Docket No, UG-06____
Exhibit ____(RAM-1T)
Witness: Dr. Roger A. Morin, Ph.D.

BEFORE THE

WASHINGTON UTILITIES & TRANSPORTATION COMMISSION

UG-06_____

GENERAL RATE APPLICATION

OF

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February 14, 2006

Prepared Direct Testimony of
Dr. Roger A. Morin, Ph.D.

Resume
Gas Utilities Beta Estimates
Moody's Gas Risk Premium Analysis
Gas-Analysts' Growth Forecast
Gas-Value Line Growth Forecasts
Distribution Utility Companies
Electric-Value Line Growth Projections
Electric-Analysts' Growth Projections
Gas-Common Equity Ratios

Cost of Capital," "Alternative Regulatory Frameworks," and on "Utility Capital Allocation," which I have developed on behalf of The Management Exchange Inc. in conjunction with Public Utilities Reports, Inc.

I have authored or co-authored several books, monographs, and articles in academic scientific journals on the subject of finance. They have appeared in a variety of journals, including The Journal of Finance, The Journal of Business Administration, International Management Review, and Public Utility Fortnightly. I published a widely-used treatise on regulatory finance, Utilities' Cost of Capital, Public Utilities Reports, Inc., Arlington, Va. 1984. My more recent book on regulatory matters, Regulatory Finance, is a voluminous treatise on the application of finance to regulated utilities and was released by the same publisher in late 1994. A revised and expanded edition is scheduled for publication in early 2006. I have engaged in extensive consulting activities on behalf of numerous corporations, legal firms, and regulatory bodies in matters of financial management and corporate litigation. Exhibit RAM-1 describes my professional credentials in more detail.

Q. Have you previously testified on cost of capital before utility regulatory commissions?

A. Yes, I have been a cost of capital witness before nearly fifty (50) regulatory bodies in North America, including the Washington Utilities and Transportation Commission ("WUTC,", or "Commission"), the Federal Energy Regulatory Commission, and the Federal Communications Commission. I have also testified before the following state, provincial, and other local regulatory commissions:

Alabama	Hawaii	Nevada	Oregon
Alaska	Illinois	New Brunswick	Pennsylvania
Alberta	Indiana	New Hampshire	Quebec
Arizona	Iowa	New Jersey	South Carolina

A. I have attached to my testimony exhibits Exhibit RAM-1 through Exhibit RAM-9 and Appendices A and B. These exhibits and appendices relate directly to points in my testimony, and are described in further detail in connection with the discussion of those points in my testimony.

Q. Please summarize your findings concerning CNGC's cost of common equity.

A. I have examined CNGC's risks, and concluded that CNGC's risk environment slightly exceeds the industry average on account of its very small size. It is my opinion that a just and reasonable return on common equity for CNGC is 11.15%. My recommendation is derived from studies I performed using the Capital Asset Pricing Model ("CAPM"), Risk Premium, and Discounted Cash Flow ("DCF") methodologies. I performed two CAPM analyses, one using the plain vanilla CAPM and another using an empirical approximation of the CAPM ("ECAPM"). I performed two risk premium analyses: (1) a historical risk premium analysis on the natural gas distribution utility industry, and (2) a study of the risk premiums reflected in ROEs allowed in the natural gas utility industry. I also performed DCF analyses on two surrogates for the Company's natural gas distribution business. They are: a group of natural gas distribution utilities and a group of investment-grade electricity distribution utilities. The results were adjusted to account for the slightly above average risks faced by CNGC relative to the industry.

My recommended rate of return reflects the application of my professional judgment to the results in light of the indicated returns from my Risk Premium, CAPM, and DCF analyses. Moreover, my recommended return is predicated on the assumption that the Commission will approve the weather normalization adjustment mechanism sought by the Company as part of a decoupling mechanism and the continuation of the Company's purchased gas cost adjustment mechanism ("PGA"). Absent these risk-mitigating result, the firm's equity becomes a riskier investment. The risk of default on the company's bonds also increases, making the utility's debt a riskier investment. This increases the cost to the utility from both debt and equity financing and increases the possibility the company will not have access to the capital markets for its outside financing needs. Ultimately, to ensure that CNGC has access to capital markets for its capital needs, a fair and reasonable authorized rate of return on common equity capital of 11.15% is required.

Q. Please describe how your testimony is organized.

A. The remainder of my testimony is divided into three (3) sections:

(i) Regulatory Framework and Rate of Return;
(ii) Cost of Equity Estimates; and
(iii) Summary and Recommendation.

The first section discusses the rudiments of rate of return regulation and the basic notions underlying rate of return. The second section contains the application of CAPM, Risk Premium, and DCF tests. In the third section, the results from the various approaches used in determining a fair return are summarized.

I. REGULATORY FRAMEWORK AND RATE OF RETURN

Q. What economic and financial concepts have guided your assessment of the Company's cost of common equity?

A. Two fundamental economic principles underlie the appraisal of the Company's cost of

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payments. The cost of common equity funds, that is, investors' required rate of return, is more difficult to estimate. It is the purpose of the next section of my testimony to estimate CNGC's cost of common equity capital.

Q. What must be considered in estimating a fair return on common equity?

A. The basic premise is that the allowable return on equity should be commensurate with returns on investments in other firms having corresponding risks. The allowed return should be sufficient to assure confidence in the financial integrity of the firm, in order to maintain creditworthiness and ability to attract capital on reasonable terms. The attraction of capital standard focuses on investors' return requirements that are generally determined using market value methods, such as the Risk Premium, CAPM, or DCF methods. These market value tests define fair return as the return investors anticipate when they purchase equity shares of comparable risk in the financial marketplace. This is a market rate of return, defined in terms of anticipated dividends and capital gains as determined by expected changes in stock prices, and reflects the opportunity cost of capital. The economic basis for market value tests is that new capital will be attracted to a firm only if the return expected by the suppliers of funds is commensurate with that available from alternative investments of comparable risk.

Q. How is a utility's fair return derived?

A. The fair return in dollars is obtained by multiplying the rate of return set by the regulator by the utility's "rate base." The rate base is essentially the net book value of the utility's plant and other assets used to provide utility service.

Q. What fundamental principles underlie the determination of a fair and reasonable rate of

> *other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and attract capital.* (Emphasis added).

The United States Supreme Court reiterated the criteria set forth in Hope in Federal Power Commission v. Memphis Light, Gas and Water Division, 411 U.S. 458 (1973), in Permian Basin Rate Cases, 390 U.S. 747 (1968), and most recently in Duquesne Light Co. v. Barasch, 488 U.S. 299 (1989). In the Permian cases, the Supreme Court stressed that a regulatory agency's rate of return order should:

> *...reasonably be expected to maintain financial integrity, attract necessary capital, and fairly compensate investors for the risks they have assumed...*

Therefore, the "end result" of this Commission's decision should be to allow CNGC the opportunity to earn a return on equity that is: (1) commensurate with returns on investments in other firms having corresponding risks, (2) sufficient to assure confidence in the Company's financial integrity, and (3) sufficient to maintain the Company's creditworthiness and ability to attract capital on reasonable terms.

Q. How is the fair rate of return determined?

A. The aggregate return required by investors is called the "cost of capital." The cost of capital is the opportunity cost, expressed in percentage terms, of the total pool of capital employed by the Company. It is the composite weighted cost of the various classes of capital (e.g., bonds, preferred stock, common stock) used by the utility, with the weights reflecting the proportions of the total capital that each class of capital represents.

While utilities like CNGC enjoy varying degrees of monopoly in the sale of public utility services, they must compete with everyone else in the free, open market for the input and equity capital. The cost of debt funds can be ascertained easily from an examination of the contractual interest payments. The cost of common equity funds, that is, equity investors' required rate of return, is more difficult to estimate because the dividend payments received from common stock are not contractual or guaranteed in nature. They are uneven and risky, unlike interest payments. Once a cost of common equity estimate has been developed, it can then easily be combined with the embedded costs of debt, based on the utility's capital structure, in order to arrive at the overall cost of capital (overall return).

