

Enbridge Gas New Brunswick Inc.

Opinion

Regarding Reasonableness of Proposed

Return and Capital Structure

Testimony of Kathleen C. McShane

Q.1 Please state your name and place of business.

A.1 My name is Kathleen C. McShane. I am a Senior Vice President of Foster Associates, Inc., an economic consulting firm located at 4550 Montgomery Avenue, Suite 350N, Bethesda, Maryland 20814, where I have been employed as a financial analyst and regulatory economist since 1981.

Q.2 Would you please summarize your qualifications?

A.2 I have an MBA in finance from the University of Florida (1981) and am a Chartered Financial Analyst.

I have testified in approximately 75 proceedings in Canada and the U.S. on return and capital structure, on behalf of gas distribution utilities, pipelines, electric utilities and telephone companies. I have also testified on cost allocation and incentive regulation. A copy of my qualifications is attached as Schedule 9.

Q.3 What is the purpose of your testimony?

A.3 Enbridge Gas New Brunswick (EGNB or the Company) has requested an expert opinion regarding the reasonableness of their proposed cost of debt, return on equity, and capital structure in conjunction with the other essential elements of the Company's development plan. The Company's development period plan incorporates a capital structure with 50% debt and 50% common equity, a cost of debt reflecting a 250 basis point spread over 10-year Canadas, and a return on common equity of 13%. In assessing the reasonableness of the proposed capital structure and return, I have explicitly evaluated those elements in the context of the entire framework that Enbridge Gas New Brunswick is proposing. It is the complement of the "essential elements" agreed to by the Province in awarding the franchise that determines the risk profile of the local distribution company. To the extent the risk profile is altered by changing one of the key elements included in the franchise agreement, the reasonableness of the proposed return and capital structure would have to be reevaluated.

Q.4 Please describe your understanding of the operating environment and regulatory framework that Enbridge Gas New Brunswick will face during the early years of development.

A.4 Enbridge Gas New Brunswick is a "greenfield" local distribution company (LDC): its market must be built from the ground up. There is no natural gas service in New Brunswick at the present time; building the market to a critical mass requires conversion of customers currently using alternative forms of energy, primarily oil and electricity, to natural gas. The distributor's success in building the market will be a function of several factors, including competitive pricing at the burner tip, the ability to assure customers of the existence of a reliable source of supply and the ability to instill among potential customers the belief that

natural gas is a superior source of energy, from an economic efficiency, environmental and safety perspective.

Enbridge Gas New Brunswick will be competing against electricity and fuel oil in all customer sectors (residential, commercial and industrial). It is to be expected that these competitors will market strenuously, discount prices as permitted and offer other inducements to maintain their market share, and attempt to prevent the Local Distribution Company (LDC) from attaining its market capture objectives.

In contrast to mature LDCs, a start-up utility requires an innovative pricing mechanism to assist in the development of the natural gas market. Enbridge Gas New Brunswick's rates for the development period — in conjunction with the transmission and commodity costs — will be tied to the delivered price of the closest alternative fuel in each customer class. The level of the market capture rates will reflect the necessary inducement for customers to convert to natural gas. The distribution tariff will essentially be the difference between the discounted forecast price of the alternative energy source and the sum of the forecast commodity cost (including load balancing), and the pipeline transportation cost. During the development period, the distribution charge will be capped on an aggregate basis by cost of service rates; however, the cap is unlikely to be reached, given the relatively high unit costs of service in the early years.

Since the distribution company will deliver gas, but will not participate directly in the merchant function, Enbridge Gas New Brunswick will only be able to manage a piece of the burner-tip price; the pipeline transmission, load balancing and commodity costs will be determined by other market participants. With shifts in the price of alternative energy sources and the relative relationships between oil/electricity and natural gas prices,

Enbridge's ability to recover its distribution costs will be dependent on coordination with marketers who control the price of the commodity. Enbridge Gas New Brunswick's proposal assumes that there will be sufficient competition between marketers to ensure that the commodity prices remain competitive.

The "greenfield" nature of the utility means that the shareholders' returns, or a portion thereof, will be deferred during the development period. There is considerably higher risk attached to returns that are not likely to be achievable for a period of 5-10 years than those that are achievable immediately by a mature utility. The Company's original forecasts indicated that it did not expect to earn its proposed return of 13% until the eighth year of operation.

In order for the LDC to have an opportunity to earn a fair and reasonable return over the life of the assets, its plan calls for the creation of a deferral account which will accrue differences between actual revenues and the annual actual cost of service. At the end of the development period, it is anticipated that there will be a transition from market rates to a regulatory framework appropriate to a mature utility, which will be more closely tied to the Company's costs. Subsequent to the Company achieving sufficient market penetration to reach a compensatory return, Enbridge Gas New Brunswick would then be provided the opportunity to recover the revenue deficiencies incurred during the early years of market development, by amortizing them over the remainder of their 40 year life. The ability of the Company to earn a 13% return over the life of the assets is dependent on being able to capitalize and earn a 13% return on the amounts accrued in the deferral accounts.

Without the ability to accrue differences between actual revenues and cost of service until such time as the LDC is in a position to earn a compensatory return, its risk — and thus the

estimate of a reasonable return — would be significantly higher. Nevertheless, the Company has no commercial assurance that it will be able to recover revenue deficiencies incurred in the development years.

Q.5 What benefits arise from the Company's proposal to create deferral accounts for revenue deficiencies in the Development Period?

A.5 There are lower risks to the LDC — and thus a lower required return — than for an LDC which operates with no such mechanism. The use of the deferral mechanism obviates the need to achieve returns in the later years well above the level typically earned by mature utilities. Without the proposed mechanism, an LDC would have to earn returns in the 20-40% range to be able to achieve, over the life of the assets, an average return commensurate with the Company's risks. Returns of this level would be subject to negative customer and public perception.

The ability of the distributor to achieve a compensatory return on equity in later years is highly sensitive to the achievement of its forecast market penetration rates and to the actual trend in alternative energy source prices. The nature of the gas distribution system requires significant build-out prior to actual customer attachment. Slower than anticipated customer attachment will defer the date by which the distributor's profitability achieves a compensatory level. Lower than expected alternative energy prices, particularly oil prices, will also tend to delay the LDC's ability to recover its costs. Lower oil prices mean that the delivered price of natural gas must be set lower to be competitive. Lower oil prices may put downward pressure on the LDC's tariffs and may materially defer recovery of a reasonable return of and on the capital deployed.

