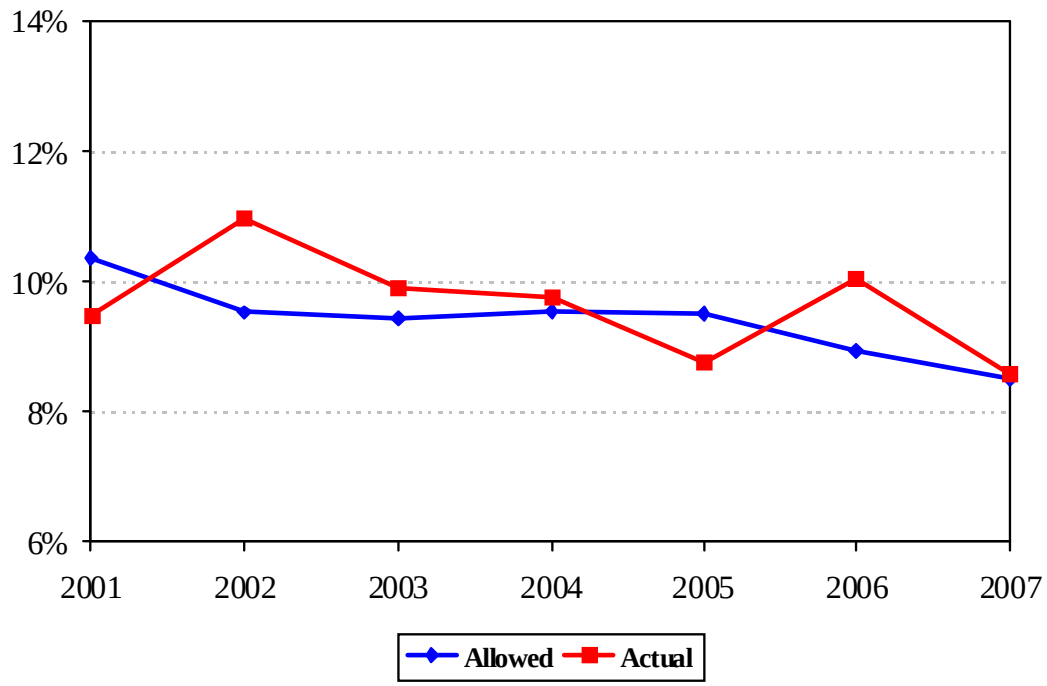
A20 The best evidence is found in the historical financial performance of the Alberta utilities. A good illustration of the extent to which revenue protections have proved successful over the past 7 years can be found in an examination of the difference between the authorized and actual rate of return earned by the Alberta utilities. As Figure 2 highlights, the average actual return exceeded its average allowed return five out of the seven years from 2001 through 2007. Moreover, the average difference between the actual returns and allowed returns for Alberta utilities does not differ statistically from zero. Consequently, regulators have been successful in meeting

[18] *Reasons for Decision*, RH-4-2001, p. 27.

their regulatory objective. Utilities have been able to earn the returns they were awarded.

Figure 2

Actual vs Allowed ROE- Alberta LDC



Q21

A21

[19] Footnote no longer appropriate.

Q22

A22

Q23

A23

Q24 Do differences between allowed returns in Canada versus the U.S. necessarily indicate that Canadian utilities are not receiving a fair and reasonable return?

A24 No. As I mentioned earlier, differences could easily reflect risk differences.

[20] Footnote no longer appropriate.

[21] Footnote no longer appropriate.

[22] Footnote no longer appropriate.

Q25 In what manner could differences in allowed returns between the U.S. and Canada reflect risk differences?

A25 I believe that there are significant differences in regulatory policies between the two countries such that Canadian pipelines face considerably less business risk than do U.S. pipelines. In my view, the assertion that differences in regulation between the two countries contribute little to the differences in financial performances and risk profiles is quite wrong.

Q26 Do Canadian regulators believe that U.S. utilities provide an appropriate comparison group to Canadian pipelines?

A26 No, they do not. Canadian regulators, including those of the NEB, Alberta, and Ontario, have generally refused to accept the validity of such a comparison. In particular, the NEB has stated:

> "With respect to comparisons with US pipelines, the Board's view is that these companies are different businesses operating in a different regulatory, policy and financial context. These differences limit the meaningfulness of direct comparisons between the returns of Canadian and US pipelines. The Board notes that US pipelines are subject to risks not borne by the Mainline, including, among others, risk of underutilization, construction cost overrun risks and risks associated with discounted and negotiated rates."[23]

A similar view has been expressed by the OEB, when it indicated:

> "There are many reasons why ROE may differ from one jurisdiction to another in North America. These may include differences in legislation, timing, tax laws, accounting practices, risk considerations arising from different capital structures and from regulatory practices which may or may not shield the utility from business or weather risks, and other regulatory considerations unique to each jurisdiction, including varying reliance on the common tests for determining a fair ROE. There was no evidence that would allow the Board to make a meaningful comparison of

[23] NEB, *Reasons for Decision*, RH-2-2004 Phase II, p. 70.

> these factors, including the relative riskiness of Canadian and American utilities, in order to understand the difference in ROE between American and Canadian utilities. The bare fact that American utilities might earn a higher ROE than Canadian utilities, as suggested by Ms. McShane and argued by the Applicants, is an inadequate basis upon which to determine whether the ROE for the Applicants should be increased to a level similar to the ROE for American utilities."[24]

Likewise, Alberta regulators viewed a simple comparison as inappropriate:

> "In the Board's view, the Applicants did not demonstrate that the regulatory regimes in the two countries are sufficiently comparable that the Board should place significant weight on the return awards for U.S. utilities. For example, the Board notes differences in legislation, public and regulatory policies, the higher prevalence of longer-term settlement arrangements, the federal/state jurisdictional divisions, the development of RTOs and other differences in the structure of regulated industrial sectors, and differences in national fiscal, tax and monetary policies."[25]

Q27 Do U.S. regulators believe that U.S. utilities provide an appropriate comparison group to Canadian pipelines?

