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

Docket UG-06______
Exhibit ___(RAM-1T)

PREPARED TESTIMONY OF ROGER A. MORIN, Ph.D.

(Rate of Return on Common Equity and Capital Structure)

Q. Please state your name, address, and occupation.

A. My name is Dr. Roger A. Morin. My business address is Georgia State University, Robinson College of Business, University Plaza, Atlanta, Georgia, 30303. I am Professor of Finance at the College of Business, Georgia State University and Professor of Finance for Regulated Industry at the Center for the Study of Regulated Industry at Georgia State University. I am also a principal in Utility Research International, an enterprise engaged in regulatory finance and economics consulting to business and government.

Q. Please describe your educational background.

A. I hold a Bachelor of Engineering degree and an MBA in Finance from McGill University, Montreal, Canada. I received my Ph.D. in Finance and Econometrics at the Wharton School of Finance, University of Pennsylvania.

Q. Please summarize your academic and business career.

A. I have taught at the Wharton School of Finance, University of Pennsylvania, Amos Tuck School of Business at Dartmouth College, Drexel University, University of Montreal, McGill University, and Georgia State University. I was a faculty member of Advanced Management Research International, and I am currently a faculty member of The Management Exchange Inc. and Exnet, where I continue to conduct frequent national executive-level education seminars throughout the United States and Canada. In the last twenty years, I have conducted numerous national seminars on "Utility Finance," "Utility

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

Arkansas	Kentucky	New York	South Dakota
British Columbia	Louisiana	Newfoundland	Tennessee
California	Manitoba	North Carolina	Texas
Colorado	Michigan	North Dakota	Utah
Delaware	Minnesota	Nova Scotia	Vermont
District of Columbia	Mississippi	Ohio	Virginia
Florida	Missouri	Oklahoma	Washington
Georgia	Montana	Ontario	West Virginia

The details of my participation in regulatory proceedings are provided in Exhibit RAM-1.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony in this proceeding is to present an independent appraisal of the fair and reasonable rate of return on the natural gas distribution operations of Cascade Natural Gas Corp. ("CNGC," or "Company") in the State of Washington with particular emphasis on the fair return on the Company's common equity capital committed to that business. Based upon this appraisal, I have formed my professional judgment as to a return on such capital that would: (1) be fair to the ratepayer, (2) enable the Company to attract capital on reasonable terms, (3) maintain the Company's financial integrity, and (4) be comparable to returns offered on comparable risk investments. I will testify in this proceeding as to that opinion.

This testimony and accompanying exhibits were prepared by me or under my direct supervision and control. The source documents for my testimony are Company records, public documents, and my personal knowledge and experience.

Q. Please briefly identify the exhibits and appendices accompanying your testimony.

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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

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mechanisms, my recommended return would be significantly higher. My recommended ROE also assumes the approval of my recommended capital structure.

Q. Please explain how low authorized returns on equity can increase both the future cost of equity and debt financing.

A. If a utility is authorized a return on equity below the level required by equity investors, the utility will find it difficult to access the equity market through common stock issuance at its current market price. Investors will not provide equity capital at the current market price if the earnable return on equity is below the level they require given the risks of an equity investment in the utility. The equity market corrects this by generating a stock price in equilibrium that reflects the valuation of the potential earnings stream from an equity investment at the risk-adjusted return equity investors require. In the case of a utility that has been authorized a return below the level investors believe is appropriate for the risk they bear, the result is a decrease in the utility's market price per share of common stock. This reduces the financial viability of equity financing in two ways. First, because the utility's share price per common stock decreases, the net proceeds from issuing common stock are reduced. Second, since the utility's market to book ratio decreases with the decrease in the share price of common stock, the potential risks from dilution of equity investments reduces investors' inclination to purchase new issues of common stock. The ultimate effect is the utility will have to rely more on debt financing to meet its capital needs.

As the company relies more on debt financing, its capital structure becomes more leveraged. Because debt payments are a fixed financial obligation to the utility, and income available to common equity is subordinate to fixed charges, this decreases the operating income available for dividend and earnings growth. Consequently, equity investors face greater uncertainty about future dividends and earnings from the firm. As a

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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. <u>REGULATORY FRAMEWORK AND RATE OF RETURN</u>

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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equity, one relating to the supply side of capital markets, the other to the demand side. According to the first principle, a rational investor is maximizing the performance of his portfolio only if he expects the returns earned on investments of comparable risk to be the same. If not, the rational investor will switch out of those investments yielding lower returns at a given risk level in favor of those investment activities offering higher returns for the same degree of risk. This principle implies that a company will be unable to attract the capital funds it needs to meet its service demands and to maintain financial integrity unless it can offer returns to capital suppliers that are comparable to those achieved on competing investments of similar risk. On the demand side, the second principle asserts that a company will continue to invest in real physical assets if the return on these investments exceeds or equals the company's cost of capital. This concept suggests that a regulatory commission should set rates at a level sufficient to create equality between the return on physical asset investments and the company's cost of capital.