Q.6 Does Enbridge Gas New Brunswick intend to vary the return on equity that it is proposing over the development period?

A.6 No. No mechanism has been proposed to vary the return over the development period, in contrast to the majority of Canadian LDCs, whose annual allowed returns track changes in interest rates. As a result, the Company will be at risk for changes in the cost of equity during the development period.

Q.7 Since Enbridge Gas New Brunswick itself does not expect to participate directly in the merchant function, does it face gas supply risks?

A.7 Yes, indirectly. Although Enbridge Gas New Brunswick is not a direct participant in the supply market, adequacy and security of supply are essential to the successful development of the distribution system.

Enbridge Gas New Brunswick's customers will essentially have access to a single source of supply, in comparison to the diversity of supplies which are available to the preponderance of the mature North American LDCs. Although the Sable Island reserves are believed to be adequate to serve the New Brunswick market, the fields are new and untested. While the Maritimes and Northeast Pipeline can be reversed in cases of emergency to access U.S. and Western Canadian supplies, and partial supply disruptions can be handled through exchanges (paper transactions), the security of supply to the New Brunswick market is less than that provided to the major North American distributors.

Q.8 What impact does the "performance bond" in the Gas Franchise Agreement have on the Company's risk?

A.8 As part of the franchise agreement, Enbridge Gas New Brunswick is required to provide a \$10 million letter of credit to the Province as security for performance of its obligations under the gas franchise agreement. The Province can, pursuant to a finding of the Board, draw down on the letter of credit. The Company would then be required to reinstate the availability of the \$10 million.

The performance bond effectively provides the Board and the Province a means to impose financial penalties upon the Company, for failure to meet performance obligations. That risk is asymmetric, inasmuch as there is no offsetting mechanism that would provide a reward for superior performance.

Q.9 Are there other factors specific to Enbridge Gas New Brunswick that impact on the assessment of its proposed capital structure and return?

A.9 Yes, the relatively small size of the Company and the economic environment in which it will operate.

With respect to the former, Enbridge Gas New Brunswick expects the number of customers to total 70,000 and the assets of the utility to reach \$300 million at the end of 20 years. By comparison, the median investor-owned LDC in Canada has 760,000 customers and close to \$2 billion in assets.

The small size of the Company has two implications. The first is reduced access to the debt markets and lesser liquidity of its debt instruments, which translates into a higher cost. The second relates to a smaller utility's reduced ability to diversify its risks across its markets.

A small utility cannot as easily offset the impact of a negative event with positive occurrences in another part of its service territory.

The impact of smaller size on a regulated company's ability to achieve debt ratings commensurate with those of its peers are illustrated by the comparison of Maritime Electric to Newfoundland Power and of Maritime Tel and Tel to Island Telephone. The table below sets forth key financial parameters of the four companies.

Company	1998 Total Assets (\$MM)	1998 Common Equity Ratio	Interest Coverage (1994- 1998)	ROEs (1994- 1998)	Debt Ratings	
					CBRS	DBRS
Newfoundland Power	600.7	43.2%	2.7 x	11.1%	A(low)	A
Maritime Electric	174.5	43.2	3.0	12.2	B++(high)	NR
Maritime Tel & Tel	815.0	43.8	2.9	9.6	A	A(low)
Island Telecom	129.4	58.0	3.8	12.6	B++(high)	BBB(high)

Source: Research Insight, Standard & Poor's; CBRS and DBRS reports.

Despite Maritime Electric's and Island Telephone's stronger financial parameters than their larger peers, both have lower debt ratings — and higher costs of debt — than Newfoundland Power and Maritime Tel & Tel.

The impact of size on the cost of equity has been estimated as part of the seminal studies on equity risk premiums in the U.S.¹ The difference in the equity risk premium for a company the size of Enbridge Gas New Brunswick and the typical Canadian LDC would be close to 1%.

The small size premium can be largely offset by the adoption of a more conservative capital structure. The guidelines for an A debt rating set by the Canadian Bond Rating Service for electric and gas utilities in Canada call for a debt ratio in the range of 50-65%. The actual average debt ratio maintained by rated investor-owned gas and electric utilities, whose average debt rating is A, is 58.3% (Schedules 1 and 2). A small utility like Enbridge Gas New Brunswick (when mature) would require a debt ratio at the low end of the range in order to achieve similar debt and equity costs as a larger utility like Enbridge Consumers Gas or Union Gas.

Studies of the impact of capital structure on cost of equity have indicated that, on average, for every 1% increase in debt ratio, the cost of equity increases by close to 10 basis points.² The "rule of thumb" increase of 10 basis points in equity return for every 1% increase in debt ratio suggests that Enbridge Gas New Brunswick's size premium would be offset by its adoption of a 50% debt/50% common equity capital structure.

¹Ibbotson Associates, Stocks, Bonds, Bills and Inflation: 1999 Yearbook.

²Results summarized in Eugene F. Brigham, Louis C. Gapenski and Dana A. Aberwold, "Capital Structure, Cost of Capital, and Revenue Requirement," Public Utilities Fortnightly, January 8, 1987, p. 19.

At a 50% common equity ratio, Enbridge Gas New Brunswick's capital structure would be virtually identical to that maintained by mature relatively non-diversified U.S. LDCs followed by Value Line. For 1998 the average common equity ratio for this group of LDCs was 50.4% with an average debt rating of A/A- (Schedule 3).

With respect to the economic environment, Enbridge Gas New Brunswick will be generally viewed as facing no less exposure to economic cycle risks, as a result of the resource-based nature of its economy (e.g., mining, pulp and paper, agriculture), than the typical Canadian LDC. As Enbridge will generally not directly serve larger industrial customers, economic cycle impacts on its financial performance will be in the nature of a second order effect. Nevertheless, the lesser economic diversity (for example, relative to Ontario, Quebec or Alberta) and the relatively slow long-term growth forecasts would lead investors to attribute somewhat higher inherent economic risk to Enbridge Gas New Brunswick.

Q.10 Please comment on Enbridge Gas New Brunswick's proposed cost of debt.