Q. What is the market required rate of return on equity capital?

A. The market required rate of return on common equity, or cost of equity, is the return demanded by the equity investor. Investors establish the price for equity capital through their buying and selling decisions in capital markets. Investors set return requirements according to their perception of the risks inherent in the investment, recognizing the opportunity cost of forgone investments in other companies, and the returns available from other investments of comparable risk.

II. COST OF EQUITY CAPITAL ESTIMATES

Q. Dr. Morin, how did you estimate the fair rate of return on common equity for CNGC?

A. I employed three methodologies: (1) the CAPM, (2) the Risk Premium, and (3) the DCF methodologies. All three are market-based methodologies and are designed to estimate the return required by investors on the common equity capital committed to CNGC.

A. While I agree that it is certainly appropriate to consider the results of the DCF methodology to estimate the cost of equity, there is no proof that the DCF produces a more accurate estimate of the cost of equity than other methodologies. There are three broad generic methodologies available to measure the cost of equity: DCF, Risk Premium, and CAPM. All of these methodologies are accepted and used by the financial community and supported in the financial literature.

When measuring the cost of common equity, which is essentially the measurement of investor expectations, no one single methodology provides a foolproof panacea. Each methodology requires the exercise of considerable judgment on the reasonableness of the assumptions underlying the methodology and on the reasonableness of the proxies used to validate the theory and apply the methodology. The failure of the traditional infinite growth DCF model to account for changes in relative market valuation, and the practical difficulties of specifying the expected growth component are vivid examples of the potential shortcomings of the DCF model. It follows that more than one methodology should be employed in arriving at a judgment on the cost of equity and that these methodologies should be applied to multiple groups of comparable risk companies.

There is no single model that conclusively determines or estimates the expected return for an individual firm. Each methodology has its own way of examining investor behavior, its own premises, and its own set of simplifications of reality. Investors do not necessarily subscribe to any one method, nor does the stock price reflect the application of any one single method by the price-setting investor. Absent any hard evidence, which does not exist as far as I am concerned, as to which method outperforms the other, all relevant evidence should be used, in order to minimize judgmental error, measurement error, and conceptual infirmities. I submit that a regulatory body should rely on the results of a variety of methods applied to a variety of comparable groups. It is unwarranted to conclude that the DCF model standing alone is necessarily the ideal or best predictor of the

Another prominent finance scholar, Professor Stewart Myers, in his best selling corporate finance textbook, points out:

> *The constant growth [DCF] formula and the capital asset pricing model are two different ways of getting a handle on the same problem.*[3]

In an earlier article, Professor Myers explains:

> *Use more than one model when you can. Because estimating the opportunity cost of capital is difficult, only a fool throws away useful information. That means you should not use any one model or measure mechanically and exclusively. Beta is helpful as one tool in a kit, to be used in parallel with DCF models or other techniques for interpreting capital market data.*[4]

Q. Does the broad usage of the DCF methodology in past regulatory proceedings indicate that it is superior to other methods?

A. No, it does not. Uncritical acceptance of the standard DCF equation vests the model with a degree of reliability that is simply not justified. One of the leading experts on regulation, Dr. Charles F. Phillips discusses the dangers of relying solely on the DCF model:

> *[U]se of the DCF model for regulatory purposes involves both theoretical and practical difficulties. The theoretical issues include the assumption of a constant retention ratio (i.e. a fixed payout ratio) and the assumption that dividends will continue to grow at a rate 'g' in perpetuity. Neither of these assumptions has any validity, particularly in recent years. Further, the investors' capitalization rate and the cost of equity capital to a utility for application to book value (i.e. an original cost rate base) are identical only when market price is equal to book value. Indeed,*

[3] R. A. Brealey and S. C. Myers, Principles of Corporate Finance, p. 182 (3rd ed., McGraw Hill, New York, 1988)
[4] S. C. Myers, "On the Use of Modern Portfolio Theory in Public Utility Rate Cases: Comment," Financial Management, p. 67 (Autumn 1978)

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accepted norms for estimating the cost of equity are aware, is problematic for use in estimating cost of equity at this time.

Several fundamental structural changes have transformed the energy utility industry since the standard DCF model and its assumptions were developed. For example, deregulation, increased wholesale competition triggered by national policy, accounting rule changes, changes in customer attitudes regarding utility services, the evolution of alternative energy sources, highly volatile fuel prices, and mergers-acquisitions have all influenced stock prices in ways that have deviated substantially from the assumptions of the DCF model. These changes suggest that some of the fundamental assumptions underlying the standard DCF model, particularly that of constant growth and constant relative market valuation, for example price/earnings (P/E) ratios and market-to-book (M/B) ratios, are problematic at this point in time for utility stocks, and that, therefore, alternate methodologies to estimate the cost of common equity should be accorded at least as much weight as the DCF method.

Q. Is the constant relative market valuation assumption inherent in the DCF model always reasonable?

A. No, not always. Caution must be exercised when implementing the standard DCF model in a mechanistic fashion, for it may fail to recognize changes in relative market valuations over time. The traditional DCF model is not equipped to deal with surges in M/B and price-earnings P/E ratios. The standard DCF model assumes a constant market valuation multiple, that is, a constant P/E ratio and a constant M/B ratio. Stated another way, the model assumes that investors expect the ratio of market price to dividends (or

[5] C. F. Phillips, The Regulation of Public Utilities Theory and Practice (Public Utilities Reports, Inc., 1988) pp. 376-77. [Footnotes omitted]

approximation to the CAPM (ECAPM). The CAPM is a fundamental paradigm of finance. The fundamental idea underlying the CAPM is that risk-averse investors demand higher returns for assuming additional risk, and higher-risk securities are priced to yield higher expected returns than lower-risk securities. The CAPM quantifies the additional return, or risk premium, required for bearing incremental risk. It provides a formal risk-return relationship anchored on the basic idea that only market risk matters, as measured by beta. According to the CAPM, securities are priced such that:

EXPECTED RETURN = RISK-FREE RATE + RISK PREMIUM

Denoting the risk-free rate by R_F and the return on the market as a whole by R_M, the CAPM is stated as follows:

$$K = R_F + \beta(R_M - R_F)$$

This is the seminal CAPM expression, which states that the return required by investors is made up of a risk-free component, R_F, plus a risk premium given by β times ($R_M - R_F$). To derive the CAPM risk premium estimate, three quantities are required: the risk-free rate (R_F), beta (β), and the market risk premium, ($R_M - R_F$). For the risk-free rate, I used a range of 4.7% - 5.3%, based on current and forecast long-term interest rates. For beta, I used 0.80 and for the market risk premium I used 7.5%. These inputs to the CAPM are explained below.

Q. What risk-free rate did you use in your CAPM and risk premium analyses?

A. To implement the CAPM and Risk Premium methods, an estimate of the risk-free return is required as a benchmark. As a proxy for the risk-free rate, I have relied on the actual and forecast yields on 30-year Treasury bonds.

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used in applying the CAPM model. It stands to reason that the actual yields on 30-year Treasury bonds will more closely incorporate within their yield the inflation expectations that influence the prices of common stocks than do short-term or intermediate-term U.S. Treasury notes.

Among U.S. Treasury securities, 30-year Treasury bonds have the longest term to maturity and the yield on such securities should be used as proxies for the risk-free rate in applying the CAPM, provided there are no anomalous conditions existing in the 30-year Treasury market. In the absence of such conditions, I have relied on the yield on 30-year Treasury bonds in implementing the CAPM and risk premium methods.

Q. Dr. Morin, why did you reject short-term interest rates as proxies for the risk-free rate in implementing the CAPM?

A. Short-term rates are volatile, fluctuate widely, and are subject to more random disturbances than are long-term rates. Short-term rates are largely administered rates. For example, Treasury bills are used by the Federal Reserve as a policy vehicle to stimulate the economy and to control the money supply, and are used by foreign governments, companies, and individuals as a temporary safe house for money.