Q. Under traditional cost of service regulation, please explain how a regulated company's rates should be set.

A. Under the traditional regulatory process, a regulated company's rates should be set so that the company recovers its costs, including taxes and depreciation, plus a fair and reasonable return on its invested capital. The allowed rate of return must necessarily reflect the cost of the funds obtained, that is, investors' return requirements. In determining a company's rate of return, the starting point is investors' return requirements in financial markets. A rate of return can then be set at a level sufficient to enable the company to earn a return commensurate with the cost of those funds.

Funds can be obtained in two general forms, debt capital and equity capital. The cost of debt funds can be easily ascertained from an examination of the contractual interest

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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

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return on common equity?

A. The heart of utility regulation is the setting of just and reasonable rates by way of a fair and reasonable return. There are two landmark United States Supreme Court cases that define the legal principles underlying the regulation of a public utility's rate of return and provide the foundations for the notion of a fair return:

1) Bluefield Water Works and Improvement Co. v. Public Service Commission of West Virginia, 262 U.S. 679 (1923), and

2) Federal Power Commission v. Hope Natural Gas Company, 320 U.S. 391 (1944).

The Bluefield case set the standard against which just and reasonable rates of return are measured:

> *A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties ... The return should be reasonable, sufficient to assure confidence in the financial soundness of the utility, and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise money necessary for the proper discharge of its public duties.* (Emphasis added).

The Hope case expanded on the guidelines to be used to assess the reasonableness of the allowed return. The Court reemphasized its statements in the Bluefield case and recognized that revenues must cover "capital costs." The Court stated:

> *From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock ... By that standard the return to the equity owner should be commensurate with returns on investments in*

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> *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

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factors of production, whether labor, materials, or machines. The prices of these inputs are set in the competitive marketplace by supply and demand, and it is these input prices that are incorporated in the cost of service computation. This is just as true for capital as for any other factor of production. Since utilities and other investor-owned businesses must go to the open capital market and sell their securities in competition with every other issuer, there is obviously a market price to pay for the capital they require, for example, the interest on debt capital, or the expected return on equity.

Q. How does the concept of a fair return relate to the concept of opportunity cost?

A. The concept of a fair return is intimately related to the economic concept of "opportunity cost." When investors supply funds to a utility by buying its stocks or bonds, they are not only postponing consumption, giving up the alternative of spending their dollars in some other way, they are also exposing their funds to risk and forgoing returns from investing their money in alternative comparable risk investments. If there are differences in the risk of the investments, competition among firms for a limited supply of capital will bring different prices. These differences in risk are translated by the capital markets into differences in required return, in much the same way that differences in the characteristics of commodities are reflected in different prices.

The important point is that the required return on capital is set by supply and demand, and is influenced by the relationship between the risk and return expected for those securities and the risks expected from the overall menu of available securities.

Q. How does the Company obtain its capital and how is its overall cost of capital determined?

A. The funds employed by the Company are obtained in two general forms, debt capital

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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.

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Q. Why did you use more than one approach for estimating the cost of equity?

A. No one individual method provides the necessary level of precision for determining a fair return, but each method provides useful evidence to facilitate the exercise of an informed judgment. Reliance on any single method or preset formula is inappropriate when dealing with investor expectations because of possible measurement errors and vagaries in individual companies' market data. Examples of such vagaries include dividend suspension, insufficient or unrepresentative historical data due a recent merger, impending merger or acquisition, and a new corporate identity due to restructuring activities. The advantage of using several different approaches is that the results of each one can be used to check the others.

As a general proposition, it is extremely dangerous to rely on only one generic methodology to estimate equity costs. The difficulty is compounded when only one variant of that methodology is employed. It is compounded even further when that one methodology is applied to a single company. Hence, several methodologies applied to several comparable risk companies should be employed to estimate the cost of capital.

Q. Dr. Morin, are you aware that some regulatory commissions and some analysts have placed principal reliance on DCF-based analyses to determine the cost of equity for public utilities?

A. Yes, I am.

Q. Do you agree with this approach?

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

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stock price and of the cost of equity reflected in that price, just as it should not be concluded that the CAPM or Risk Premium models standing alone produce the perfect or best explanation of that stock price or the cost of equity. As a result, all the various methodologies to estimate the cost of equity should be considered.

Q. Does the financial literature support the use of more than a single method?

A. Yes. Authoritative financial literature strongly supports the use of multiple methods. For example, Professor Eugene F. Brigham, a widely respected scholar and finance academician, asserts:

In practical work, it is often best to use all three methods - CAPM, bond yield plus risk premium, and DCF - and then apply judgement when the methods produce different results. People experienced in estimating capital costs recognize that both careful analysis and some very fine judgements are required. It would be nice to pretend that these judgements are unnecessary and to specify an easy, precise way of determining the exact cost of equity capital. Unfortunately, this is not possible.[1]

In a subsequent edition of his best-selling corporate finance textbook, Dr. Brigham discusses the various methods used in estimating the cost of common equity capital, and states:

However, three methods can be used: (1) the Capital Asset Pricing Model (CAPM), (2) the discounted cash flow (DCF) model, and (3) the bond-yield-plus-risk-premium approach. These methods should not be regarded as mutually exclusive - no one dominates the others, and all are subject to error when used in practice. Therefore, when faced with the task of estimating a company' cost of equity, we generally use all three methods...[2]

[1] E. F. Brigham and L. C. Gapenski, Financial Management Theory and Practice, p. 256 (4th ed., Dryden Press, Chicago, 1985)
[2] Id. at p. 348.