A.10 Enbridge Gas New Brunswick's proposal entails a cost of debt set at 250 basis points above the 10-year Government of Canada bond yield prevailing at the time the debt is incurred. The debt will be loaned to Enbridge Gas New Brunswick via intercompany loans on terms and conditions that Enbridge Gas New Brunswick would incur if it were to raise the debt on its own behalf in the public markets.

Q.11 What principles support the use of a stand-alone cost of debt rather than the parent's cost of raising debt?

- A.11 The stand-alone principle applies equally to the cost of debt, the cost of equity, and capital structure. The imputation of the stand-alone cost of debt to Enbridge Gas New Brunswick's operations based on Enbridge Gas New Brunswick's risk ensures that there is no cross-subsidization between Enbridge Gas New Brunswick and its parent, i.e., that Enbridge Gas New Brunswick is not being subsidized by the customers of any of the parent's other operations, regulated or unregulated. The trends in the utility industry to ensure that no cross-subsidies among affiliates occur (through cost allocation procedures, codes of conduct, pricing rules for affiliate transactions, separations and/or minimization of shared services) all indicate that regulators are endorsing the stand-alone principle at all levels of operations.
- Q.12 Are you aware of other examples where the stand-alone principle has been applied to the cost of debt where the utility does not raise capital in its own name?
- A.12 Yes. A number of Crown Corporations pay a fee to the province to compensate the province for the debt guarantee. Examples of Crown Corporations paying debt guarantee fees include Hydro Quebec, Manitoba Hydro, New Brunswick Power, Newfoundland & Labrador Hydro, and Ontario Hydro. For these companies, the fees range from 0.5-1.0% of the utilities' outstanding guaranteed debt.

In 1992 (E92086), the Public Utilities Board of Alberta imputed a cost of debt to Nova's gas transmission operations which was lower than that at which the corporation had actually raised the debt, on the grounds that the stand-alone pipeline could have raised the debt at a lower cost than the corporation due to the latter's higher risk operations.

"The Board considers that consistent with its determination of AGTD's [Alberta Gas Transmission, Division of Nova Corporation of Alberta] capital structure on a stand alone basis, AGTD's long term debt costs should also be

determined on a stand alone basis. . . . the Board considers that, AGTD as a stand alone utility would have been able to issue long term debt at cost rates consistent with an A rating, historically. Accordingly the Board considers it appropriate to adjust downward the debt rates on those debt issues that are inconsistent with an A rating."

While the circumstances of Enbridge Gas New Brunswick are the reverse — a higher stand-alone cost of debt than its parent — the principle is the same.

The Regie de l'Energie de Quebec permits Gazifere Inc., a small, mature gas distributor, to cost its debt at 150 basis points above the corresponding maturity Government of Canada bond. The debt is provided to Gazifere by its parent, Enbridge Inc. The spread represents an independent estimate of the spread at which Gazifere could raise debt on a stand-alone basis. The 150 basis point spread is approximately 50 basis points above the spread at which Enbridge Inc. raises debt.

Q.13 Is the 250 basis point spread indicated in Enbridge Gas New Brunswick's proposal reasonable?

A.13 Yes. As a greenfield utility, Enbridge Gas New Brunswick would not be able to achieve an investment grade rating (B++ or higher). The spread debt investors would require is likely to be between that incurred by B++ and B+-rated corporates, and most likely closer to the spread incurred by B+ rated companies. Over the past five years, the spread for 10-year B++ corporates has averaged 1.60%; the spread for 10-year B+ rated corporates has averaged 2.95% (Schedule 8). A spread of 250 basis points lies slightly above the mid-point of the range of 1.6-2.95% applicable to, respectively, B++ and B+ rated corporates.

Q.14 Is your assessment of the reasonableness of the proposed 13% ROE also premised on respect for the stand-alone principle?

A.14 Yes. The stand-alone principle applies equally to the return on equity as to the cost of debt. The happenstance of ownership should not dictate the determination of a fair return. That return should be based on EGNB's business and financial risks, not the parent company's corporate cost of raising capital. A failure to recognize the need to reflect the risk of the project in the return distorts the very economics of the project and would lead to an uneconomic allocation of capital resources. The stand-alone principle has been respected by virtually every regulator in Canada in determining a reasonable return on equity.

Q.15 What quantitative analyses did you conduct to determine that Enbridge Gas New Brunswick's proposed ROE of 13% is reasonable?

A.15 I started with the proposition that the expected return on equity from a mature, going-concern LDC was an appropriate point of departure.

With long Canada yield forecast at approximately 6.25% for the year 2000, the average return for a mature Canadian LDC, electric utility, or gas pipeline, based on recent regulatory decisions or automatic adjustment mechanisms is approximately 10% (Schedule 4). In my opinion, these returns give inadequate recognition to available alternative investment opportunities in the current capital market environment, inasmuch as they generally track only interest rates, with no explicit consideration given to the returns on equity capital achievable by competitive firms of similar risk to utilities. Nevertheless, these returns do provide a minimum benchmark for a company for purposes of evaluating a reasonable return for purpose of committing capital *de novo* for a greenfield LDC.

With increasing globalization of markets, further benchmarks are available from returns allowed for mature LDCs in markets with similar cost of capital environments, as well as similar regulatory frameworks. The U.S. provides the most relevant benchmark, given (1) the ability and willingness of Canadian investors to commit capital to U.S. equities; (2) the ease of obtaining information and market access; (3) the similarity of the interest rate environment; (4) the interdependence of the economies; (5) the similarity of the regulatory environments; and (6) the similarity of investment risk of mature LDCs. (To illustrate, the average beta,¹ for U.S. LDCs has been 0.59, compared to 0.60 for the average Canadian gas/electric utility (Schedules 5 and 6).)