A27 No, they do not. The FERC addressed this issue as recently as January of this year when it refused to include Canadian companies such as TransCanada in the proxy group it used to evaluate U.S. equity returns. The FERC reasoned that Canadian pipelines are subject to "a significantly different regulatory structure that renders [them] less comparable to domestic pipelines regulated by the Commission."[26]

Q28 What are the similarities and differences in the regulatory provisions governing pipelines in the two countries?

A28 The obvious similarity is that natural gas pipelines are considered public utilities in both countries and therefore subject to regulation. In the U.S., interstate gas

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[24] OEB, Decision & Order, RP2002-0158, 2004, ¶122.

[25] EUB, *Generic Cost of Capital Decision*, Decision 2004-052, July 2, 2004, p. 25.

[26] *Kern River Gas Transmission Co.*, Docket No. RP04-274, (Opinion No. 486-B) 126 FERC ¶61,034 (January 15, 2009), para. 60.

pipelines are currently regulated by the FERC, while intrastate pipelines are subject to state utility commissions. In Canada, natural gas pipelines are regulated by the NEB on the federal level, or by provincial regulatory commissions. In both countries, regulation has changed the role of pipelines so that instead of buying and transporting gas for customers, gas pipelines are now limited solely to the transportation function. However, although the nature of the regulation was almost identical 30 years ago, since then actions taken by the respective regulatory agencies, especially the FERC, have created some fundamental differences.[27]

In Canada, regulation still takes the form of setting tariffs such that all prudently incurred costs are covered, including a fair rate of return on the utility's rate base. Canadian utilities are also afforded the protection of balancing or deferral accounts such that any deviation from forecasted output is made up in succeeding years. This type of regulation involves frequent rate adjustments to keep tariffs in line with costs and to ensure that utilities continue to earn a normal profit rate on shareholders' equity.

Q29 Is a similar approach employed in the U.S.?

A29 No. In the U.S., the public preference in favor of deregulation and market based oversight resulted in a process whereby the powers of regulation were used to push natural gas pipelines into a more competitive, market driven environment. FERC Orders 380 (1983), 436 (1985), 500 (1987), and 636 (1992) resulted in substantial changes in the manner in which U.S. interstate gas pipelines were regulated. One important difference between the U.S. and Canada is that the FERC no longer engages in frequent rate hearings. Prior to 1992, the FERC required a full rate review once every three years. Since then, it has relaxed that requirement. Pipelines or customers can still request rate hearings, but the FERC has instead emphasized negotiated settlements between pipelines and shippers. The FERC still retains authority to initiate a rate proceeding, but rate proceedings are infrequent in the U.S. In addition to not requiring regular rate hearings, the

[27] It has been claimed that the regulatory statutes in the U.S. and Canada are so similar that it would be hard, upon reading them, title page unseen, to identify where they originated. (National Economic Research Associates, Inc., *Allowed Return on Equity in Canada and the United States; An Economic, Financial and Institutional Analysis*, February 2008, footnote 5.) Although this argument may have some visceral appeal, it completely ignores the reality that application of the statutes differs between the two countries, leading to differences in effective regulation.

FERC makes few provisions for deferral or balancing accounts when such hearings do occur. As a result, U.S. pipelines are more "at risk" for annual returns than their Canadian counterparts.

The push for market signals to replace day to day regulation has also led to several orders whereby the FERC made it clear that costs resulting from un-contracted capacity would be borne by both shippers and the pipeline.[28] Allowing negotiated settlements also gives pipelines the ability to sell capacity at rates that are higher than they would be under strict cost of service regulation. In addition, pipelines are required to absorb or pay for any shortfalls in forecasted throughput. However, they are also allowed to keep any gains above forecasted throughput.

Q30 What differences in business risk are implied by the regulatory differences between the U.S. and Canada?