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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,*

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[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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> *DCF advocates assume that if the market price of a utility's common stock exceeds its book value, the allowable rate of return on common equity is too high and should be lowered; and vice versa. Many question the assumption that market price should equal book value, believing that 'the earnings of utilities should be sufficiently high to achieve market-to-book ratios which are consistent with those prevailing for stocks of unregulated companies.*
>
> *...[T]here remains the circularity problem: Since regulation establishes a level of authorized earnings which, in turn, implicitly influences dividends per share, estimation of the growth rate from such data is an inherently circular process. For all of these reasons, the DCF model suggests a degree of precision which is in fact not present and leaves wide room for controversy about the level of k [cost of equity].*[5]

Dr. Charles F. Phillips also discusses the dangers of relying solely on the CAPM model because of the lack of realism of certain of its stringent assumptions, as is the case for any model in the social sciences.

Sole reliance on any one model, whether it is DCF, CAPM, or Risk Premium, simply ignores the capital market evidence and investors' use of the other theoretical frameworks. The DCF model is only one of many tools to be employed in conjunction with other methods to estimate the cost of equity. It is not a superior methodology that should supplant other financial theory and market evidence. The same is true of the CAPM.

Q. Do the assumptions underlying the DCF model require that the model be treated with caution?

A. Yes, particularly in today's rapidly changing utility industry. Even ignoring the fundamental thesis that several methods and/or variants of such methods should be used in measuring equity costs, the DCF methodology, as those familiar with the industry and the

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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

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

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earnings) in any given year to be the same as the current ratio of market price to dividend (or earnings), and that the stock price will grow at the same rate as the book value. This is a necessary result of the infinite growth assumption. This assumption is unrealistic under current conditions. The DCF model is not equipped to deal with sudden surges in M/B and P/E ratios, as was experienced by a number of utility stocks in recent years.

In short, caution and judgment are required in interpreting the results of the DCF model because of (1) the effect of changes in risk and growth on electric utilities, (2) the disconnect between the tenets of the DCF model and the characteristics of utility stocks in the current capital market environment, and (3) the practical difficulties associated with the growth component of the DCF model. Hence, there is a clear need to go beyond the DCF results and take into account the results produced by alternate methodologies in arriving at a return on equity ("ROE") recommendation.

Q. Do the assumptions underlying the CAPM require that the model be treated with caution?

A. Yes, as was the case with the DCF model, the assumptions underlying the CAPM are stringent. Moreover, the empirical validity of the CAPM has been the subject of intense research in recent years. Although the CAPM provides useful evidence, it must be complemented by other methodologies as well.

A) <u>CAPM Estimates</u>

Q. Please describe your application of the CAPM risk premium approach.

A. My first two risk premium estimates are based on the CAPM and on an empirical 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.

The appropriate proxy for the risk-free rate in the CAPM is the return on the longest term Treasury bond possible. This is because common stocks are very long-term instruments more akin to very long-term bonds rather than to short-term or intermediate-term Treasury notes. In a risk premium model, the ideal estimate for the risk-free rate has a term to maturity equal to the security being analyzed. Since common stock is a very long-term investment because the cash flows to investors in the form of dividends last indefinitely, the yield on the longest-term possible government bonds, that is the yield on 30-year Treasury bonds, is the best measure of the risk-free rate for use in the CAPM. The expected common stock return is based on very long-term cash flows, regardless of an individual's holding time period. Moreover, utility asset investments generally have very long-term useful lives and should correspondingly be matched with very long-term maturity financing instruments.

While long-term Treasury bonds are potentially subject to interest rate risk, this is only true if the bonds are sold prior to maturity. A substantial fraction of bond market participants, usually institutional investors with long-term liabilities (pension funds, insurance companies), in fact hold bonds until they mature, and therefore are not subject to interest rate risk. Moreover, institutional bondholders neutralize the impact of interest rate changes by matching the maturity of a bond portfolio with the investment-planning period, or by engaging in hedging transactions in the financial futures markets. The merits and mechanics of such immunization strategies are well documented by both academicians and practitioners.

Another reason for utilizing the longest maturity Treasury bond possible is that common equity has an infinite life span, and the inflation expectations embodied in its market-required rate of return will therefore be equal to the inflation rate anticipated to prevail over the very long-term. The same expectation should be embodied in the risk free rate

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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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As a conceptual matter, short-term Treasury Bill yields reflect the impact of factors different from those influencing the yields on long-term securities such as common stock. For example, the premium for expected inflation embedded into 90-day Treasury Bills is likely to be far different than the inflationary premium embedded into long-term securities yields. On grounds of stability and consistency, the yields on long-term Treasury bonds match more closely with common stock returns.