The average equity risk premium implicit in the allowed returns for U.S. LDCs over the past five years (1995-1999) — when long-term U.S. Treasury yields averaged 6.3% — was 4.9% (Schedules 7 and 8). At a forecast long Canada yield of 6.25%, the average allowed return would be 11%.²

¹The "beta" is a measure of non-diversifiable capital market risk which is frequently used in the context of the Capital Asset Pricing Model (CAPM) to estimate the cost of equity. The CAPM rests on the assumptions (among others) that risk to an equity investor can be captured in a single variable, stock market volatility, and that the equity risk premium is proportional to the beta. A company's beta is the ratio of (1) the covariance of a stock's return with the return on the market to (2) the variance of the market return estimated using regression analysis. An adjustment was made for the tendency of betas to move toward the long-term average of 1.0, as done by major investment houses in the U.S., e.g., Value Line and Merrill Lynch. The adjusted betas utilize the Value Line formula, which effectively given 2/3 weight to the raw or calculated beta and 1/3 weight to the market beta of 1.0.

²The actual returns on book equity forecast for these utilities over the next 3-5 years by Value Line is 13%.

The 13.0% return on equity proposed by Enbridge Gas New Brunswick for a **greenfield** LDC should therefore be evaluated by reference to a mature LDC benchmark return of 10.0-11.0%.

In my opinion, the reasonableness of the 200-300 **basis point differential** with these benchmarks implied by the Company's proposed 13% is supported by the following considerations:

- (1) I estimate the expected market risk premium in Canada at a long Canada yield of 6.25% at no less than 6.0-6.5%. Hence, an investor in a diversified stock portfolio would expect a return of 12.25-12.75%. A potential investor is likely to require a higher return to invest in a start-up gas utility than in a diversified portfolio of stocks. The difference between the market return (i.e., the return for a diversified equity portfolio) of 12.5% and a 10.0% ROE for a mature Canadian LDC is 250 basis points.

With respect to the U.S. market, the long-term average equity market premium is 7.5%. When added to a long Treasury yield of 6.25%, the average expected return for the U.S. market is 13.75%. The differential between the average overall market return of 13.75% and the 11.0% U.S. LDC benchmark return is 275 basis points.

- (2) The highest adjusted beta for a mature U.S. LDC with an investment grade debt rating is 1.0, compared to the average of approximately 0.60 for the industry (Schedule 6). The difference in betas implies a differential in the required return of approximately 250 basis points $((1.0 - .60) \times 6.25\% \text{ market premium})$. The differential return requirement between a "start-up" LDC with the proposed elements

of Enbridge Gas New Brunswick's development plan and the return requirement for the average established utility in the industry would be greater than the differential between that of the highest risk mature relatively pure-play LDC and the average for the industry as a whole. Hence, the required return differential for Enbridge Gas New Brunswick would exceed 250 basis points.

- (3) A cross-country study of differences in costs of capital resulting from different types of regulatory regimes conducted by the World Bank concluded that the difference in asset (business risk) betas between energy utilities operating under rate of return regulation and "high powered" regulatory regimes (e.g., price cap) was close to 0.40.¹ The asset risk of a greenfield LDC with the framework proposed by Enbridge Gas New Brunswick would be greater than the risk of a mature LDC under a price cap mechanism. Hence, the 250 basis point return differential implied by this study (at a 6.25% market risk premium) represents a conservative estimate of a reasonable return differential between Enbridge Gas New Brunswick and an established LDC.

Q.16 In light of the above considerations, what have you concluded regarding the Company's proposed financial parameters?

A.16 Enbridge Gas New Brunswick's proposed capital structure and return on common equity are reasonable in light of:

¹Ian Alexander, Colin Mayer and Helen Weeds, "Regulatory Structure and Risk: An International Comparison", prepared for PSD/PPI, World Bank, January 30th, 1986.

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- (1) the unique market development risks associated with a "greenfield" LDC;
- (2) the specific elements of the Company's plan, which will provide it a reasonable opportunity to earn a compensatory return over the longer-term, including:
 - (a) the use of market-based rates;
 - (b) the proposed approximately eight-year development period, during which the Company will underearn the proposed return, but will have the ability to defer revenue shortfalls;
 - (c) the opportunity to recover the shortfalls from the cost of service subsequent to the end of the development period.
- (3) the higher inherent risks associated with the market area relative to the typical North American LDC, including:
 - (a) the relatively small size of its operations;
 - (b) the higher gas supply risks relative to the typical LDC;
 - (c) the higher exposure of the economic base in its service area to cyclical fluctuations.
- (4) the comparative analysis of return requirement differentials for alternative investment opportunities, which suggest that the 200-300 basis point spread in equity return relative to mature LDCs is warranted by Enbridge Gas New Brunswick's risk profile.

Schedule 1

Capital Structure Ratios of Major Canadian Gas and Electric Utilities

**CAPITAL STRUCTURE RATIOS
OF MAJOR CANADIAN GAS AND ELECTRIC UTILITIES**

<u>Company</u>	<u>Date</u>	<u>Long-term Debt a/</u>	<u>Short-Term Debt</u>	<u>Preferred Stock Classified as Debt b/</u>	<u>Preferred Stock b/</u>	<u>Common Stock Equity c/</u>
Gas Distributors						
BC Gas Utility	12/98	44.6	12.9	4.2	4.2	34.2
Centra Gas Manitoba, Inc.	12/98	45.1	19.8	0.0	0.0	35.1
Enbridge Consumers Gas	9/98	56.3	11.4	2.8	0.1	29.3
Gaz Metropolitan	9/98	56.9	2.5	0.0	0.0	40.6
Pacific Northern Gas	12/98	51.5	11.0	0.0	2.8	34.7
Union Gas	12/98	48.9	14.8	0.0	3.2	33.0
Electric Utilities						
CU, Inc.	12/98	46.6	2.5	6.2	5.8	38.9
Maritime Electric	12/98	54.4	2.4	0.0	0.0	43.2
Newfoundland Power	12/98	53.9	1.0	0.0	1.9	43.2
Nova Scotia Power	12/98	39.6	14.6	0.0	8.2	37.6
TransAlta Utilities	12/98	46.0	2.0	0.0	9.2	42.8
West Kootenay Power	12/98	61.3	0.0	0.0	0.0	38.7
Averages						
Gas Distributors		50.6	12.1	1.2	1.7	34.5
Electric Utilities		50.3	3.8	1.0	4.2	40.7
All Companies		50.4	7.9	1.1	3.0	37.6

a/ Includes current portion of long-term debt.

b/ Includes minority interest in preferred shares of subsidiary companies.

c/ Includes minority interest in common shares of subsidiary companies.

Source: Annual Reports to Stockholders.