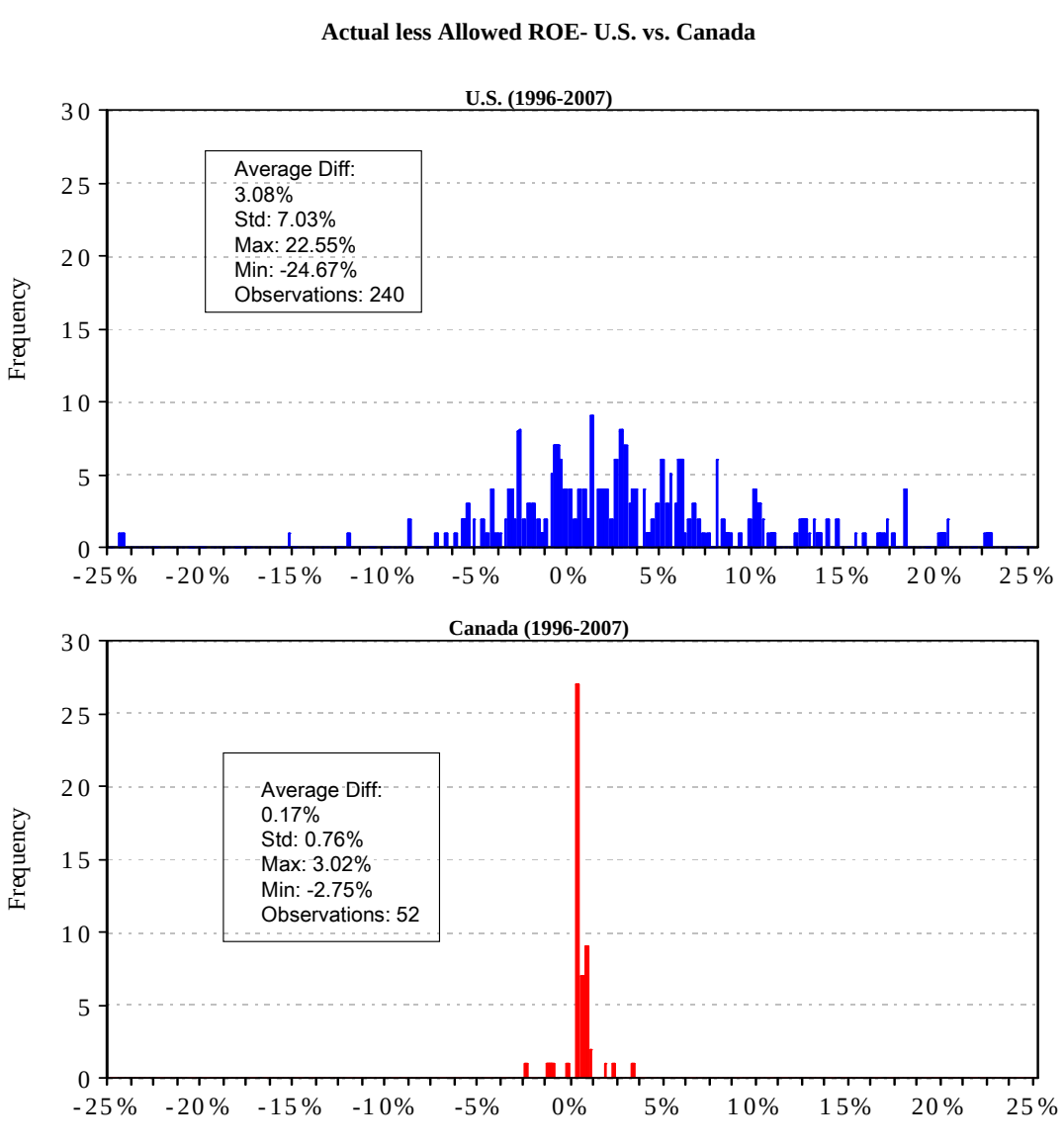
A30 Because of the differences in regulation between the two countries, U.S. pipelines are subject to comparatively more risk. Typically in Canada, tolls are adjusted annually, keeping pipeline earnings close to their allowed returns. However, in the U.S., rate hearings are much less frequent. Where rates are regulated infrequently, there is a higher probability that revenues and costs will diverge over time. Therefore, it is more likely that pipeline revenues will either exceed or fall short of costs. The ability and widespread practice of pipelines in negotiating and discounting rates, also contributes to more variability in revenues. All these factors increase the probability that actual returns will either surpass or fall short of those allowable.

[28] This has been an explicit regulatory practice for the better part of a decade. Since at least 1995, the FERC has precluded pipelines from simply raising rates in response to declining utilization of pipeline capacity. See, *e.g.*, El Paso Natural Gas Co., 72 FERC ¶61,083 and Natural Gas Pipeline Company of America, 73 FERC ¶61,050 In the cited El Paso order, the Commission stated "When historic customers terminate service at the end of their contracts it is not appropriate to expect the remaining customers, . . . , to pay for all the remaining costs of the pipeline." (72 FERC ¶61,083 at 61,441.) And in the same order, the Commission stated that it " . . . encourages El Paso and its customers to discuss a cost sharing proposal in the settlement posture." (72 FERC ¶61,083 at 61,441.) Settlements that shared utilization risk have also been used by Northern Border (93 FERC ¶61,261) and Great Lakes (93 FERC ¶61,076) as well.

Q31 Is there empirical support for this argument?

A31 Yes. It can be found in the comparison of the differences between the actual and allowed return on equity (excess return) between Canadian and U.S. pipeline companies. (See Figure 3.) Where regulation generates little business risk, there should to be little deviation or differences between the actual and allowable rates of return. In addition, if the regulatory risk between the Canadian and U.S. systems were similar, one would expect a similar pattern in the differences between the actual and allowable rates of return in both countries.

Figure 3



Q32 What are the statistical results of this comparison?

A32 Over the 1996-2007 period reviewed, there was a distinct difference in the pattern of excess returns between pipelines in the two nations. The distribution of the excess returns for the five Canadian companies was centered near zero, though slightly positive. More impressively virtually all of the excess returns were between zero and 0.5%. The average excess return was 0.17%, while the standard deviation[29] was only 0.76%, with the highest being 3.02% and the lowest negative 2.75%. In contrast, the excess returns for the 26 U.S. pipeline companies were all over the map. The average excess return for U.S. companies was 3.08%. The standard deviation was a quite large, 7.03%. The highest excess return was 22.55%, while the lowest was negative 24.67%.

Q33 What are the economic implications of this study?

A33 This is exactly the type of result one would expect if the business risks due to regulation were higher in the U.S. than in Canada. In Canada, excess returns are concentrated about the average return and show little variability. As one accepted measure of risk is the variability of a number about its average,[30] the concentration of excess returns about the mean is a good indication that regulation has reduced the uncertainty facing Canadian pipelines. In contrast, the statistical result for U.S. pipelines is consistent with regulatory policies that entail more pipeline risk. Because risk is higher for these entities, they experience greater variability in excess returns.