Q. What is your estimate of the risk-free rate in applying the CAPM?

A. The level of U.S. Treasury 30-year long-term bond yields prevailing in December 2005 as reported in the Value Line Investment Analyzer ("VLIA") December 2005 edition was 4.7%. In response to the robust economic growth ongoing and forecast for 2006 recovery and in response to Federal Reserve policy, long-term yields are projected to be higher in 2006. The consensus forecast for the yield on 10-year U. S. Treasury bonds in December 2006 reported in the December 2005 edition of Consensus Economics Inc.'s "Consensus Forecast" is 5.1%, an increase of 70 basis points (0.7%) over the current level of 4.4%. The consensus forecast reported in the Business Week Economists Survey published in the January 2nd 2006 edition of Business Week is 5.0%, an increase of 60 basis points over the current level of 4.4%, virtually the same forecast reported by Consensus Economics Inc. Since long-term interest rates generally move in unison, an increase (decrease) in the yield on 10-year Treasury bonds should be accompanied by a parallel increase (decrease) in the yield on 30-year bonds. Given the prevailing level of 4.7% for 30-year Treasury bonds, the implied forecast for 30-year U. S. Treasury securities was therefore a mirror increase of at least 60 basis points from 4.7% to 5.3%. The forecast increase in long-term yields is not surprising in view of the solid economic growth of the U.S. economy, declining unemployment, and rising core inflation. I used a range of 4.7% - 5.3% as my estimate of the risk-free rate component of the CAPM.

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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.

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A. For the market risk premium, I used 7.5%. This estimate was based on the results of both forward-looking and historical studies of long-term risk premiums. First, the Ibbotson Associates study, *Stocks, Bonds, Bills, and Inflation, 2004 Yearbook*, compiling historical returns from 1926 to 2004, shows that a broad market sample of common stocks outperformed long-term U. S. Treasury bonds by 6.6%. The historical market risk premium over the income component of long-term Treasury bonds rather than over the total return is 7.2%. Ibbotson Associates recommend the use of the latter as a more reliable estimate of the historical market risk premium, and I concur with this viewpoint. This is because the income component of total bond return (*i.e.* the coupon rate) is a far better estimate of expected return than the total return (*i.e.* the coupon rate + capital gain), as realized capital gains/losses are largely unanticipated by bond investors.

Second, a DCF analysis applied to the aggregate equity market using Value Line's aggregate stock market index and growth forecasts indicates a prospective market risk premium of 7.7%. I have used the average of the historical and prospective estimates, 7.5%, as a reasonable estimate of the market risk premium.

Q. Why did you use long time periods in arriving at your historical market risk premium estimate?

A. Because realized returns can be substantially different from prospective returns anticipated by investors when measured over short time periods, it is important to employ returns realized over long time periods rather than returns realized over more recent time periods when estimating the market risk premium with historical returns. Therefore, a risk premium study should consider the longest possible period for which data are available. Short-run periods during which investors earned a lower risk premium than they expected are offset by short-run periods during which investors earned a higher risk premium than they expected. Only over long time periods will investor return expectations and

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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.

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tenets of the DCF model, the spot dividend yield must be converted into an expected dividend yield by multiplying it by one plus the growth rate. This brings the expected return on the aggregate equity market to 12.8%. Recognition of the quarterly timing of dividend payments rather than the annual timing of dividends assumed in the annual DCF model brings the market risk premium estimate to approximately 13.0%. Subtracting the risk-free rate from the latter, the implied risk premium is therefore 7.7% over long-term U.S. Treasury bonds that are expected to yield 5.3% in December 2006. The average of the historical and prospective market risk premium estimate is 7.5%.

As a check on my market risk premium estimate, I examined a recent 2003 comprehensive article published in Financial Management, Harris, Marston, Mishra, and O'Brien ("HMMO") that provides estimates of the ex ante expected returns for S&P 500 companies over the period 1983-1998[8]. HMMO measure the expected rate of return (cost of equity) of each dividend-paying stock in the S&P 500 for each month from January 1983 to August 1998 by using the constant growth DCF model. The prevailing risk-free rate for each year was then subtracted from the expected rate of return for the overall market to arrive at the market risk premium for that year. The table below, drawn from HMMO Table 2, displays the average prospective risk premium estimate (Column 2) for each year from 1983 to 1998. The average market risk premium estimate for the overall period is 7.2%, which is very close to my own estimate of 7.5%.

[8] Harris, R. S., Marston, F. C., Mishra, D. R., and O'Brien, T. J., "*Ex Ante* Cost of Equity Estimates of S&P 500 Firms: The Choice Between Global and Domestic CAPM," Financial Management, Autumn 2003, pp. 51-66.