CAPSTR1

Schedule 2

**Debt and Common Stock Quality Ratings of Major
Canadian Gas and Electric Utilities**

**DEBT AND COMMON STOCK QUALITY RATINGS
OF MAJOR CANADIAN GAS AND ELECTRIC UTILITIES
(September 1999)**

<u>Company</u>	<u>Debt Rated</u>	<u>DBRS Bond Rating</u>	<u>CBRS Bond Rating</u>	<u>CBS Stock Ranking</u>
BC Gas Utility	Purchase Money Mortgages Sinking Fund Debentures	A A	A A(low)	Very conservative
CU, Inc.	Debentures	AA(low)	A+	Very conservative
Centra Gas Manitoba, Inc.	Senior Debentures	A	A(low)	NR
Consumers Gas	Debentures	A(high)	A	NR
Gaz Metropolitan	F.M. Sinking Fund Bonds Debentures	A A	A(high) A(high)	NR
Maritime Electric	First Mortgage Bonds	NR	B++(high)	NR
Newfoundland Power	First Mtge. S.F. Bonds	A	A(low)	Conservative
Nova Scotia Power	Debentures	A(low)	A(low)	Very conservative
Pacific Northern Gas	Secured Debentures	BBB	B++	Average
TransAlta Utilities	First Mortgage Bonds Secured S.F. Debentures	AA(low) AA(low)	A+(high) A+	Very conservative
West Kootenay Power	Secured Debentures	BBB(high)	NR	NR
Union Gas Limited	Debentures	A	A(low)	NR

Note: Debt ratings are for utility; Stock rankings are for parent.

Source: DBRS Bond Rating, Canadian Bond Rating Service, The Blue Book of CBS Stock Reports.

RATE

Schedule 3

Debt Ratings and Capital Structure Ratios for Selected U.S. Gas Distribution Companies

SCHEDULE 3

DEBT RATINGS AND CAPITAL STRUCTURE RATIOS FOR
SELECTED U.S. GAS DISTRIBUTION COMPANIES

	Standard & Poor's <u>Debt Rating</u>	<u>Capital Structure Ratios</u>		
		<u>Long-term Debt</u>	<u>Preferred Stock</u>	<u>Common Equity</u>
AGL RESOURCES INC	BBB+	52.9	0.0	47.1
ATMOS ENERGY CORP	A-	55.1	0.0	44.9
CASCADE NATURAL GAS CORP	BBB+	50.6	2.7	46.7
CONNECTICUT ENERGY CORP		46.1	0.0	53.9
INDIANA ENERGY INC	A+	38.8	0.0	61.2
LACLEDE GAS CO	AA-	40.9	0.4	58.6
NEW JERSEY RESOURCES		51.3	3.2	45.4
NICOR INC	A+	42.2	0.5	57.3
NORTHWEST NATURAL GAS CO	A	45.6	4.4	49.9
NUI CORP	BBB	51.8	0.0	48.2
PEOPLES ENERGY CORP	A+	41.5	0.0	58.5
PIEDMONT NATURAL GAS CO	A	45.4	0.0	54.6
PROVIDENCE ENERGY CORP		47.2	2.7	50.0
SOUTH JERSEY INDUSTRIES	Baa a/	58.2	0.5	41.3
SOUTHWEST GAS CORP	BBB-	60.4	4.4	35.2
WASHINGTON GAS LIGHT CO	AA-	43.6	2.5	53.8
Average	A/A-	48.2	1.3	50.4

a/ Moody's Rating.

Source: Standard & Poor's Research Insight; Mergent Bond Record.

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Schedule 4

**Rates of Return on Common Equity Adopted by
Regulatory Boards for Canadian Utilities**

**RATES OF RETURN ON COMMON EQUITY
ADOPTED BY REGULATORY BOARDS FOR CANADIAN UTILITIES**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
LDCs											
BC Gas Utility	NA	NA	12.25	NA	10.65	12.00	11.00	10.25	10.00	9.25	9.5 e/
Canadian Western	13.25	13.25	12.25	12.25	NA	NA	NA	NA	NA	NA	NA
Centra Gas Ontario	13.50	13.75	13.50	12.50	11.85	12.13	NA	11.25	10.69	a/	a/
Enbridge Consumers Gas	13.25	13.13	13.13	12.30	11.60	11.65	11.88	11.50	10.30	9.51	9.9
Gaz Metro	14.25	14.25	14.00	12.50	12.00	12.00	12.00	11.50	10.75	9.64	10.03
Northwestern Utilities	NA	13.75	13.75	11.88	11.88	NA	NA	NA	NA	NA	NA
Pacific Northern Gas	15.00	14.00	13.25	NA	11.50	12.75	11.75	11.00	10.75	10.00	10.25 e/
Union Gas	13.75	13.50	13.50	13.00	12.50	11.75	11.75	11.00	10.44	9.61	10.05 e/
Average	13.83	13.66	13.20	12.40	11.71	12.05	11.68	11.08	10.49	9.60	9.95
Electrics											
ATCO Electric	13.50	13.50	13.25	11.88	NA	NA	11.25	b/	b/	b/	b/
Newfoundland Power	13.95	13.25	NA	NA	NA	NA	11.00	NA	9.25	9.25	9.59
Nova Scotia Power	--	--	--	11.75	NA	NA	10.75	NA	NA	NA	NA
TransAlta Utilities	13.50	13.50	13.25	11.88	NA	12.25	11.25	b/	c/	9.25	9.25
West Kootenay Power	13.50	NA	11.75	11.50	11.00	12.25	11.25	10.50	10.25	9.50	9.9 e/
Average	13.61	13.42	12.75	11.75	11.00	12.25	11.10	10.50	9.75	9.33	9.58
Gas Pipelines											
Foothills	14.25	14.25	14.25	12.50	11.50	12.25	11.25	10.67	10.21	9.58	9.9
TransCanada	13.25	13.50	13.25	12.25	11.25	12.25	11.25	10.67	10.21	9.58	9.9
Westcoast Energy	13.25	13.75	12.50	12.25	11.50	12.25	11.25	10.67	10.21	9.58	9.9
Average	13.58	13.83	13.33	12.33	11.42	12.25	11.25	10.67	10.21	9.58	9.90

Note: A rate freeze was in effect for BC Gas in 1990 and 1991, BCUC regulation resumed in late 1991.
Nova Scotia Power was privatized in 1992.

a/ Merged with Union Gas.

b/ Negotiated settlement, details not available.

c/ Negotiated settlement, implicit ROE made public is 10.5%.

e/ estimate.