Q34 Is it appropriate to compare the rates of return and equity thickness for U.S. pipelines to that of Canadian utilities in Alberta?

A34 No. There are significant differences in the business risk faced by U.S. pipelines and utilities in Canada which makes such comparisons inappropriate.

[29] Typically, about two thirds of the observations lie within one standard deviation of the mean.

[30] See, for example, Ross, Stephen, A, Randolph W. Westerfield, and Jeffrey F. Jaffe, *Corporate Finance*, 3 ed., Richard Irwin, Homewood, Illinois, 1993, pp. 256-260.

Q35 What are the reasons for these differences?

A35 To a large degree this diversity stems from differences in pipeline regulation. This includes overt differences in the regulatory compact and balancing protections afforded to Canadian and U.S. pipelines. In addition, there are competitive differences between U.S. and Canadian markets. Although Canadian pipelines "interact" with U.S. markets, they operate primarily in the Canadian market, and are therefore subject to a different set of conditions. The differences as perceived by the market between U.S. and Canadian pipeline risks can be illustrated by using historical comparison of U.S. and Canadian pipeline circumstances in the 1980s-1990s. During this period, U.S. pipelines were subject to take or pay exposure, transportation brokering, and market-determined pipeline construction. As a result, over this same time frame, U.S. pipelines took real losses that were not experienced by Canadian pipelines. Pipeline ownership in U.S. carried higher risk then. It also carries higher risk now, as reflected in rates of return and equity bands.[31]

Q36 Do you believe that U.S. LDCs provide an appropriate comparison group for Canadian utilities?

A36 Only if there are adjustments made for the higher levels of regulatory risks that U.S. LDCs face relative to their Canadian counterparts.

Q37 Why do you believe U.S. LDCs face more regulatory risk?

A37 It is clear that over the past two decades U.S. regulatory philosophy has placed an increased importance on the reliance of market forces as a substitute for hands on regulation. As a result, there have been more instances when regulators have adopted new and untested rules or policies that have called for more emphasis on market forces. This has led to unexpected consequences and, commensurately, an unexpected exposure to business risk.

[31] A similar example of the effective differences in outcomes between the U.S. and Canada, even where basic regulatory philosophy is similar, can be seen in the banking sector. The two countries have similar capital requirements, allow national banks with branches across states/provinces, and call for light handed regulation. Yet Canadian banks have had fewer problems than U.S. commercial banks, which were allowed to merge with investment banks and invest in toxic securities with incomprehensible risk profiles. See also, Fareed Zakaria,"Let Us Now Praise Canada,"*Newsweek*, Feb 16, 2009.

For example, the state of California jumped whole heartedly into electricity deregulation in the late 1990s, calling for divestiture of generation assets from LDCs. State regulators embraced their new plan without fully understanding its ramifications and effect on industry and consumers. As a result, the two largest electricity LDCs were left drastically vulnerable to market manipulation by wholesale power generators. This lead to bankruptcy for PG&E and widespread disruption in the provision of electrical services within the state during the 2000-2001 period.[32]

The bankruptcy of PG&E, and the complete collapse of the California energy market in 2000, cannot be considered as an outlier that should be ignored as an element in evaluating future long term risks in the U.S. regulated energy industry. Any dismissal of these events in such risk measures as bond ratings would be inappropriate.[33]

The U.S. has also been subject to a policy tension between the Federal government and the states such that interaction between federal and state regulations in the U.S. has lead to more uncertainty about the effect of regulatory policies. For example, in the midst of the current financial crisis, the likes of which has not been seen since the Great Depression, the U.S. Congress is now attempting to encourage states to adopt rate decoupling, primarily because some believe that it leads to more energy conservation by consumers.[34] Although rate decoupling has previously been adopted in some states, it is not clear that the policy will have the

[32] Likewise, Montana hurriedly embraced electricity deregulation, and LDCs there faced a sharp increase in electricity costs when generation prices soared.

[33] The characterization of such events as only "a remote possibility" or "a one in a million occurrence" tends to minimize the potential for severe business disruption. For example, up to September 2008, there were only 17 instances in 53 years during which the S&P 500 stock index moved more than 5% on any one day. The probability that such moves would occur on any given day was considered to be very slight – only about 13 hundredths of a percent. Unfortunately, there have been 18 single day moves of that magnitude since September of last year. Clearly the probability of disruption was a lot higher than anticipated based simply on past occurrences. As a result, once the events have occurred, the economy has more information, and needs to reevaluate the actual probabilities of such events occurring. Consequently, unusual events should not be considered outliers and ignored.

[34] "The measure authorizes the Energy Secretary to make certain energy-efficiency grants to a state only if its governor certifies that regulators are actively considering rates that decouple utility revenues from gas and electricity sales." See "Rate-decoupling measure in final stimulus bill," *Gas Daily*, 02-17-09, pp. 1, 7-8.

intended conservation effects.[35] Nor is it clear that the installation of revenue decoupling will lead to lower risks for LDCs. As a result, there is the risk that the implementation of a policy in a crisis mode, without a clear understanding of what the effects may be, will lead to unintended consequences.

Q38 How do the excess returns (the difference between actual and allowed) of U.S. LDCs compare to those of Canadian utilities?

A38 The difference between actual and allowed returns for U.S. LDCs in relation to Canadian utilities is similar to the comparison between Canadian and of U.S. pipelines. (See Figure 4.) For U.S. LDCs, there is a much greater variance or distribution. While the standard deviation of the difference between allowed and actual returns for U.S. LDCs is 3.59%, it is only 1.73% for Canadian LDCs. Again, this is a good indication that effective regulation in Canada leads to lower business risks than in the U.S.[37] As a result, without any adjustments, U.S. LDCs would not provide a very good sample for comparison to Canadian utilities.