As a practical matter, it makes no sense to match the return on common stock to the yield on 90-day Treasury Bills. This is because short-term rates, such as the yield on 90-day Treasury Bills, fluctuate widely, leading to volatile and unreliable equity return estimates. Moreover, yields on 90-day Treasury Bills typically do not match the equity investor's planning horizon. Equity investors generally have an investment horizon far in excess of 90 days.

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Q. How did you select the beta for your CAPM analysis?

A. A major thrust of modern financial theory as embodied in the CAPM is that perfectly diversified investors can eliminate the company-specific component of risk, and that only market risk remains. The latter is technically known as "beta", or "systematic risk". The beta coefficient measures change in a security's return relative to that of the market. The beta coefficient states the extent and direction of movement in the rate of return on a stock relative to the movement in the rate of return on the market as a whole. The beta coefficient indicates the change in the rate of return on a stock associated with a one-percentage point change in the rate of return on the market, and thus measures the degree to which a particular stock shares the risk of the market as a whole. Modern financial theory has established that beta incorporates several economic characteristics of a corporation, which are reflected in investors' return requirements.

CNGC's beta is 0.80, as reported by Value Line. I point out that the beta estimate for a thinly traded stock such as CNGC is downward-biased[6]. The average beta for a group of widely traded natural gas distribution utilities representative of the industry is also 0.80. This group is displayed on Exhibit RAM-2. Based on these results, I used 0.80 as a conservative estimate for CNGC's beta.

Q. What market risk premium estimate did you use in your CAPM analysis?

[6] The well-known thin trading bias occurs because observed returns contain stale information about past period returns rather than current period returns. Intuitively, suppose the stock market index surges forward but an individual company stock price remains unchanged due to lack of trading, the estimated beta is imparted a downward bias.

realizations converge.

I have therefore ignored realized risk premiums measured over short time periods, since they are heavily dependent on short-term market movements. Instead, I relied on results over periods of enough length to smooth out short-term aberrations, and to encompass several business and interest rate cycles. The use of the entire study period in estimating the appropriate market risk premium minimizes subjective judgment and encompasses many diverse regimes of inflation, interest rate cycles, and economic cycles.

To the extent that the estimated historical equity risk premium follows what is known in statistics as a random walk, one should expect the equity risk premium to remain at its historical mean. The best estimate of the future risk premium is the historical mean. Since I found no evidence that the market price of risk or the amount of risk in common stocks has changed over time, that is, no significant serial correlation in the Ibbotson study, it is reasonable to assume that these quantities will remain stable in the future.

Q. Please describe your prospective approach in deriving the market risk premium in the CAPM analysis.

A. For my prospective estimate of the market risk premium, I applied a DCF analysis to the aggregate equity market using Value Line's VLIA software. The dividend yield on the dividend-paying stocks that make up the S&P 500 index is currently 2.1% (VLIA 12/2005 edition), and the projected dividend and earnings growth rates for the more than 5000 stocks covered by Value Line are 8.6% and 12.4%, respectively[7]. Adding the dividend yield to the growth component produces an expected return on the aggregate equity market in the range of 10.7% to 14.5%, with a midpoint of 12.6%. Following the

[7] Companies with projected negative growth and projected growth in excess of 20% were eliminated.

DCF Market

Year	Risk Premium
1983	6.6%
1984	5.3%
1985	5.7%
1986	7.4%
1987	6.1%
1988	6.4%
1989	6.6%
1990	7.1%
1991	7.5%
1992	7.8%
1993	8.2%
1994	7.3%
1995	7.7%
1996	7.8%
1997	8.2%
1998	9.2%
MEAN	**7.2%**

Q. What is your risk premium estimate of the Company's cost of equity using the CAPM approach?

A. Inserting those input values in the CAPM equation, namely a risk-free rate of 4.7%, a beta of 0.80, and a market risk premium of 7.5%, the CAPM estimate of the cost of common equity is: 4.7% + 0.80 x 7.5% = 10.7%. This estimate becomes 11.0% with flotation costs, discussed later in my testimony. Using the forecast risk-free rate of 5.7%, the CAPM estimate becomes 11.3%, that is, 5.3% + 0.80 x 7.5% = 11.3%, without flotation costs and 11.6% with flotation costs.

Q. What is your risk premium estimate using the empirical version of the CAPM?

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$$K = R_F + \acute{\alpha} + \beta \times (MRP - \acute{\alpha})$$

where ά is the "alpha" of the risk-return line, a constant, MRP is the market risk premium ($R_M - R_F$), and the other symbols are defined as usual. Inserting the long-term risk-free rate as a proxy for the risk-free rate, an alpha in the range of 1% - 2%, and reasonable values of beta and the MRP in the above equation produce results that are indistinguishable from the following ECAPM expression:

$$K = R_F + 0.25\,(R_M - R_F) + 0.75\,\beta(R_M - R_F)$$

An alpha range of 1% - 2% is somewhat lower than that estimated empirically. The use of a lower value for alpha leads to a lower estimate of the cost of capital for low-beta stocks such as regulated utilities. This is because the use of a long-term risk-free rate rather than a short-term risk-free rate already incorporates some of the desired effect of using the ECAPM. That is, the long-term risk-free rate version of the CAPM has a higher intercept and a flatter slope than the short-term risk-free version, which has been tested. This is also because the use of adjusted betas rather than raw betas also incorporates some of the desired effect of using the ECAPM. Thus, it is reasonable to apply a conservative alpha adjustment.

Appendix A contains a full discussion of the ECAPM, including its theoretical and empirical underpinnings. In short, the following equation provides a viable approximation to the observed relationship between risk and return, and provides the following cost of equity capital estimate:

$$K = R_F + 0.25\,(R_M - R_F) + 0.75\,\beta\,(R_M - R_F)$$

Inserting 4.7% for the risk-free rate R_F, a market risk premium of 7.5% for (R_M - R_F) and a beta of 0.80 in the above equation, the return on common equity is 11.1% without flotation costs and 11.4% with flotation costs. The corresponding estimates using the forecast risk-free rate of 5.3% are 11.7% and 12.0%.

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10.4% without flotation costs and 10.7% with flotation costs. Given that long-term Treasury bonds are expected to yield 5.3% in 2006, the implied cost of equity for the average electric utility is 5.3% + 5.7% = 11.0% without flotation costs and 11.3% with flotation costs.

C) Allowed Risk Premiums

Q. Please describe your analysis of allowed risk premiums in the natural gas utility industry.

A. To estimate the Company's cost of common equity, I also examined the historical risk premiums implied in the returns on equity ("ROE") allowed by regulatory commissions for natural gas utilities over the last decade relative to the contemporaneous level of the long-term Treasury bond yield[9]. The average ROE spread over long-term Treasury yields was 5.4% for the 1996-2005-time period, as shown by the horizontal line in the graph below. The graph also shows the year-by-year allowed risk premium. The steady escalating trend of the risk premium in response to lower interest rates and rising competition and restructuring is noteworthy.

[9] Historical Allowed ROE data is available on a quarterly basis from Regulatory Research Associates.

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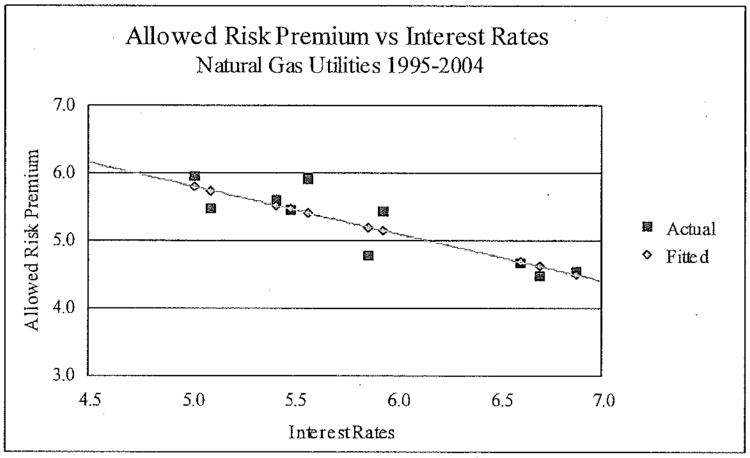

Inserting the current long-term Treasury bond yield of 4.7% in the above equation suggests that a risk premium estimate of 6.0% should be allowed for the average risk natural gas utility, implying a cost of equity of 10.7% for the average risk utility. Using the projected bond yield of 5.3%, the risk premium is 5.6%, implying a cost of equity of 10.9%.