Source: Regulatory Proceedings

ALLROE SCH

Schedule 5

Raw and Adjusted Betas for Major Canadian Gas and Electric Utilities

RAW AND ADJUSTED BETAS FOR
MAJOR CANADIAN GAS AND ELECTRIC UTILITIES

RAW BETAS FIVE YEAR PERIOD ENDING										
COMPANY	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
BC Gas	0.52	0.49	0.41	0.41	0.53	0.59	0.54	0.47	0.48	0.36
Canadian Utilities	0.41	0.38	0.45	0.45	0.54	0.48	0.55	0.63	0.62	0.54
Fortis	0.26	0.29	0.41	0.36	0.44	0.51	0.37	0.30	0.49	0.33
NS Power Holdings	NA	NA	NA	NA	NA	NA	0.53	0.39	0.55	0.41
Pacific Northern Gas	0.38	0.44	0.40	0.53	0.58	0.44	0.32	0.40	0.55	0.47
TransAlta Utilities	0.27	0.26	0.36	0.44	0.55	0.59	0.57	0.47	0.54	0.28
Mean	0.37	0.37	0.41	0.44	0.53	0.52	0.48	0.44	0.54	0.40
Median	0.33	0.33	0.41	0.43	0.54	0.50	0.54	0.44	0.55	0.39

ADJUSTED BETAS 1/ FIVE YEAR PERIOD ENDING										
COMPANY	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
BC Gas	0.68	0.66	0.60	0.60	0.69	0.73	0.69	0.64	0.65	0.57
Canadian Utilities	0.60	0.58	0.63	0.63	0.69	0.65	0.70	0.75	0.75	0.69
Fortis	0.50	0.52	0.60	0.57	0.62	0.67	0.58	0.53	0.66	0.55
NS Power Holdings	NA	NA	NA	NA	NA	NA	0.69	0.59	0.70	0.60
Pacific Northern Gas	0.59	0.63	0.60	0.69	0.72	0.62	0.54	0.60	0.70	0.64
TransAlta Utilities	0.51	0.51	0.57	0.62	0.70	0.73	0.71	0.64	0.69	0.52
Mean	0.58	0.58	0.60	0.62	0.68	0.68	0.65	0.63	0.69	0.60
Median	0.55	0.55	0.60	0.61	0.69	0.66	0.69	0.62	0.70	0.59

1/ Adjusted beta = "raw" beta * 67% + market beta of 1.0 * 33%.

Source: TSE Review.

CUBETA

Schedule 6

**Raw and Adjusted Betas for U.S. Natural Gas
Distribution Companies**

SCHEDULE 6

RAW AND ADJUSTED BETAS
FOR U.S. NATURAL GAS DISTRIBUTION COMPANIES
(December 1999)

	<u>Raw Beta</u>	<u>Adjusted Beta</u>
AGL RESOURCES INC	0.46	0.63
ATMOS ENERGY CORP	0.20	0.46
CASCADE NATURAL GAS CORP	NMF	NMF
CONNECTICUT ENERGY CORP	0.21	0.47
CONSOLIDATED NATURAL GAS CO	0.72	0.81
CTG RESOURCES INC	0.18	0.45
EASTERN ENTERPRISES	0.38	0.59
ENERGEN CORP	0.44	0.62
EQUITABLE RESOURCES INC	0.56	0.71
INDIANA ENERGY INC	0.16	0.44
LACLEDE GAS CO	0.20	0.46
MCN ENERGY GROUP INC	1.00	1.00
NEW JERSEY RESOURCES	0.31	0.54
NICOR INC	0.25	0.50
NORTHWEST NATURAL GAS CO	0.18	0.45
NUI CORP	0.27	0.51
ONEOK INC	0.60	0.73
PEOPLES ENERGY CORP	0.41	0.60
PIEDMONT NATURAL GAS CO	0.28	0.52
PUBLIC SERVICE CO OF N C	0.07	0.38
QUESTAR CORP	0.53	0.68
SEMCO ENERGY INC	0.65	0.77
SOUTH JERSEY INDUSTRIES	0.33	0.55
SOUTHERN UNION CO	0.62	0.75
SOUTHWEST GAS CORP	0.68	0.79
SOUTHWESTERN ENERGY CO	0.78	0.85
UGI CORP	0.08	0.38
WASHINGTON GAS LIGHT CO	0.28	0.52
WICOR INC	0.28	0.52
YANKEE ENERGY SYS INC	0.32	0.54
Average	0.39	0.59

Source: Standard & Poor's Research Insight.

US LDC BETA

Schedule 7

**Summary of Major Rate Case Decisions for U.S.
Natural Gas Distribution Companies**

SCHEDULE 7

SUMMARY OF MAJOR RATE CASE DECISIONS
FOR U.S. NATURAL GAS DISTRIBUTION COMPANIES

<u>Date of Approval</u>	<u>Return on Equity</u>	<u>Common Equity Ratio</u>
1990	12.69	47.40
1991	12.44	47.08
1992	11.93	46.64
1993	11.30	46.29
1994	11.28	47.95
1995	11.33	49.99
1996	11.15	48.12
1997	11.12	47.76
1998	11.51	49.50
1999	10.70	48.81
Averages:		
1990-1999	11.55	47.95
1995-1999	11.16	48.84

Source: Regulatory Focus, Regulatory Research Associates, Inc.