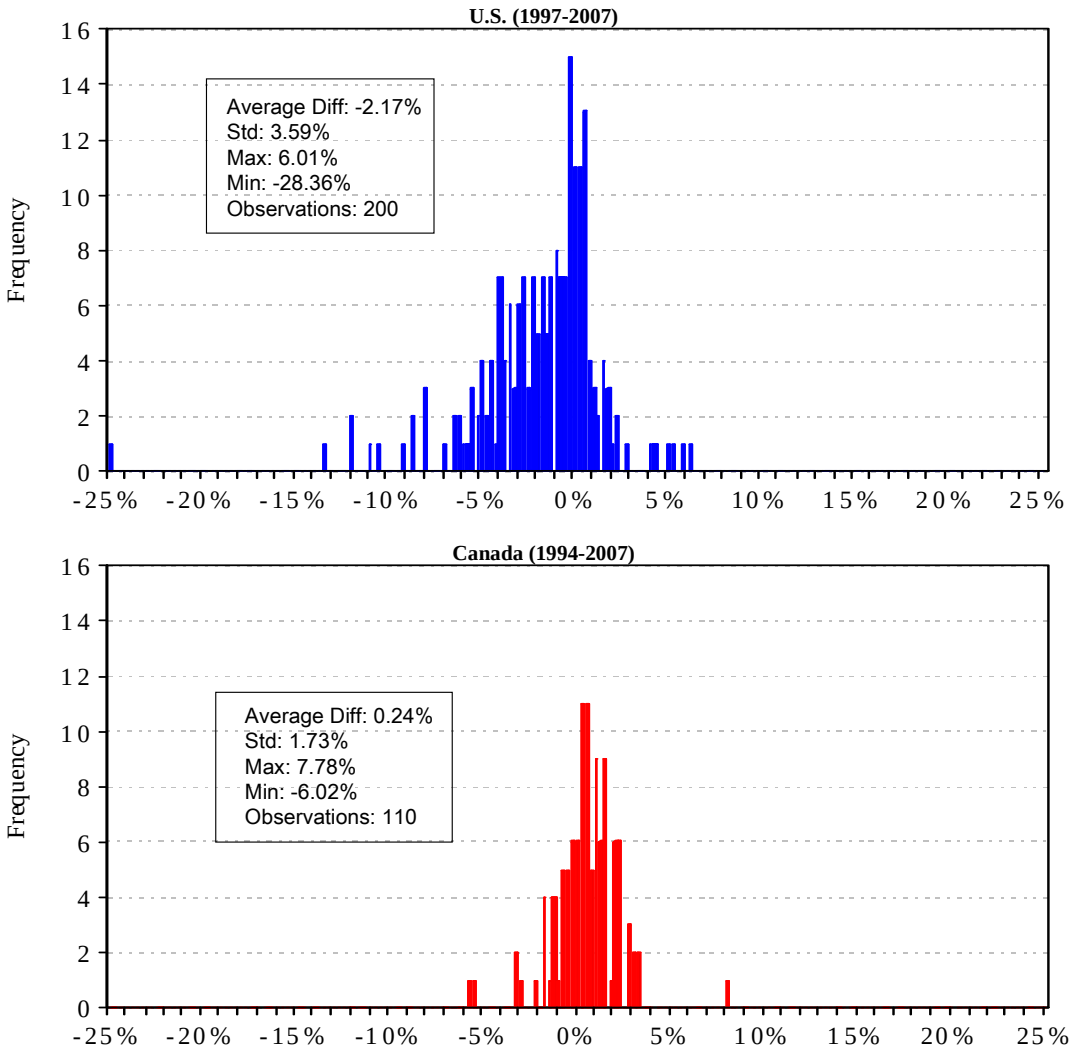
[35] National Association of Regulatory Utility Commissioners (NARUC), *Decoupling for Electric & Gas Utilities: Frequently Asked Questions (FAQ)*, September 2007. In this paper, NARUC gives some insight of the diverse opinions associated with implementing decoupling plans. Moreover, the article gives a account of the disruptive experience in Maine when decoupling was implemented during an economic downturn (p. 8).

[36] Footnote no longer appropriate.

[37] Consider, for example, the experience of Connecticut Light & Power. In 2006, its actual ROE was 7.5% compared to an allowed ROE of 9.85%. For the next year, it expected its actual ROE to lie between 6.0% and 6.5%, despite receiving an increase of $7 million in its distribution rates. *NU 2006 Annual Report*, p. 18.

Figure 4

Actual less Allowed ROE- U.S. vs. Canada LDC



1 **Q39**

2 A39

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Q40 Does your analysis regarding the variability in annual differences between allowed and actual returns emphasize short term risks at the expense of the long term investment nature of pipelines?

A40 No. I believe that the attempt to separate the time horizon for risk into some arbitrary distinctions between short and long term categories is inappropriate and fundamentally a false dichotomy. Any pipeline faces a continuum of costs that are subject to the "risk" of recovery. Some occur for services that are realized on a day to day basis, while others involve investments that continue to provide benefits over longer periods of time. These long term capital costs are typically depreciated over time and revenue requirements are matched over the same time period. Pipeline cost of service regulation allows for a process that continually provides updates on the progress of covering these long term costs. No matter how long the period involved, long term costs can only be recovered on a year to year basis. In essence, risk realization over the long term is nothing more than a yearly comparison of actual returns to allowable returns.

As I have indicated previously to Canadian regulators, Alberta utilities have earned returns consistent with what regulators have allowed.[39] I believe that this historical relationship between the actual and allowable returns of the utilities provides a good indication that, over time, both long and short term costs have been consistently recovered. As a result, the business risks of Canadian utilities have been properly reflected in their returns.