Q. Please summarize your risk premium estimates.

A. The table below summarizes the ROE estimates obtained from the risk premium studies. The average risk premium result is 10.9%

Risk Premium	**% ROE**
Risk Premium Natural Gas at 4.7%	10.7%
Risk Premium Natural Gas at 5.3%	11.3%
Allowed Risk Premium at 4.7%	10.7%
Allowed Risk Premium at 5.3%	10.9%
AVERAGE	**10.9%**

DCF model requires the following main assumptions: a constant average growth trend for both dividends and earnings, a stable dividend payout policy, a discount rate in excess of the expected growth rate, and a constant price-earnings multiple, which implies that growth in price is synonymous with growth in earnings and dividends. The traditional DCF model also assumes that dividends are paid at the end of each year when in fact dividend payments are normally made on a quarterly basis.

Q. How did you estimate the Company's cost of equity with the DCF model?

A. I applied the DCF model to two proxies for CNGC: a group of actively-traded dividend-paying natural gas distribution companies drawn from the Value Line Gas Distribution Group and a group of investment-grade dividend-paying electric distribution utilities drawn from the Value Line Electric Utilities Group.

In order to apply the DCF model, two components are required: the expected dividend yield (D_1/P_0) and the expected long-term growth (g). The expected dividend D_1 in the annual DCF model can be obtained by multiplying the current indicated annual dividend rate by the growth factor (1 + g).

From a conceptual viewpoint, the stock price to employ in calculating the dividend yield is the current price of the security at the time of estimating the cost of equity. The reason is that current stock prices provide a better indication of expected future prices than any other price in an efficient market. An efficient market implies that prices adjust rapidly to the arrival of new information. Therefore, current prices reflect the fundamental economic value of a security. A considerable body of empirical evidence indicates that capital markets are efficient with respect to a broad set of information. This implies that observed current prices represent the fundamental value of a security, and that a cost of capital

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Q. Why did you reject the use of historical growth rates in applying the DCF model to electric utilities?

A. Historical growth rates have questionable relevance as proxies for future long-term growth. They are downward-biased by the sluggish earnings performance in the last five years, due to the structural transformation of the energy utility industry from a regulated monopoly to a more competitive environment. Moreover, historical growth rates are somewhat redundant because such historical growth patterns are already incorporated in analysts' growth forecasts that should be used in the DCF model.

Q. Did you consider dividend growth proxies in applying the DCF model?

A. No, not at this time. This is because it is widely expected that natural gas utilities will continue to lower their dividend payout ratio over the next several years in response to increased risk and increased competition and its potential impact on the revenue stream. In other words, earnings and dividends are not expected to grow at the same rate in the future. According to the latest edition of Value Line, the expected dividend growth of 3.6% for the proxy group is substantially less than the expected earnings growth of 6.8% over the next few years.

Whenever the dividend payout ratio is expected to change, the intermediate growth rate in dividends cannot equal the long-term growth rate, because dividend/earnings growth must adjust to the changing payout ratio. The assumptions of constant perpetual growth and constant payout ratio are clearly not met. The implementation of the standard DCF model is of questionable relevance in this circumstance.

Dividend growth rates are unlikely to provide a meaningful guide to investors' growth expectations for electric utilities. This is because electric utilities' dividend policies have

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gas distribution utilities contained in Value Line's natural gas distribution universe with a market value in excess of $500 million. The group is shown in Exhibit RAM-4.

As shown on Column 3 of Exhibit RAM-4, the average long-term growth forecast obtained from the Zacks corporate earnings database is 5.1% for the natural gas distribution group. Combining this growth rate with the average expected dividend yield of 4.3% shown in Column 4 produces an estimate of equity costs of 9.4% for the gas distribution group. Recognition of flotation costs brings the cost of equity estimate to 9.6%, shown in Column 6.

Repeating the exact same procedure, only this time using Value Line's long-term earnings growth forecast of 6.6% instead of the Zacks consensus growth forecast, the cost of equity for gas distribution group is 11.0%, unadjusted for flotation costs. Adding an allowance for flotation costs brings the cost of equity estimate to 11.2%. This analysis is displayed on Exhibit RAM-5.

Q. Please describe your second proxy group for the Company's natural gas distribution business?

A. As a second proxy for the Company's natural gas distribution business, I examined a group of investment-grade utilities designated as "distribution" utilities by S&P in a recent comprehensive analysis of utility business risks. The original group is shown on Pages 1 - 3 of Exhibit RAM-6, and includes gas, electricity, and natural gas distribution operating companies engaged in predominantly monopolistic distribution activities. Companies below investment-grade, that is, companies with a bond rating below Baa3, were eliminated as well as those companies without Value Line coverage. Page 4 of Exhibit RAM-6 narrows the group down to only include electricity distribution utilities. The final estimate to 10.8%. This analysis is shown on page 2 of Exhibit RAM-8. If we exclude TXU Corp from the analysis, the average DCF return is 10.4%.

Q. Please summarize your DCF estimates.

A. The table below summarizes the DCF estimates. The average result is 10.2%.

DCF STUDY	ROE
Natural Gas Distribution Zacks Growth	9.6%
Natural Gas Distribution Value Line Growth	11.2%
Electricity Distribution Zacks Growth	10.4%
Electricity Distribution Value Line Growth	9.7%
AVERAGE	10.2%

E) Need for Flotation Cost Adjustment

Q. Please describe the need for a flotation cost allowance.

A. All the market-based estimates reported above include an adjustment for flotation costs. The simple fact of the matter is that common equity capital is not free. Flotation costs associated with stock issues are exactly like the flotation costs associated with bonds and preferred stocks. Flotation costs are not expensed at the time of issue, and therefore must be recovered via a rate of return adjustment. This is done routinely for bond and preferred stock issues by most regulatory commissions, including FERC. Clearly, the common equity capital accumulated by the Company is not cost-free. The flotation cost expense continues year after year, irrespective of whether the Company issues new debt capital in the future, until recovery is complete, in the same way that the recovery of past investments in plant and equipment through depreciation allowances continues in the future even if no new construction is contemplated. In the case of common stock that has no finite life, flotation costs are not amortized. Thus, the recovery of flotation cost requires an upward adjustment to the allowed return on equity.

A simple example will illustrate the concept. A stock is sold for $100, and investors require a 10% return, that is, $10 of earnings. But if flotation costs are 5%, the company nets $95 from the issue, and its common equity account is credited by $95. In order to generate the same $10 of earnings to the shareholders, from a reduced equity base, it is clear that a return in excess of 10% must be allowed on this reduced equity base, here 10.52%.

According to the empirical finance literature discussed in Appendix B, total flotation costs amount to 4% for the direct component and 1% for the market pressure component, for a total of 5% of gross proceeds. This in turn amounts to approximately 30 basis points, depending on the magnitude of the dividend yield component. To illustrate, dividing the average expected dividend yield of around 5.0% for utility stocks by 0.95 yields 5.3%, which is 30 basis points higher.

Sometimes, the argument is made that flotation costs are real and should be recognized in calculating the fair return on equity, but only at the time when the expenses are incurred. In other words, the flotation cost allowance should not continue indefinitely, but should be made in the year in which the sale of securities occurs, with no need for continuing compensation in future years. This argument is valid only if the company has already been compensated for these costs. If not, the argument is without merit. My own also performed DCF analyses on two surrogates for CNGC: a group representative of the natural gas distribution utility industry, and a group of electricity distribution utilities. The results are summarized in the table below.