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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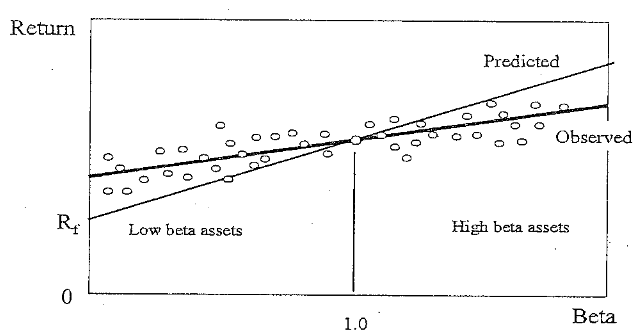
A. With respect to the empirical validity of the plain vanilla CAPM, there have been countless empirical tests of the CAPM to determine to what extent security returns and betas are related in the manner predicted by the CAPM. This literature is summarized in Chapter 13 of my book, Regulatory Finance, published by Public Utilities Report Inc. The results of the tests support the idea that beta is related to security returns, that the risk-return tradeoff is positive, and that the relationship is linear. The contradictory finding is that the risk-return tradeoff is not as steeply sloped as the predicted CAPM. That is, empirical research has long shown that low-beta securities earn returns somewhat higher than the CAPM would predict, and high-beta securities earn less than predicted. A CAPM-based estimate of cost of capital underestimates the return required from low-beta securities and overstates the return required from high-beta securities, based on the empirical evidence. This is one of the most well known results in finance, and it is displayed graphically below.

CAPM: Predicted vs Observed Returns



A number of variations on the original CAPM theory have been proposed to explain this finding. The ECAPM makes use of these empirical findings. The ECAPM estimates the cost of capital with the equation:

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

where $\acute{\alpha}$ 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%.

Q. Please summarize your CAPM estimates.

A. The table below summarizes the ROE estimates obtained from the CAPM studies. The average CAPM result is 11.5%.

CAPM	% 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%
AVERAGE	11.5%

B) Risk Premium Estimates

Q. Please describe your historical risk premium analysis of the natural gas utility industry.

A. An historical risk premium for the natural gas utility industry was estimated with an annual time series analysis applied to the electric utility industry as a whole, using Moody's Natural Gas Distribution Index as an industry proxy. The analysis is depicted on Exhibit RAM-3. The risk premium was estimated by computing the actual return on equity capital for Moody's Index for each year from 1955 to 2001 using the actual stock prices and dividends of the index, and then subtracting the long-term government bond return for that year. Data for this particular index was unavailable for periods prior to 1955 and data beyond 2001 were not readily available following the acquisition of Moody's by Mergent. As shown on Exhibit RAM-3, the average risk premium over the period was 5.7% over long-term Treasury bonds. Given that long-term Treasury bond yields were 4.7% in December 2005, the implied cost of equity from this particular method is 4.7% + 5.7% =

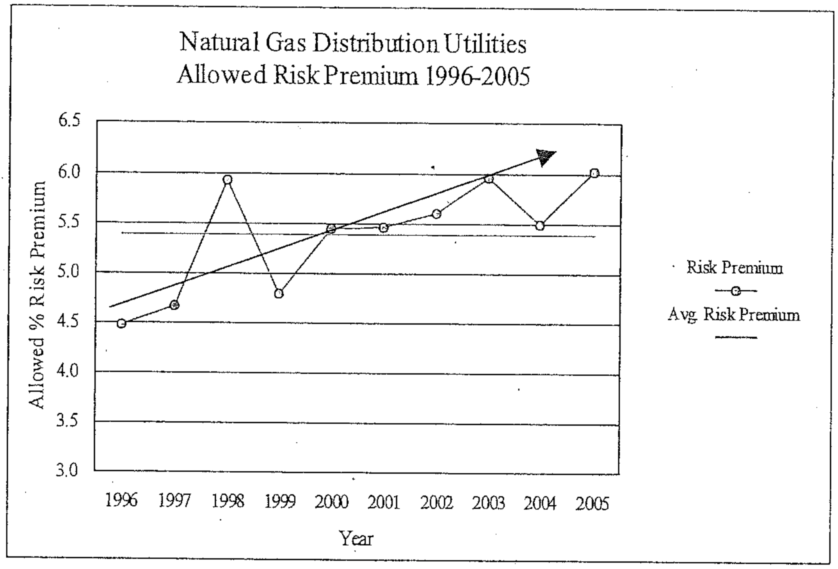
10.4% without flotation costs and 10.7% with flotation costs. Given that long-term Treasury bonds are expected to yield 5.3% in 2006, the implied cost of equity for the average electric utility is 5.3% + 5.7% = 11.0% without flotation costs and 11.3% with flotation costs.

<u>C) Allowed Risk Premiums</u>

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.



A careful review of these ROE decisions relative to interest rate trends reveals a narrowing of the risk premium in times of rising interest rates, and a widening of the premium as interest rates fall. The following statistical relationship between the risk premium (RP) and interest rates (YIELD) emerges over the last decade:

$$RP = 9.3353 - \underset{(t = 5.0)}{0.7018\ YIELD} \qquad R^2 = 0.76$$

The relationship is highly statistically significant[10] as indicated by the high R^2 and statistically significant t-value of the slope coefficient. The graph below shows a clear inverse relationship between the allowed risk premium and interest rates as revealed in past ROE decisions.