Q41 What conclusions have you drawn from your assessment of the business risks facing Alberta utilities?

A41 There is no economic basis on which to conclude that Canadian regulation fails to provide Canadian utilities with a fair return, or that a formula driven ROE cannot appropriately account for the opportunity costs which must be faced by these

[38] Footnote no longer appropriate.

[39] See, for example, *Comments of Dr. Andrew Safir Regarding the AUC Generic Cost of Capital - Preliminary Questions Proceeding*, April 2008.

business entities. Nor is there a good rationale for arguing that the generally higher returns experienced by U.S. pipelines and LDCs point to some failure of the Canadian regulatory compact. The differences between the returns on equity of Canadian and U.S. regulated utilities really only reflect the fact that U.S. regulation leaves companies with relatively greater exposure to risk, a fact borne out by empirical evidence. As a result, any reliance on a comparison between Canadian and U.S. returns provides little foundation to conclude that Canadian regulators are not awarding fair returns. In addition, other evidence supports the reality that Canadian utilities continue to receive fair returns. High credit ratings are the norm for Canadian utilities. Consistent with this fact, large scale capital investments have continued to be undertaken by these companies.

Q42 Does this conclude your prepared evidence?

A42 Yes it does.

ATTACHMENT A: ENERGY INDUSTRY TESTIMONY OF DR. ANDREW SAFIR

Testimony before Regulatory Bodies:

Oral Testimony on behalf of the Canadian Association of Petroleum Producers regarding business risks faced by Trans-Québec Maritimes Pipeline before the National Energy Board of Canada, October, 2008.

Oral Testimony before the Alberta Utilities Board on behalf of Imperial Oil Resources and Exxon/Mobil Canada Energy, before the Alberta Energy and Utilities Board in the Matter of an Inquiry into Natural Gas Liquids Extraction, June, 2008.

Written Testimony on behalf of the Canadian Association of Petroleum Producers regarding business risks faced by Trans-Québec Maritimes Pipeline before the National Energy Board of Canada, April, 2008.

Written Rebuttal Submission on behalf of Imperial Oil Resources and Exxon/Mobil Canada Energy, before the Alberta Energy and Utilities Board in the Matter of an Inquiry into Natural Gas Liquids Extraction, November 6, 2007.

The Impact of Comprehensive Component Metering and Competitive Extraction on the Alberta Natural Gas Liquids Market, on behalf of Imperial Oil Resources and Exxon/Mobil Canada Energy, before the Alberta Energy and Utilities Board in the Matter of an Inquiry into Natural Gas Liquids Extraction, August 28, 2007.

Written Evidence of Dr. Andrew Safir on Behalf of Imperial Oil before the National Energy Board in the Matter of an Application by Enbridge Pipelines Inc., July 2007 (RH-2-2007)

Testimony of Dr. Andrew Safir on Behalf of the Mackenzie Valley Pipeline before the National Energy Board regarding the Application for a Certificate of Public Convenience and Necessity for the Mackenzie Gas Pipeline, July and November 2006, (GH-1-2004).

Written Evidence of Dr. Andrew Safir on Behalf of the Industry Group before the National Energy Board regarding TransCanada Pipelines Limited and TransCanada Keystone Pipeline GP Ltd. Application for Leave to Transfer Pipeline Facilities, September 2006, (MH-1-2006).

Reply Evidence of Dr. Andrew Safir on Behalf of the Mackenzie Valley Pipeline before the National Energy Board regarding the Application for a Certificate of Public Convenience and Necessity for the Mackenzie Gas Pipeline, July 2005, (GH-1-2004).

Prepared Cross Answering Testimony of Dr. Andrew Safir On Behalf of The Firm Shipper Group, before the FERC regarding a rate proceeding for Maritimes & Northeast Pipeline, L.L.C., March 2005, (RP04-360-000).

Prepared Direct and Answering Testimony of Dr. Andrew Safir On Behalf of The Firm Shipper Group, before the FERC regarding a rate proceeding for Maritimes & Northeast Pipeline, February 2005, L.L.C. (RP04-360-000).

Additional Written Evidence of Dr. Andrew Safir on Behalf of the Mackenzie Valley Pipeline before the National Energy Board regarding the Application for a Certificate of Public Convenience and Necessity for the Mackenzie Gas Pipeline, January 2005, (GH-1-2004).

Written Evidence of Dr. Andrew Safir on Behalf of the Canadian Association of Petroleum Producers before the National Energy Board regarding TransCanada PipeLines Limited Mainline 2004 Tolls Application (Phase 2, Cost of Capital), October 2004, (RH-2-2004).

Response Evidence of Dr. Andrew Safir on Behalf of the Canadian Association of Petroleum Producers before the National Energy Board regarding TransCanada PipeLines Limited Application for the North Bay Junction, July 2004, (NBJ RH-3-2004).

Written Evidence of Dr. Andrew Safir on Behalf of the Canadian Association of Petroleum Producers before the National Energy Board regarding TransCanada PipeLines Limited 2003 Tolls and Tariff Application, April 2003, (RH-1-2002).

Prepared Rebuttal Testimony of And Exhibits of Dr. Andrew Safir On Behalf of Coral Power L.L.C., November 2002, regarding the request by the California Public Utilities Commission and California Electricity Oversight Board to have long term power contracts abrogated as unjust and unreasonable, (EL02-60-003 and EL02-62-003).