US LDC ALLROE

Schedule 8

Trend in Interest Rates and Outstanding Bond Yields

TREND IN INTEREST RATES AND OUTSTANDING BOND YIELDS
(Percent Per Annum)

Year	Government Securities									Exchange Rates (Canadian dollars in U.S. funds)
	Prime Rate		3-Month Bills		10-Year Bonds		30-Year Bonds		Canadian Long-term Bonds c/	
	Canadian	U.S.	Canadian	U.S. a/	Canadian	U.S.	Canadian	U.S. b/		
1976	10.08	6.84	8.87	5.00		7.61		7.86	9.18	1.01
1977	8.50	6.83	7.33	5.26		7.42		7.67	8.70	0.94
1978	9.69	9.06	8.68	7.22		8.41		8.49	9.28	0.88
1979	12.92	12.67	11.68	10.04		9.44		9.29	10.21	0.85
1980	14.27	15.27	12.80	11.51		11.46		11.30	12.48	0.86
1981	19.29	18.87	17.72	14.08		13.91		13.44	15.22	0.83
1982	15.79	14.86	13.62	10.69		13.00		12.76	14.26	0.81
1983	11.16	10.79	9.32	8.63		11.10		11.18	11.79	0.81
1984	12.10	12.04	11.06	9.58		12.44		12.39	12.75	0.77
1985	10.58	9.93	9.43	7.49		10.62		10.79	11.04	0.73
1986	10.56	8.33	8.97	5.97		7.68		7.80	9.52	0.72
1987	9.55	8.22	8.15	5.82		8.39		8.59	9.95	0.75
1988	10.83	9.32	9.48	6.69		8.85		8.96	10.24	0.81
1989	13.33	10.87	12.04	8.12		8.49		8.45	9.92	0.84
1990	14.06	10.01	12.80	7.51	10.76	8.55	10.69	8.61	10.85	0.86
1991	9.94	8.46	8.73	5.42	9.42	7.86	9.72	8.14	9.76	0.87
1992	7.48	6.25	6.59	3.45	8.05	7.01	8.68	7.67	8.77	0.83
1993	5.94	6.00	4.84	3.02	7.22	5.87	7.86	6.59	7.85	0.77
1994	6.88	7.23	5.54	4.34	8.43	7.08	8.69	7.37	8.63	0.73
1995	8.65	8.81	6.89	5.44	8.08	6.58	8.41	6.88	8.28	0.73
1996	6.06	8.27	4.21	5.04	7.20	6.44	7.75	6.73	7.50	0.73
1997	4.96	5.44	3.26	5.11	6.11	6.32	6.66	6.58	6.42	0.72
1998	6.60	8.31	4.73	4.79	5.30	5.26	5.59	5.54	5.47	0.67
1999	6.44	8.02	4.69	4.71	5.57	5.69	5.74	5.91	5.69	0.67
1999 Jan	6.75	7.75	4.66	4.31	4.89	4.67	5.23	5.12	5.08	0.66
1999 Feb	6.75	7.75	4.84	4.53	5.26	5.18	5.43	5.49	5.37	0.67
1999 Mar	6.75	7.75	4.75	4.38	5.05	5.24	5.36	5.63	5.23	0.66
1999 Apr	6.50	7.75	4.60	4.34	5.14	5.26	5.41	5.58	5.34	0.67
1999 May	6.25	7.75	4.42	4.50	5.42	5.56	5.58	5.80	5.54	0.68
1999 June	6.25	7.75	4.62	4.75	5.46	5.87	5.63	6.03	5.63	0.68
1999 July	6.25	8.00	4.64	4.54	5.62	5.86	5.74	6.05	5.74	0.67
1999 Aug	6.25	8.25	4.83	4.88	5.55	5.97	5.68	6.08	5.69	0.67
1999 Sep	6.25	8.25	4.60	4.72	5.77	5.92	5.91	6.09	5.86	0.68
1999 Oct	6.25	8.25	4.82	5.00	6.26	6.16	6.36	6.30	6.30	0.68
1999 Nov	6.50	8.50	4.69	5.20	6.12	6.20	6.20	6.29	6.20	0.68
1999 Dec	6.50	8.50	4.85	5.32	6.25	6.43	6.30	6.48	6.30	0.69

a/ Rates on new issues.

b/ 20-year constant maturities for 1974-1978; 30-year maturities after 1978. Series represents yields on the more actively traded issues adjusted to constant maturities by the U.S. Treasury based on daily closing bids.

c/ 10 years or more.

Note: Monthly data reflect rate in effect at end of month.

Source: Bank of Canada Review; CBRS; Globe and Mail; ScotiaMcLeod Monthly Bond Yield Averages; Annual Statistical Digest (Federal Reserve System); Federal Reserve Bulletin (various issues).

TREND IN INTEREST RATES AND OUTSTANDING BOND YIELDS
(Percent Per Annum)

Year	CBRS Utilities a/			ScotiaMcLeod Long Term Bond Index	
	A+	A	B++	AA Corporates b/	A Corporates
1976	10.57	10.61	10.78		
1977	9.86	9.95	10.16	9.68	9.92
1978	10.14	10.16	10.35	10.01	10.14
1979	10.96	11.08	11.14	10.81	10.97
1980	13.23	13.46	13.43	13.17	13.36
1981	16.04	16.26	16.41	16.09	16.31
1982	15.50	15.84	16.13	15.70	16.00
1983	12.45	12.85	12.79	12.68	12.86
1984	13.20	13.56	13.55	13.49	13.62
1985	11.48	11.71	11.84	11.67	11.89
1986	10.34	10.42	10.72	10.17	10.34
1987	10.86	11.00	11.26	10.66	10.77
1988	10.93	11.20	11.46	10.80	11.00
1989	10.69	11.05	11.32	10.67	10.91
1990	11.80	12.13	12.37	11.76	11.95
1991	10.52	11.00	11.10	10.52	10.76
1992	9.63	10.01	10.08	9.59	9.87
1993	8.80	9.08	9.38	8.51	8.92
1994	9.55	9.81	10.39	9.28	9.48
1995	9.14	9.29	10.13	8.79	9.03
1996	7.94	8.10	8.26	7.92	8.14
1997	6.82	6.94	7.15	6.86	6.96
1998	6.00	6.16	6.30	5.99	6.19
1999 Jan	5.84	6.04	6.11	5.85	6.05
Feb	6.10	6.29	6.38	6.08	6.30
Mar	5.93	6.13	6.23	5.91	6.12
Apr	6.01	6.20	6.34	5.96	6.18
May	6.13	6.31	6.48	6.17	6.38
Jun	6.25	6.51	6.66	6.32	6.60
Jul	6.46	6.78	6.86	6.59	6.88
Aug	6.52	6.85	6.89	6.63	6.88
Sep	6.54	6.89	6.92	6.65	6.93
Oct	6.81	7.15	7.18	6.94	7.22
Nov	6.85	7.24	7.26	6.91	7.19

a/ Reflect the long-term index through 1995 and the average of yields of 10-, 20-, and 30-year indices beginning in 1996.

b/ Includes AAA Bonds as of April 1993.