STUDY	ROE
CAPM Risk-free rate 4.7%	11.0%
CAPM Risk-free rate 5.3%	11.6%
Empirical CAPM Risk-free rate 4.7%	11.4%
Empirical CAPM Risk-free rate 5.3%	12.0%
Risk Premium Natural Gas at 4.7%	10.7%
Risk Premium Natural Gas at 5.3%	11.3%
Allowed Risk Premium at 4.7%	10.7%
Allowed Risk Premium at 5.3%	10.9%
DCF Elec Distribution Utilities Zacks Growth	10.4%
DCF Elec Distribution Utilities Value Line Growth	9.7%
DCF Natural Gas Distribution Value Line Growth	11.2%
DCF Natural Gas Distribution Zacks Growth	9.6%

The central tendency of the results is 10.9%, as indicated by the mean, and truncated mean11. Yet another way of presenting the results is on a methodological basis. The average result from the three principal methodologies is as follows:

CAPM	11.5%
Risk Premium	10.9%
DCF-Gas only	10.4%
AVERAGE	10.9%

The overall average result is 10.9% for the average risk utility.

Q. Did you adjust these results to account for the fact that CNGC is riskier that the average

[11] The truncated mean is obtained by removing the high and low estimates and computing the average of the remaining results.

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222 FAIRVIEW AVENUE NORTH
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(206) 624-3900

BUSINESS RISK = DEMAND RISK + SUPPLY RISK + OPERATING RISK + REGULATORY RISK

A further distinction is frequently made between short-term and long-term business risks. Financial risk refers to the additional variability of earnings induced by the employment of fixed cost financing, that is, debt and preferred stock capital.

Relative to other local gas distribution companies ("LDCs"), CNGC possesses above average demand risk, average supply risk, above average financial risks principally because of its small size and weaker capital structure, and average regulatory risks. The net result, in my judgment, is that CNGC's overall risk slightly exceeds that of other LDCs.

Q. Please describe the business risks faced by the gas distribution industry in recent years?

A. Yes. The traditional role of LDCs, as intermediaries between pipelines and end-customers, has changed drastically in the past several years. Because of policy initiatives enacted by regulators at both the federal and state levels, the business risk environment has changed significantly and the level of risk has increased. Competition in the natural gas industry has increased from both the input and output ends of the intermediation process.

On the one hand, customers have alternative means of filling their energy needs (demand risk). On the other hand, supplies of gas have become riskier due to price and regulatory uncertainty and the gradual removal of barriers to competition by federal policy (supply risk). The LDC is caught in the middle. It has become more difficult to forecast demand, market behavior, financing requirements, earnings, and cash flows.

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competition from several investor owned electric utilities, electric cooperatives, and municipal electric utilities in its core product markets for residential space and water heating.

The competition is especially severe from electricity for two reasons. First, the heat load in the residential market areas served by the Company is materially less than that for most gas distribution utilities in the country. Second, electricity prices are especially competitive in this region, due to the cost advantages of hydropower. Rising natural gas prices have made the competition even more intense. In fact, two of the communities served by Cascade have among the lowest electricity rates in the country. As a result, consumption per residential customer on CNGC's system has declined. Despite a growing customer base, CNGC is achieving no growth in aggregate throughput. Yet, at the same time, CNGC still must plan and design for a growing peak demand requiring continued substantial capital investments, higher pipeline and supply demand costs, a deteriorating load factor, and an inability to delay rate increases by adding customers. Moreover, aggravating the issue, CNGC does not benefit from a weather normalization adjustment clause, unlike many of its peers.

Proportionately, Cascade's revenues from industrial and electrical generation users are 2-4 times the levels of the larger northwest gas LDCs. As I mentioned earlier, industrial users tend to be more volatile, given the variability of their operations and their ability to substitute other fuels and/or bypass LDCs. Consumption at northwest electrical generation plants is even more volatile, as a result of their role primarily being for serving seasonal peaks, The revenues from Cascade's industrial customers and its electric generation customers are both declining.

In a nutshell, the demand for gas volumes is volatile and waning, and as a result the Company's demand risks exceed those of the industry. S&P recently revised the

A. Regulatory risks have remained unchanged, and are similar to those of the industry. My analysis of Cascade's required return on equity assumes that the decoupling mechanism proposed in this filing will be implemented, which would place the Company's regulatory risk roughly on the same footing as the other natural gas LDCs included in my comparisons. With regard to bypass, the WUTC has approved transportation tariffs and special contracts for large industrial customers with alternative competitive energy sources to help Cascade retain its larger industrial customers. Washington regulation has generally been supportive in recent years, but allowed returns have generally been lower than those allowed to gas distribution utilities in other states.

Q. Please comment on the financial risk faced by CNGC at this time?

A. Because of its weaker capital structure and relatively small size, in my judgment, CNGC's financial risks are higher than those of the industry. CNGC possesses small revenue and asset bases, both in absolute terms and relative to other utilities. Investment risk increases as company size diminishes, all else remaining constant. The size phenomenon is well documented in the finance literature. Small companies have very different returns than large ones and on average those returns have been higher. The greater risk of small stocks does not fully account for their higher returns over many historical periods. The average small stock premium is in excess of 5% over the average stock, more than could be expected by risk differences alone, suggesting that the cost of equity for small stocks is considerably larger than for large capitalization stocks. In addition to earning the highest average rates of return, small stocks also have the highest volatility, as measured by the standard deviation of returns.

Q. How does CNGC'S total investment risk compare to that of other local distribution companies?

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Regulatory Research Associates' "Regulatory Focus: Major Rate Case Decisions" reports an average percentage of common equity in the adopted capital structure of 49.54% for the third quarter of 2005, virtually the same as the Company's proposed capital structure. I have also examined the actual capital structures of comparable risk investor-owned natural gas LDCs. As shown on Exhibit RAM-9, the median common equity ratio of comparable risk natural gas LDCs, the same group of companies used earlier in my testimony when applying the DCF model, is 50%, again the same as the Company's proposed capital structure.

Finally, I have compared the Company's proposed debt ratio of 50% to the capital structure benchmark contained in Standard & Poor's ("S&P") Rating Criteria for electric and gas utilities. CNGC is assigned a Business Risk Position of 2.0 by S&P on a scale of 1.0 to 10.0, with 1.0 being the least risky and 10.0 the most risky. Natural gas distribution utilities are generally rated 2.0 - 4.0 by S&P. The debt ratio benchmark for a single "A" bond rating is 52% – 58% for a utility with a Business Risk Position of 2.0, implying an equity ratio in the range of 42% - 48%.

Given the Company's small size relative to other natural gas utilities, a stronger capital structure, that is, one consisting of a higher proportion of common equity capital, is generally required by investors to offset the small capitalization, hence my recommended 50% common equity ratio. The Company's small size suggests the need for a relatively stronger balance sheet. It is well documented in the finance literature that investment risk increases as company size diminishes, all else remaining constant. Small firms experience average returns greater than those of large firms that are of equivalent systematic risk (beta) and produce greater returns than could be explained by their risks. Empirically, stocks of small firms earn higher risk-adjusted abnormal returns than those of large firms. Ibbotson-Sinquefield's widely-used annual historical return series publication covering the period 1926 to the present reinforces this evidence; the average small stock premium is

Exhibit No. ___T (RAM-11T)
Docket No. UG-060256
Witness: Dr. Roger Morin

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

CASCADE NATURAL GAS CORPORATION **Complainant,** **v.** **WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION** **Respondent.**	**DOCKET NO. UG-060256**

REBUTTAL TESTIMONY OF

Dr. Roger Morin

Cost of Capital

September 12, 2006

A. Mr Parcell's recommended 8.43% target Rate of Return (ROR) for Cascade is clearly short of a reasonable outcome. Similar to my methodology, Mr Parcell developed his ROR recommendation based on his development of both a required Return on Equity (ROE) assumption and an assumed ratio between debt and equity (D/E). I disagree with Mr. Parcell on both his assumptions.