Written Evidence of Dr. Andrew Safir on Behalf of the Canadian Association of Petroleum Producers before the National Energy Board regarding TransCanada PipeLines Limited 2001 and 2002 Fair Return Application, January 2002, (RH-4-2001).

Testimony of Dr. Andrew Safir on Behalf of the Canadian Association of Petroleum Producers before the National Energy Board regarding TransCanada's application for discretionary rate authority, January 2000, (RH-1-99).

Testimony of Dr. Andrew Safir on Behalf of the Canadian Association of Petroleum Producers before the Alberta Energy and Utilities Board regarding NGTL'S proposal to unbundle intra-provincial pipeline rates, September 1999, (No. 990157).

Prepared Direct Testimony of Andrew Safir on Behalf of Northern Natural Gas Company, June 1998, regarding market-based rates for storage and secondary transportation services, FERC rate proceeding for Northern Natural Gas, (RP98-203-000).

Oral Testimony of Dr. Andrew Safir on Behalf of Amoco Canada, March/April 1998, National Energy Board proceeding regarding Alliance Pipeline application for certificate of public convenience and necessity.

Written Testimony of Dr. Andrew Safir on Behalf of Amoco Canada, January 1998, National Energy Board proceeding regarding Alliance Pipeline application for certificate of public convenience and necessity.

Written Testimony of Dr. Andrew Safir on Behalf of Amoco Canada, April 1997, Alberta Energy and Utilities Board proceeding regarding NOVA Gas Transmission Ltd. proposal for load retention rates.

Oral Testimony of Dr. Andrew Safir on Behalf of El Paso Refinery, Refinery Holding Company and Chevron Products Co. USA, May 6, 1996, FERC rate proceeding for Santa Fe Pacific Pipeline (OR92-8-000, *et al*).

Prepared Sur-Surrebuttal Testimony of Dr. Andrew Safir on Behalf of El Paso Refinery, Refinery Holding Company and Chevron Products Co. USA, January 10, 1996, FERC rate proceeding for Santa Fe Pacific Pipeline (OR92-8-000, *et al*).

Prepared Rebuttal Testimony of Dr. Andrew Safir on Behalf of El Paso Refinery, Refinery Holding Company and Chevron Products Co. USA, August 27, 1995, FERC rate proceeding for Santa Fe Pacific Pipeline (OR92-8-000, *et al*).

Cross Answering Testimony of Dr. Andrew Safir on Behalf of Canadian Association of Petroleum Producers, February 7, 1995. FERC rate proceeding for Pacific Gas Transmission Company, dealing with the issue of rolled-in rate design and its applicability to the PGT expansion (RP94-149-000).

Prepared Direct Testimony of Dr. Andrew Safir on Behalf of National Power PLC and American National Power Inc., December 5, 1994. CPUC proceeding on uneconomic utility supply costs and the restructuring of California's electric services industry (R.94-04-031/I94-04-032).

Prepared Direct Testimony of Dr. Andrew Safir on Behalf of Canadian Association of Petroleum Producers, November 17, 1994. FERC rate proceeding for Pacific Gas Transmission Company, dealing with the issue of rolled-in rate design and its applicability to the PGT expansion (RP94-149-000).

Prepared Direct Testimony of Dr. Andrew Safir, September 26, 1994. National Energy Board Pipeline Cost of Capital Proceeding.

Testimony of Dr. Andrew Safir, March 1993. National Energy Board Export License Renewal for California Gas Sales.

Testimony of Dr. Andrew Safir, 1993. Canadian Energy Resources Conservation Board Hearings on Gas Pipeline Expansion Proposals.

Prepared Direct Testimony of Dr. Andrew Safir on behalf of the Canadian Petroleum Association, January 25, 1991. CPUC rulemaking regarding capacity brokering, natural gas procurement and systems reliability issues ®.88-08-018).

Prepared Rebuttal Testimony of Dr. Andrew Safir on behalf of the Producer/Shipper Group, May 14, 1990. CPUC proceeding regarding PG&E's application of a certificate of public convenience and necessity (A.89-04-033).

Prepared Rebuttal Testimony of Dr. Andrew Safir on behalf of Salmon Resources Ltd. and Mock Resources, Inc., November 29, 1989. CPUC proceeding regarding PG&E's application for authority to revise gas rates and tariffs (A. 89-08-024).

Prepared Direct Testimony of Dr. Andrew Safir on behalf of Salmon Resources Ltd. and Mock Resources, Inc., November 9, 1989. CPUC proceeding regarding PG&E's application for authority to revise gas rates and tariffs (A.89-08-024).

Prepared Direct Testimony of Dr. Andrew Safir on behalf of Southern California Edison Company, July 24, 1989. CPUC investigation regarding adequacy of California pipeline capacity (I. 88-12-027).

Prepared Direct Testimony of Dr. Andrew Safir on behalf of Salmon Resources Ltd. and Mock Resources, Inc., June 30, 1989. CPUC proceeding regarding Southern California Gas Company's application for authority to revise gas rates and tariffs (A.89-04-021).

Prepared Testimony of Dr. Andrew Safir on behalf of Southern California Edison Company, June 19, 1989. CPUC rulemaking regarding capacity brokering, natural gas procurement and systems reliability issues ®. 88-08-018).

Prepared Direct Testimony of Dr. Andrew Safir on behalf of Salmon Resources Ltd. and Mock Resources, Inc., April 24, 1989. CPUC proceeding regarding PG&E's application for authority to revise gas rates and tariffs (A.88-09-032).

Application of Pacific Gas & Electric Company to the CPUC for a Certificate of Public Convenience and Necessity, Prepared Rebuttal Testimony of Dr. Andrew Safir on Behalf of the Producer/Shipper Group, Docket No. A.89-04-033, April 14, 1989.