Note: Monthly data reflect rate in effect at end of month.

Source: Bank of Canada Review; CBRS; Globe and Mail; ScotiaMcLeod Monthly Bond Yield Averages; Annual Statistical Digest (Federal Reserve System); Federal Reserve Bulletin (various issues).

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Schedule 9

Curriculum Vitae of Kathleen C. McShane

Qualifications
of
KATHLEEN C. McSHANE

Kathleen McShane is a Senior Vice President and senior consultant with Foster Associates, Inc., where she has been employed since 1981. She holds an M.B.A. degree in Finance from the University of Florida, and M.A. and B.A. degrees from the University of Rhode Island. She is also a Chartered Financial Analyst.

Ms. McShane worked for the University of Florida and its Public Utility Research Center, functioning as a research and teaching assistant, before joining Foster Associates. She taught both undergraduate and graduate classes in financial management and assisted in the preparation of a financial management textbook.

At Foster Associates, Ms. McShane has worked in the areas of financial analysis, energy economics and cost allocation. Ms. McShane has presented testimony in 75 proceedings on rate of return and capital structure before federal, state, provincial and territorial regulatory boards, on behalf of U.S. and Canadian telephone companies, gas pipelines and distributors, and electric utilities. These studies include the assessment of the impact of competition, rate design, contractual arrangements, and capital structure on return requirements. She has testified before the National Energy Board on behalf of Gaz Metropolitan and the Government of Québec on pipeline cost allocation, quantifying the impact on transportation rates of changes in zoning and of rolled-in versus incremental pricing, has presented evidence on price cap regulation for Maritime Electric before the Island Regulatory and Appeals Commission of Prince Edward Island, and has testified before the Ontario Energy Board on economic principles of cost allocation. Ms. McShane has also provided consulting services for AGT, Ltd., ED TEL, Maritime Electric and Northwest Territories Power on financial issues, including financing, dividend policy, corporate structure, cost of capital and form of

regulation.

Ms. McShane was principal author of a study on the applicability of alternative incentive regulation proposals to Canadian gas pipelines. She was instrumental in the design and preparation of a study of the profitability of 25 major U.S. gas pipelines, in which she developed estimates of rate base, capital structure, profit margins, unit costs of providing services, and various measures of return on investment. In a study prepared for the Canadian Ministry of Energy, Ms. McShane analyzed Federal regulation of U.S. pipelines, including trends in rate design and rate structures. Ms. McShane has also co-managed market demand studies, focusing on demand for Canadian gas in U.S. markets. Other studies performed by Ms. McShane include a comparison of municipal and privately owned gas utilities, an analysis of the appropriate capitalization and financing for a new gas pipeline, risk/return analyses of a proposed water company and an independent power project, and a study on pricing of a competitive product for the U.S. Postal Service. She has also conducted seminars on cost of capital for regulated utilities, with focus on the Canadian regulatory arena.

Publications and Papers

- ◆ "Marketing Canadian Natural Gas in the U.S.", (co-authored with Dr. William G. Foster), published by the IAEE in Proceedings: Fifth Annual North American Meeting, 1983.
- ◆ "Canadian Gas Imports: Impact of Competitive Pricing on Demand", (co-authored with Dr. William G. Foster), presented to A.G.A.'s Gas Price Elasticity Seminar, March 1986.
- ◆ "Market-Oriented Sales Rates and Transportation Services of U.S. Natural Gas Distribution Companies", (co-authored with Dr. William G. Foster), published by the IAEE in Papers and Proceedings of the Eighth Annual North American Conference, May 1987.
- ◆ "Incentive Regulation: An Alternative to Assessing LDC Performance", (co-authored with Dr. William G. Foster), presented at the Natural Gas Conference, Chicago, Illinois,

sponsored by The Center for Regulatory Studies (May 1993).

- ◆ “Atlanta Gas Light’s Unbundling Proposal: More Unbundling Required?” presented at the 24th Annual Rate Symposium, Kansas City, Missouri, sponsored by several Commissions and Universities (1998)

Expert Testimony/Opinions
on
Rate of Return & Capital Structure

Alberta Natural Gas		1994
Alberta Power/ATCO Electric	1989, 1991, 1993,	(1995), (1998), (1999)
BC Gas		1992, 1994
Bell Canada		1987, 1993
Benchmark Utility Cost of Equity (British Columbia)		(1999)
Canadian Western Natural Gas		1989, (1998), (1999) ←
Centra Gas B.C.		1992, (1995), (1996)
Centra Gas Ontario	1990, 1991, 1993,	(1994), (1996)
Consumers Gas	1988, 1989, 1991, 1992, 1993, 1994,	(1995), (1996), (1997)
Dow Pool A Joint Venture		1992
Edmonton Water		1994
Foothills Pipe Lines		1993
Gaz Metropolitain		1988
Gazifère	1993, 1994,	(1995), (1996), (1997), (1998)
Laclede Gas Company		1998, 1999
Maritimes NRG (Nova Scotia)		1999
Multi-Pipeline Cost of Capital Hearing		1994
Natural Resource Gas		1994, (1997)
Newfoundland Power		(1998)
Newfoundland Telephone		1992
Northwestern Utilities		1987, 1990
Northwest Territories Power Corp.	1990, 1992, 1993,	(1995)
Ontario Hydro Services Corp.		(1999)
Pacific Northern Gas	1990, 1991, 1994,	(1997), (1999)

St. Lawrence Gas	1997	US
Southern Union Gas	1990, 1991, 1993	
Stentor	1997	
Tecumseh Gas Storage	1989, 1990	
TransCanada PipeLines	1988, 1989, 1991 (2 cases), 1992, 1993	
TransGas and SaskEnergy LDC	1995	
Trans Québec & Maritimes Pipeline	1987	
Union Gas	1988, 1989, 1990, 1992, 1994, 1996, 1998	
Westcoast Energy	1989, 1990, 1992 (2 cases), 1993	
West Kootenay Power	1995, 1999	
Yukon Electrical Co. Ltd./Yukon Energy	1991, 1993	