Mr. Parcell's recommended 9.75% ROE doesn't pass the simplest comparisons. It is lower than that the authorized return of **every** utility in the two gas benchmark groups he used and lower than all but one of the electric utilities benchmarked. The range of average ROE for the three groups is 10.72-11.0% as compared to Mr. Parcell's recommended 9.75%. Decisions from this Commission in the last few years supported 10.2%, 10.3% and 10.4% ROE's for much larger utilities. Mr. Parcell's 9.75% recommendation doesn't align with these outcomes, especially when one considers rising return requirements since these decisions, as evidenced by interest rate increases. In addition, Mr. Parcell fails to address risks specific to Cascade in his analysis. Given Cascade's higher operating risk due to its small size, higher dependence on industrial customers and its customer base in communities with more volatile employment levels; one must factor in an increase to the benchmark-indicated ROE to arrive at an appropriate ROE for Cascade. These simple comparisons imply that the minimum reasonable ROE for Cascade would be about 10.75-11.0%, before adding for Cascade-specific risks.

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equity in the range of 8.4% - 10.8%. Mr. Parcell remarks that he has focused on the upper portion of the DCF calculations, that is, a range of 9.5% to 10.8% from the high estimates reported on page 27. The midpoint of that range is 10.2%. It is not clear how Mr. Parcell arrived at a recommendation of 9.75% from these estimates.

Mr. Parcell also applies a Capital Asset Pricing Model (CAPM) analysis to the same three groups of companies, using long-term Treasury bond yields as proxies for the risk-free rate and Value Line beta estimates. Lastly, Mr. Parcell performs a Comparable Earnings analysis on a sample of utilities and a sample of unregulated industrial companies. From the three analyses, Mr. Parcell concludes that CNGC's cost of common equity capital lies in the range of 9.0% – 10.3% (page 37) and recommends the approximate midpoint of this range as CNGC's cost of common equity.

Q. DO YOU AGREE WITH CERTAIN ASPECTS OF MR. PARCELL'S TESTIMONY?

A. Yes, I do. I agree with his choice of comparable groups, his use of analysts' growth forecasts as proxies for the DCF growth component, his risk-free rate proxy in the CAPM, and his beta estimates in the CAPM.

Q. PLEASE SUMMARIZE THE ASPECTS OF MR. PARCELL'S TESTIMONY WITH WHICH YOU DO NOT AGREE.

A. I have the following specific comments:

1. Allowed Returns on Equity. Mr. Parcell's recommended return on equity (ROE) is outside the zone of currently allowed rates of return for natural gas utilities in the United States

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222 FAIRVIEW AVENUE NORTH
SEATTLE, WA 98109
(206)624-3900

industry. Moreover, historical growth rates are somewhat redundant since historical growth patterns are already reflected in analysts' growth forecasts, which he also uses. Besides, the stock price in the DCF analysis is predicated on analysts' growth forecasts and not on historical growth rates.

7. DCF Dividend Growth Rates. Because energy utilities are expected to continue to lower their dividend payout ratio over the next several years in response to heightened business risk, the implementation of the standard DCF model is of questionable relevance. Earnings growth projections are far more relevant at this point.

8. Investors' Expected Growth Rates. I believe that investors are expecting higher growth rates than those assumed in Mr. Parcell's DCF analysis.

9. CAPM Market Risk Premium Misspecification. The first of Mr. Parcell's two proxies for the market risk premium (MRP) analysis is mis-specified because it commingles realized *accounting* book returns on stocks with *market* returns on bonds. Moreover, Mr. Parcell has departed significantly from past testimonies in specifying the MRP.

10. CAPM Market Risk Premium. The second of Mr. Parcell's two proxies for the MRP is understated because 1) it improperly relies upon *total* returns on government bonds rather than the income component of returns, thereby understating the market risk premium, and 2) it relies on the geometric average rather than the arithmetic average of historical returns. The net impact on Mr. Parcell's ROE recommendation is a 50 basis points understatement.

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Associates in its most recent periodic survey of regulatory decisions. This exceeds by a substantial margin Mr. Parcell's recommended single-digit ROE of 9.75% for CNGC. I also have examined the range of returns currently allowed on common equity for the three groups of utilities employed in Mr. Parcell's analyses. For the natural gas utilities in Mr. Parcell's first sample group as reported in C.A. Turner Utility Reports survey for August 2006, the currently authorized ROEs, shown in Table 1 below, average 11.0%, and range from 10.0% to 13.4%.

TABLE 1

COMPANY	% ALLOWED ROE
AGL Resources	10.64%
Atmos Energy	11.81%
Cascade Natural Gas	11.75%
Energen	13.40%
Keyspan	10.20%
Laclede Group	
NJ Resources	11.50%
NICOR	10.51%
Northwest Natural Gas	10.20%
Peoples Energy	11.20%
Piedmont Natural Gas	
South Jersey Industries	10.00%
Southwest Gas	10.30%
UGI	
WGL Holdings	10.62%
AVERAGE	**11.01%**
LOW	**10.00 %**
HIGH	**13.40%**

Source: C.A. Turner Utility Reports 08/06

For the electric utilities in Mr. Parcell's second sample group, the currently authorized ROEs, shown in Table 2 below, average 10.8% and range from 9.8% to 12.5%.

TABLE 3

COMPANY	% ALLOWED ROE
AGL Resources	10.64%
Atmos Energy	11.81%
KeySpan Corp.	10.20%
Laclede Group	
New Jersey Resources	11.50%
Northwest Natural Gas	10.20%
Peoples Energy	11.20%
Piedmont Natural Gas	
South Jersey Industries	10.00%
Southwest Gas	10.30%
UGI Corp.	
WGL Corp.	10.62%
AVERAGE	**10.72%**
LOW	**10.00 %**
HIGH	**11.81%**

Source: C.A. Turner Utility Reports 08/06

In short, Mr. Parcell's recommendation lies outside the range of the currently allowed rates of return for his comparable companies, and lies outside the mainstream of recently authorized returns for natural gas utilities. While the Commission is not bound by decisions of other regulators regarding allowed ROE, one cannot overlook the substantial difference between Mr. Parcell's recommendation and the returns currently allowed for the same firms that Mr. Parcell deems comparable in risk.

2. THE DCF MODEL UNDERSTATES THE COST OF EQUITY

produce a dividend yield of 5% on a stock price of $100.00, and no dollars are available for growth. The investor's return is therefore only 5% versus his required return of 10%. A DCF cost rate of 10%, which implies $10.00 of earnings, translates to only $5.00 of earnings on book value, or a 5% return.

The situation is reversed in the first column when the stock trades below book value. The $5.00 of earnings are more than enough to satisfy the investor's dividend requirements of $1.25, leaving $3.75 for growth, for a total return of 20%. This is because the DCF cost rate is applied to a book value rate base well above the market price.

Therefore, the DCF cost rate understates the investor's required return when stock prices are well above book value, as is the case presently, and thus Mr. Parcell's DCF results understate CNGC's cost of common equity capital.

EFFECT OF MARKET-TO-BOOK RATIO ON MARKET RETURN

		Situation 1	*Situation 2*	*Situation 3*
1	Purchase price	$25.00	$50.00	$100.00
2	Book value	$50.00	$50.00	$50.00
3	**Market-to-Book Ratio**	**0.50**	**1.00**	**2.00**
4	**DCF Return (10% = 5% + 5%)**	**10.00%**	**10.00%**	**10.00%**
5	DCF Return (in dollars)	$5.00	$5.00	$5.00
6	5% Dividend Yield	$1.25	$2.50	$5.00
7	5% Growth Expectations	$3.75	$2.50	$0.00
8	***Market Return***	**20.00%**	**10.00%**	**5.00%**

Q. DO REGULATORS SHARE YOUR RESERVATIONS ON THE RELIABILITY OF THE DCF MODEL?

A. Yes, I believe they do. For example, my sentiments on the DCF model were echoed in a decision by the Indiana Utility Regulatory Commission (IURC). The IURC recognized its

In summary, caution and judgment are required in interpreting the results of the DCF model. There is a clear need to go beyond the DCF model and to examine the results produced by alternate methodologies.