Prepared Direct Testimony of Dr. Andrew Safir on behalf of Salmon Resources Ltd. and Mock Resources, Inc., November 21, 1988. CPUC proceeding regarding PG&E's application for authority to revise gas rates and tariffs (A.88-09-032).

Prepared Supplemental Testimony of Dr. Andrew Safir on behalf of Shell Canada Limited and Salmon Resources Ltd., January 23, 1988. CPUC investigation regarding unbundling storage costs for the non-core market, incremental storage banking, and underground storage services for wholesale customers (I.87-03-036).

Prepared Direct Testimony of Dr. Andrew Safir on behalf of Shell Canada Limited and Salmon Resources Ltd., December 3, 1987. CPUC investigation regarding unbundling storage costs for the non-core market, incremental storage banking, and underground storage services for wholesale customers (I.87-03-036).

Prepared Direct Testimony of Dr. Andrew Safir on behalf of the City of Palo Alto, December 3, 1987. CPUC investigation regarding unbundling storage costs for the non-core market, incremental storage banking, and underground storage services for wholesale customers (I.87-03-036).

Prepared Direct Testimony of Dr. Andrew Safir on behalf of Shell Canada Limited, July 2, 1987. CPUC investigation regarding transition costs, capacity priority rights for non-core customers, inter-utility priority rights, and unbundled gas utilities services (I.86-06-005).

Prepared Direct Testimony of Dr. Andrew Safir on behalf of the City of Palo Alto, July 1, 1987. CPUC investigation regarding transition costs, capacity priority rights for non-core customers, inter-utility priority rights, and unbundled gas utilities services (I.86-06-005).

Prepared Rebuttal Testimony of Dr. Andrew Safir on behalf of United States Borax & Chemical Corporation, June 26, 1987. FERC proceeding regarding certification of interstate pipelines to serve California (CP85-437-00 et al.).

Prepared Direct Testimony of Dr. Andrew Safir on behalf of United States Borax & Chemical Corporation, October 29, 1986. FERC proceeding regarding certification of interstate pipelines to serve California (CP85-437-00 et al.).

Depositions Given as an Expert Witness:

AEP Energy Services Gas Holding Company v Bank of America, N.A., Civil Action NO. H-03-4973, United States District Court for the Southern District of Texas, Houston Division, November 29, 2006.

CononcoPhillips Co. v Riata Energy, et al., 112th Judicial District, District Court, Pecos County, Texas, Cause No. 9,846, March 15, 2006, July 20, 2006.

AEP Energy Services Gas Holding Company v Bank of America, N.A., Civil Action NO. H-03-4973, United States District Court for the Southern District of Texas, Houston Division, March 10, 2006.

Coordination Proceeding Special Title (Rule 1550(b)); *Natural Gas Antitrust Cases* I, II, III, & IV (Southern California only); J.C.C.P. Nos. 4221, 4224, 4226, and 4228; Superior Court of the State of California, County of San Diego, July 16 and 23, 2004, June 16 and 17, 2005, May 11, 2006.

Brazos Electric Power Cooperative v. Tenaska IV Texas Partners Case No. 71 198 00323 01, before the American Arbitration Association, December 1, 2003.

Southern California Gas Co. v. Pacific Offshore Pipeline Co. and Exxon Mobil Corp., Case No. 01036528; Superior Court of the State of California for the County of Santa Barbara, Anacapa Division, October 31, 2001.

Petro Source Partners, Ltd. v. Koch Industries, Inc., United States District Court for the Eastern District of Oklahoma, Muskogee Division, Cast No. CIV-95-356-B, August 16, 1996.

El Paso Natural Gas Company and El Paso Production Company v. GHR Energy Corporation n/k/a TransAmerican Natural Gas Corporation, f/k/a Good Hope Refineries, Inc., Harris County, Texas, Cause No. 85-09329, 1988.

Celeste C. Grynberg v. El Paso Natural Gas Company, Denver District Court, State of Colorado, No. 87 CV 4717, May 13, 1988.

Union Oil Company of California v. El Paso Natural Gas, United States District Court for the Western District of Texas, Midland-Odessa Division, C.A. No. MO 86-CA-143, August 31, 1987.

Expert Witness Testimony at Trial:

Canadian Southern Petroleum Ltd. et al. v. Amoco Canada Petroleum Ltd. et al., No. 9001-03466 A.D. 1990, Court of the Queen's Bench of Alberta, Judicial District of Calgary, Canada, December 1-3, 6, 7, 13, and 14, 1999.

Canadian Southern Petroleum Ltd. et al. v. Amoco Canada Petroleum Ltd. et al., No. 9001-03466 A.D. 1990, Court of the Queen's Bench of Alberta, Judicial District of Calgary, Canada, December 1-3, 6, 7, 13, and 14, 1999.

Heasley St. J. Rook v. Enron Corporation, Case No. 1336; District Court of Irion County, Texas, March 30, 1989.

Kimbell Oil Company of Texas, et Al. V. El Paso Natural Gas Company, First Judicial District, County of Rio Arriba, New Mexico, May 3, 1988.

El Paso Natural Gas Company and El Paso Production Company v. GHR Energy Corporation n/k/a TransAmerican Natural Gas Corporation, f/k/a Good Hope Refineries, Inc., Harris County, Texas, Cause No. 85-09329, 1988.

Forest Oil Corporation V. El Paso Natural Gas Company, United States District Court Western District of Oklahoma, March 30, 1987.

Doyle Hartman v. El Paso Natural Gas Company, Fifth Judicial District Court, County of Lea, State of New Mexico, No. CV-86-369 (C), July 15, 1986.