[10] The coefficient of determination R^2, sometimes called the "goodness of fit measure" is a measure of the degree of explanatory power of a statistical relationship. It is simply the ratio of the explained portion to the total sum of squares. The higher R^2 the higher is the degree of the overall fit of the estimated regression equation to the sample rata. The t-statistic is a standard measure of the statistical significance of an independent variable in a regression relationship. A t-value above 2.0 is considered highly significant.

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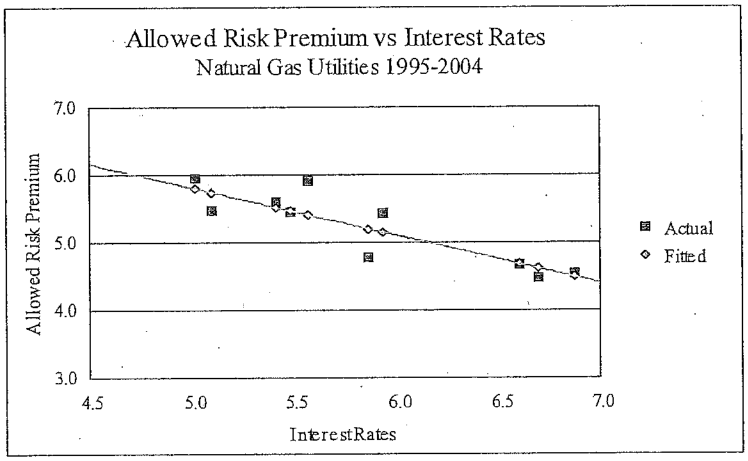

Inserting the current long-term Treasury bond yield of 4.7% in the above equation suggests that a risk premium estimate of 6.0% should be allowed for the average risk natural gas utility, implying a cost of equity of 10.7% for the average risk utility. Using the projected bond yield of 5.3%, the risk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

D) DCF Estimates

Q. Please describe the DCF approach to estimating the cost of equity capital.

A. According to DCF theory, the value of any security to an investor is the expected discounted value of the future stream of dividends or other benefits. One widely used method to measure these anticipated benefits in the case of a non-static company is to examine the current dividend plus the increases in future dividend payments expected by investors. This valuation process can be represented by the following formula, which is the traditional DCF model:

$$K_e = D_1/P_o + g$$

where: K_e = investors' expected return on equity

D_1 = expected dividend at the end of the coming year

P_o = current stock price

g = expected growth rate of dividends, earnings, book value, stock price

The traditional DCF formula states that under certain assumptions, which are described in the next paragraph, the equity investor's expected return, K_e, can be viewed as the sum of an expected dividend yield, D_1/P_o, plus the expected growth rate of future dividends and stock price, g. The returns anticipated at a given market price are not directly observable and must be estimated from statistical market information. The idea of the market value approach is to infer 'K_e' from the observed share price, the observed dividend, and an estimate of investors' expected future growth.

The assumptions underlying this valuation formulation are well known, and are discussed in detail in Chapter 4 of my reference book, Regulatory Finance. The traditional

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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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estimate should be based on current prices.

In implementing the DCF model, I have used the dividend yields reported in the December 2005 edition of Value Line's VLIA. Basing dividend yields on average results from a large group of companies reduces the concern that vagaries of individual company stock prices will produce an unreliable dividend yield.

Q. How did you estimate the growth component of the DCF model?

A. The principal difficulty in calculating the required return by the DCF approach is in ascertaining the growth rate that investors currently expect. Since no explicit estimate of expected growth is observable, proxies must be employed.

As proxies for expected growth, I examined growth estimates developed by professional analysts employed by large investment brokerage institutions. Projected long-term growth rates actually used by institutional investors to determine the desirability of investing in different securities influence investors' growth anticipations. These forecasts are made by large reputable organizations, and the data are readily available to investors and are representative of the consensus view of investors. Because of the dominance of institutional investors in investment management and security selection, and their influence on individual investment decisions, analysts' growth forecasts influence investor growth expectations and provide a sound basis for estimating the cost of equity with the DCF model. Growth rate forecasts of several analysts are available from published investment newsletters and from systematic compilations of analysts' forecasts, such as those tabulated by Zacks Investment Research Inc. ("Zacks"). I used analysts' long-term growth forecasts contained in Zacks as proxies for investors' growth expectations in applying the DCF model. I also used Value Line's growth forecast as an additional proxy.

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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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become increasing conservative as business risks in the industry have intensified steadily. Dividend growth has remained largely stagnant in past years as utilities are increasingly conserving financial resources in order to hedge against rising business risks. The dividend payout ratios of energy utilities have steadily decreased over last decade. As a result, investors' attention has shifted from dividends to earnings. Therefore, earnings growth provides a more meaningful guide to investors' long-term growth expectations. After all, it is growth in earnings that will support future dividends and share prices.