Q. IS THERE ANY EVIDENCE THAT MR. PARCELL'S DCF RESULTS ARE UNRELIABLE?

A. Yes, there is. The table below reproduces Mr. Parcell's DCF estimates (dividend yield + growth) for his first sample of gas utilities under each of the 5 growth proxies used by Mr. Parcell:

Mr. Parcell's Group of Gas Utilities: DCF Results

Company	Using Historic Retention (1)	Using Projected Retention (2)	Using Historic Per Share (3)	Using Projected Per Share (4)	Using Analysts Forecast (5)
AGL Resources	10.1%	9.5%	12.2%	9.7%	8.5%
Atmos Energy	7.0%	8.3%	10.5%	9.5%	10.8%
CNGC	6.5%	7.0%	3.6%	11.3%	8.8%
Energen	12.8%	21.1%	13.5%	10.0%	9.3%
Keyspan	7.4%	6.7%	14.5%	7.4%	8.7%
Laclede Group	6.5%	9.2%	6.9%	8.9%	8.9%
New Jersey Resources	10.7%	11.0%	9.5%	8.3%	9.3%
NICOR	8.8%	7.9%	5.2%	7.5%	7.7%
Northwest Nat Gas	6.9%	7.7%	7.2%	8.8%	10.0%
Peoples Energy	8.5%	6.8%	6.8%	7.0%	10.9%
Piedmont Nat Gas	7.0%	7.7%	9.5%	9.3%	8.2%
South Jersey Ind	8.6%	10.0%	12.5%	9.8%	9.5%
Southwest Gas	5.3%	8.4%	3.7%	7.4%	5.9%
UGI	11.9%	10.9%	19.2%	10.0%	11.2%
WGL Holdings	8.5%	8.1%	8.3%	7.5%	8.3%

Source: Exhibit No. ___ (DCP-3), Schedule 7, page 4.

0.05) which equals 5.1%. The correct dividend yield to employ is 5.3%, which would yield a cost of equity of 10.3% instead of 10.1%.

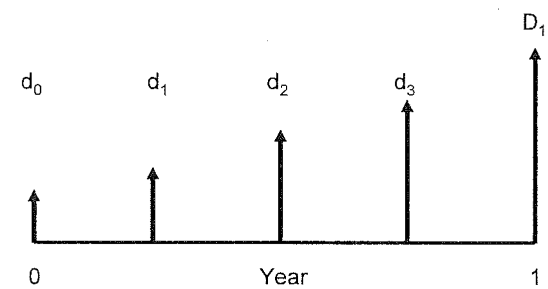
The standard annual DCF model ignores the time value of quarterly dividend payments and assumes dividends are paid once a year at the end of the year. Multiplying the spot dividend yield by (1 + g) is a conservative attempt to capture the reality of quarterly dividend payments, and this approach still understates the expected return on equity. Mr. Parcell's use of the (1 + ½g) adjustment is even further removed from reality and understates investors' expected return by an even greater amount.

Since investors are aware of the quarterly timing of dividend payments, this knowledge is reflected in stock prices. As I show on pages 183-186 of my book, *Regulatory Finance*, and Chapter 11 of my new book, *The New Regulatory Finance*, the annual version of the DCF model understates the cost of equity.

By analogy, a bank rate on deposits which does not take into consideration the timing of the interest payments understates the true yield if the interest payments are received more than once a year. The actual yield will exceed the stated nominal rate. To illustrate, if an investor has a choice between investing $1,000 in a bank account which promises a return of 10% compounded annually and another bank account which promises a return of 10% but compounded quarterly, he will clearly select the latter. Due to the quarterly compounding of interest, the investor earns an effective return of 10.38% on the latter bank account versus 10% on the former. The same is true for the return on common stocks.

In the quarterly version of the DCF model, quarterly dividends are assumed to differ from the preceding quarterly dividend by the factor $(1 + g)^{0.25}$, where g is a percentage figure and 0.25 indicates that the growth has occurred for one quarter of the year, as shown in the figure below.

Quarterly DCF Constant Growth



$d_1 = d_0(1 + g)^{0.25}$

$d_2 = d_0(1 + g)^{0.50}$

$d_3 = d_0(1 + g)^{0.75}$

$d_4 = d_0(1 + g)$

Using this assumption, we obtain the following DCF formula for estimating the cost of equity under the assumption that dividends are paid quarterly:

issue of common stock by CNGC (or any other publicly-traded utility company) will show the direct component of flotation costs right on the front cover, and these costs are usually in the range of 3% to 4%. There are costs associated with issuing common equity capital, just as there are costs associated with issuing debt capital. I refer the Commission to Appendix B of my direct testimony for a full discussion of flotation costs.

5. DCF RETENTION GROWTH METHOD

Q. PLEASE DESCRIBE MR. PARCELL'S METHODOLOGY FOR SPECIFYING THE GROWTH COMPONENT OF THE DCF MODEL.

A. As a proxy for expected growth, Mr. Parcell employs five indicators of growth: 1) historical earnings retention ratio, 2) projected earnings retention ratio, 3) five-year historical growth rates in dividends, earnings, and book value, 4) projected growth rates in dividends, earnings, and book value, and 5) analysts' growth forecasts.

Q. DR. MORIN, DO YOU HAVE SOME RESERVATIONS WITH THE RETENTION RATIO METHOD OF SPECIFYING THE DCF GROWTH RATE?

A. Yes, I do. The retention growth methodology contains a logical contradiction because the method requires an explicit assumption on the ROE expected from the retained earnings that drive future growth. In short, the retention growth method is logically circular because it requires an assumed ROE which is the very quantity we are trying to estimate. Moreover, the empirical finance literature demonstrates that the sustainable growth rate technique is a very poor explanatory variable of market value and is not as significantly correlated to measures of value, such as stock price and price/earnings ratios.

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I have already discussed the dangers of relying on *historical* growth rates at this time in the gas and electric utility industry. In addition, there are two serious problems with the use of Value Line's dividend growth *forecasts*. First, heavy reliance on Value Line's in-house growth forecasts runs the risk that such forecasts are not representative of investors' consensus forecasts. One would expect that averages of analysts' growth forecasts, such as those contained in First Call or Zacks, rather than one particular firm's forecast, are more reliable estimates of the investors' consensus expectations likely to be reflected in stock prices. As discussed in my direct testimony, the empirical finance literature has shown that such consensus analysts' growth forecasts are reflected in stock prices, possess a high explanatory power of equity values, and are used by investors. Besides, as a practical matter, it is necessary to use earnings forecasts rather than dividend forecasts due to the extreme scarcity of dividend forecasts compared to the availability of earnings forecasts. Given the paucity and variability of dividend forecasts, using dividend forecasts produces unreliable DCF results.

Second, and more importantly, it is inappropriate to use the projected dividend growth of energy utilities at this time in the DCF model. The problem with the use of Value Line's dividend growth forecasts, besides the fact that these forecasts are only one individual firm's forecasts, is that they are largely dominated by the anticipated dividend performance over the next few years, which is a period of transition to competition and higher business risk and, in turn, lower dividend payout ratios. I believe it is improper to rely on "near-term" dividend growth because it is widely expected that 1) energy utilities will continue to lower their dividend payout ratio over the next several years in response to increased business risk, and 2) earnings

Growth Model: The Case of Electric Utilities," *Financial Management,* Winter 1989] produces similar results.

8. INVESTOR EXPECTED GROWTH RATES

Q. ARE INVESTORS EXPECTING GROWTH RATES EQUAL TO MR. PARCELL'S RANGE?

A. No. The best evidence shows that investors are expecting growth rates higher than Mr. Parcell has found. In his second comparable group of utilities, Mr. Parcell has found (see his Exhibit No. ___ (DCP-3), Schedule 7, Page 4) growth rates ranging from minus 13.5% to plus 31.0%, with a mean of 5.1%, from all the proxies he used. As indicated earlier, 1) retention growth rates are circular, 2) historical growth rates and dividend growth rates should be given considerably less weight, and 3) Value Line forecasts are somewhat unrepresentative. This leaves us with the consensus analyst forecast of 6.1%, which is 1.0% above Mr. Parcell's mean estimate of 5.1%. His DCF cost of equity estimate is downward-biased by 100 basis points from this understatement alone.