Q. Is there any empirical evidence documenting the importance of earnings in evaluating investors' expectations in the investment community?

A. Yes, there is an abundance of evidence attesting to the importance of earnings in assessing investors' expectations. First, the sheer volume of earnings forecasts available from the investment community relative to the scarcity of dividend forecasts attests to their importance. To illustrate, Value Line, Zacks, First Call Thompson, and Multex provide comprehensive compilations of investors' earnings forecasts, to name some. The fact that these investment information providers focus on growth in earnings rather than growth in dividends indicates that the investment community regards earnings growth as a superior indicator of future long-term growth. Second, surveys of analytical techniques actually used by analysts reveal the dominance of earnings and conclude that earnings are considered far more important than dividends. Third, Value Line's principal investment rating assigned to individual stocks, Timeliness Rank, is based primarily on earnings, accounting for 65% of the ranking.

Q. What DCF results did you obtain for the natural gas utilities group?

A. As a proxy for CNGC, I have examined the expected returns of dividend-paying natural

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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

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sample of 20 companies is made up of the parent company of these investment-grade operating electricity distribution companies as shown on Page 5 of Exhibit RAM-6.

Q. What DCF results did you obtain for the electricity distribution utilities group using the value line growth?

A. For purposes of conducting the DCF analysis, as shown on Page 1 of Exhibit RAM-7, three companies were eliminated from the DCF analysis: CenterPoint because of negative long-term growth projections, Public Service Enterprise Group which is presently involved with merger negotiations, and TXU Corp with an unsustainable growth rate of 31%. As shown on Column 2 of page 2 of Exhibit RAM-7, the average long-term growth forecast obtained from Value Line is 5.4% for this group. Combining this growth rate with the average expected dividend yield of 4.2% shown in Column 3 produces an estimate of equity costs of 9.5% for the group, unadjusted for flotation costs. Adding an allowance for flotation costs to the results of Column 4 brings the cost of equity estimate to 9.7%, shown in Column 5.

Q. What DCF results did you obtain for the electricity distribution utilities group using the analyst's consensus growth forecast?

A. From the original sample of 20 companies shown on page 1 of Exhibit RAM-8, CH Energy was eliminated as no analysts' growth forecasts were available from Zacks and Public Service Enterprise Group was also discarded on account of ongoing merger negotiations. For the remaining 18 companies, using the consensus analysts' earnings growth forecast published by Zacks of 6.5% instead of the Value Line forecast, the cost of equity for the group is 10.6%. Allowance for flotation costs brings the cost of equity

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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 allowance to the cost of common equity capital is discussed and applied in most corporate finance textbooks; it is unreasonable to ignore the need for such an adjustment.

Flotation costs are very similar to the closing costs on a home mortgage. In the case of issues of new equity, flotation costs represent the discounts that must be provided to place the new securities. Flotation costs have a direct and an indirect component. The direct component is the compensation to the security underwriter for his marketing/consulting services, for the risks involved in distributing the issue, and for any operating expenses associated with the issue (printing, legal, prospectus, etc.). The indirect component represents the downward pressure on the stock price as a result of the increased supply of stock from the new issue. The latter component is frequently referred to as "market pressure."

Investors must be compensated for flotation costs on an ongoing basis to the extent that such costs have not been expensed in the past, and therefore the adjustment must continue for the entire time that these initial funds are retained in the firm. Appendix B to my testimony discusses flotation costs in detail, and shows: (1) why it is necessary to apply an allowance of 5% to the dividend yield component of equity cost by dividing that yield by 0.95 (100% - 5%) to obtain the fair return on equity capital; (2) why the flotation adjustment is permanently required to avoid confiscation even if no further stock issues are contemplated; and (3) that flotation costs are only recovered if the rate of return is applied to total equity, including retained earnings, in all future years.

By analogy, in the case of a bond issue, flotation costs are not expensed but are amortized over the life of the bond, and the annual amortization charge is embedded in the cost of service. The flotation adjustment is also analogous to the process of depreciation, which allows the recovery of funds invested in utility plant. The recovery of bond flotation

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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

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recommendation is that investors be compensated for flotation costs on an on-going basis rather than through expensing, and that the flotation cost adjustment continues for the entire time that these initial funds are retained in the firm.

There are several sources of equity capital available to a firm including: common equity issues, conversions of convertible preferred stock, dividend reinvestment plan, employees' savings plan, warrants, and stock dividend programs. Each carries its own set of administrative costs and flotation cost components, including discounts, commissions, corporate expenses, offering spread, and market pressure. The flotation cost allowance is a composite factor that reflects the historical mix of sources of equity. The allowance factor is a build-up of historical flotation cost adjustments associated and traceable to each component of equity at its source. It is impractical and prohibitively costly to start from the inception of a company and determine the source of all present equity. A practical solution is to identify general categories and assign one factor to each category. My recommended flotation cost allowance is a weighted average cost factor designed to capture the average cost of various equity vintages and types of equity capital raised by the Company.