In his third comparable group of utilities, Mr. Parcell has found (see his Exhibit No. ___ (DCP-3), Schedule 7, Page 4) growth rates ranging from 0.8% to 16.0%, with a mean of 4.8%, from all the proxies he used. This compares to the 5.0% obtained from the consensus analyst forecast. This is 0.2% above the mean estimate, and therefore this particular DCF cost of equity estimate is downward-biased by about 20 basis points due to this factor alone. In his first comparable group, the mean growth rate from all the proxies is coincidentally the same as the analyst growth forecast.

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(206)624-3900

RISK PREMIUM COMPONENT OF THE CAPM?

A. No, I do not. For his first estimate of the market risk premium (MRP) component of the CAPM, Mr. Parcell examines the average historical accounting returns realized on the S&P 500 companies over the 1978-2004 period (14.02%) and subtracts the average historical yield on U.S. Treasury bonds over the same period (8.02%) to arrive at an MRP of 6.0%, that is, 14.02% - 8.02% = 6.00%. I have three concerns with this procedure. First, Mr. Parcell has commingled *accounting* returns on stocks with the *market* returns on bonds. This is a clear mismatch. Mr. Parcell should have matched market returns on stocks with market returns on bonds instead of matching accounting book returns (ROE) on stocks with market returns on bonds.

Q. WHAT IS YOUR SECOND CONCERN WITH MR. PARCELL'S MRP ESTIMATE?

A. Second, Mr. Parcell uses two different risk-free rates in the same CAPM. The CAPM expression states that the return required by investors is made up of a risk-free component, R_F, plus a risk premium given by $\beta(R_M - R_F)$ and has the following form:

$$K_e = R_F + \beta(R_M - R_F)$$

In the above equation, the risk-free rate R_F clearly has to be the same risk-free rate in both the first and second terms of the right-hand side of the equation. Mr. Parcell uses one proxy for the R_F in the first term of that equation (the current yield on long-term Treasury bonds) and a different proxy for the same R_F in the second term (the average bond yield on long-term Treasury bonds over the 1978-2004 period). This is inconsistent and illogical. Mr. Parcell should have used the same risk-free rate throughout the CAPM equation.

Q. WHAT IS YOUR THIRD CONCERN WITH MR. PARCELL'S MRP ESTIMATE?

have been 12.8%, 13.1%, and 12.5%, respectively, instead of 10.3%, 10.5%, and 10.1%. For example, for the first group of gas utilities, the proper CAPM estimate is:

$$K_e = R_F + \beta(R_M - R_F) = 5.29\% + 0.86\,(13.02\% - 5.29\%) = 12.8\%$$

10. CAPM MARKET RISK PREMIUM

Q. DO YOU AGREE WITH MR. PARCELL'S SECOND ESTIMATE OF THE MARKET RISK PREMIUM COMPONENT OF THE CAPM?

A. No, I do not. For his second estimate of the MRP component of the CAPM, Mr. Parcell relies on the following historical estimates of the market risk premium over the 1926-2005 period, as reported in the Ibbotson Associates Valuation 2006 Yearbook:

	Arithmetic Average	Geometric Average
Treasury Bonds	6.5%	4.9%

I disagree with this estimate for two reasons. First, only the income component of bond returns is relevant in calculating an MRP, and not the total return component. Second, arithmetic means are appropriate for forecasting and estimating the cost of capital, and geometric means are not, as I explain below.

Q. SHOULD THE HISTORICAL MARKET RISK PREMIUM BE ESTIMATED USING THE INCOME COMPONENT OF BOND RETURNS OR THE TOTAL RETURN COMPONENT?

A. In response to Mr. Parcell's criticism on page 41 that I have improperly used income returns rather than total returns on bonds, the historical MRP should be computed using the income

CASCADE NATURAL GAS CORPORATION
222 FAIRVIEW AVENUE NORTH
SEATTLE, WA 98109
(206)624-3900

MARKET RISK PREMIUM?

A. Mr. Parcell's use of the geometric mean market risk premium of 4.9% rather than the arithmetic mean of 6.5% significantly understates the market risk premium, which suggests an understatement of CNGC's cost of equity by approximately 130 basis points (assuming for purposes of argument Mr. Parcell's proposed beta for CNGC of 0.86):

$$\beta_{CNGC} \text{ x (Arithmetic Mean – Geometric Mean)}$$

$$0.86 \text{ x } (6.5\% - 4.9\%)$$

$$0.86 \text{ x } (1.6\%)$$

$$1.38\%$$

Using Mr. Parcell's long-term Treasury yield of 5.29%, the beta of 0.86 and the arithmetic MRP of 6.5%, the CAPM estimate is 10.9% without flotation cost and 11.2% with flotation cost. With the arithmetic MRP estimate of 7.1% based on the income component of bond return, the CAPM estimate is 11.4% without flotation cost and 11.7% with flotation cost.

11. CAPM AND THE EMPIRICAL CAPM

Q. MR. PARCELL (PAGE 42) CLAIMS THAT THE EMPIRICAL CAPM INFLATES THE CAPM RESULT FOR THE SELECTED COMPANY OR INDUSTRY. IS HE CORRECT?

A. No, I do not believe so. For companies with betas less than one, the CAPM understates the return while for companies with betas greater than one, the CAPM overstates the return. I discussed the conceptual and empirical foundations earlier in Appendix A of my direct

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222 FAIRVIEW AVENUE NORTH
SEATTLE, WA 98109
(206)624-3900

than they expected. Only over long time periods will investor return expectations and realizations converge, or else, investors would never commit any funds.

I have ignored realized risk premiums measured over short time periods, since they are heavily dependent on short-term market movements. Instead, I have relied on results over periods of enough length to smooth out short-term aberrations, and to encompass several business and interest rate cycles. The use of the entire study period in estimating the appropriate market risk premium minimizes subjective judgment and encompasses many diverse regimes of inflation, interest rate cycles, and economic cycles.

Mr. Parcell's second concern is unwarranted as well. The influence of unexpected capital gains is offset by the influence of unexpected capital losses. To the extent that the historical equity risk premium estimate follows what is known in statistics as a random walk, one should expect the equity risk premium to remain at its historical mean. The best estimate of the future risk premium is the historical mean. As I explained in my direct testimony, since I found no evidence that the market price of risk or the amount of risk in common stocks has changed over time (that is, no significant serial correlation in the successive market risk premiums from year to year), it is reasonable to assume that these quantities will remain stable in the future.

12. COMPARABLE EARNINGS TEST.

Q. PLEASE DISCUSS MR. PARCELL'S COMPARABLE EARNINGS ANALYSIS.

A. In his implementation of the comparable earnings test, Mr. Parcell examines the realized returns on book equity achieved by his group of comparable utilities and by a broad group of industrials (namely the S&P 500) as a proper guide for setting CNGC's cost of common equity.

On page 2, he reports the following common equity ratios including short-term debt:

	Actual 2005
Cascade	39.0%
Gas Group Avg.	44.0%
Difference	5.0%

It is clear from this data that CNGC has more financial risk, that is, a weaker capital structure, relative to its peers. The smallest difference in common equity ratios between CNGC and its peers reported in the above two tables is 5.0%.

Q. WHAT IS THE MAGNITUDE OF THE REQUIRED ADJUSTMENT TO ACCOUNT FOR CNGC'S MORE LEVERAGED CAPITAL STRUCTURE?

A. Several researchers have studied the empirical relationship between the cost of capital, capital-structure changes, and the value of the firm's securities.[2] The results of these studies suggest that when the debt ratio increases from 40% to 50%, required equity returns increase between 34 to 237 basis points. The empirical studies suggest an average increase of 76 basis points, or 7.6 basis points per one percentage point increase in the debt ratio. The theoretical studies also suggest an average increase of 138 basis points, or 13.8 basis points per one percentage point increase in the debt ratio. In other words, equity return requirements increase between 7.6 and 13.8 basis points for each increase in the debt ratio by one percentage point. More recent studies indicate that the upper end of that range is more indicative of the repercussions on required equity returns.

A. Yes, it does.

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222 FAIRVIEW AVENUE NORTH
SEATTLE, WA 98109
(206)624-3900