III. SUMMARY AND RECOMMENDATION ON COST OF EQUITY

Q. Please summarize your results and recommendation.

A. To arrive at my final recommendation, I performed four risk premium analyses. For the first two risk premium studies, I applied the CAPM and an empirical approximation of the CAPM using current market data. The other two risk premium analyses were performed on historical and allowed risk premium data from the natural gas distribution industry aggregate data, using both the current and forecast yields on long-term Treasury bonds. I

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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 mean[11]. 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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natural gas distribution?

A. Yes, I have. The cost of equity estimates derived from the various comparable groups reflect the risk of the average natural gas distribution utility. To the extent that these estimates are drawn from a group of less risky and larger companies, the expected equity return applicable to the riskier and smaller CNGC is downward-biased. CNGC's investment risks are discussed below. I conservatively estimate the bias to be on the order of 25 basis points. I have therefore increased my ROE estimate of 10.9% for the average risk natural gas distribution utility to 11.15% in order to account for CNGC's higher relative risks and smaller size.

Q. Please describe how you assessed CNGC'S current risk environment?

A. It is convenient to disaggregate a company's risk into two broad components: business risk and financial risk.

TOTAL RISK = BUSINESS RISK + FINANCIAL RISK

Business risk refers to the relative variability of operating profits induced by the external forces of demand for and supply of the firm's products (demand and supply risk), by the presence of fixed costs (operating leverage), by the extent of diversification or lack thereof of services, unique operating characteristics and by the character of regulation (regulatory risk):

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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Q. Please explain why the demand risks faced by the gas distribution industry have increased in recent years?

A. On the output end, competition prevails from alternative energy sources in the gas companies' important markets, especially in the industrial market. Given this increasingly competitive environment, the existing fuel alternatives, and a fragile rate structure, there is a potential incentive for these large volume customers to leave the gas distributor's network and seek alternative energy sources. When these large volume industrial customers represent an important proportion of total revenues, and/or the interruptible demand component from these industrial customers is large, the loss of any or all of these customers has serious financial consequences for gas distributors. Competition from fossil fuel remains high, and oil prices continue to be volatile.

Investors are uncertain as to the final impact of competitive forces, which have penetrated the industry, and as to the final regulatory reaction to these developments. Uncertainty regarding the impact of more competition in traditionally monopolistic markets increases long-term business risks of the regulated firm in these markets.

Investors and bond rating agencies are aware that the LDC industry is riskier and more vulnerable, especially for those LDCs with a high dependence on a high-volume industrial customer base. For the shorter-term, the LDC industry's vulnerability is exasperated by record high gas prices, declining usage per customer, and the volatility of fuel prices.

Q. Are the demand risks faced by CNGC similar to those of other gas distribution utilities?

A. No, I believe they are higher due to a number of factors. While it is true that unlike several LDCs in the industry, CNGC does not have overlapping service territories with other LDCs and faces limited competition in the industrial market, the Company faces stiff

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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

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Company's credit rating from positive to stable in response to increased volatility and excessive leverage.

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

A. In my judgment, CNGC's supply risks are comparable to those of other gas distribution utilities.

Q. What about Cascade's operating risks?

A. Cascade primarily serves the medium and smaller communities spread out over Washington ranging from Aberdeen on the coast, to Walla Walla in the Palouse, to Longview on the Columbia, to Bellingham and the Canadian border. This results in unique operating characteristics, which drive more volatile costs. The geographic spread results in greater cost changes as fuel prices increase. Weather and other factors effecting driving times have a greater impact on productivity than for LDCs serving an urban or suburban population. Cascade serves the more rural portion of Washington State, where employment is not as strong and much more volatile than the larger cities. This impacts operating costs through more difficult collections and unpaid bill write-offs during employment downturns. Other consumer behaviors can also change during downturns such as forest product workers using more wood to heat their homes when they are home waiting to be called back. Overall, Cascade's territory creates additional operating risk as compared to most utilities across the country.

Q. Please comment on the regulatory risk faces by CNGC at this time?

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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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A. In conclusion, in my judgment, CNGC's total investment risk is slightly higher than the industry at this time. I have therefore increased my recommended return by 25 basis points, that is, from 10.9% to 11.15% in order to recognize CNGC's higher relative risk. The 25 basis points adjustment is based on utility bond yield spreads differentials between A-rated and Baa-rated bonds.

Q. Dr. Morin, what is your final conclusion regarding CNGC'S cost of common equity capital?

A. Based on the results of all my analyses, the application of my professional judgment, and the risk circumstances of CNGC, it is my opinion that a just and reasonable return on the common equity capital of CNGC's natural gas distribution operations in the state of Washington at this time is 11.15%. As noted above, this recommendation is based upon anticipated adoption of the decoupling mechanism proposed by the Company in this filing. Rejection of this proposed mechanism would increase Cascade's risk profile and would therefore require an upward adjustment to this ROE recommendation.

Q. Dr. Morin, what capital structure assumption underlies your recommended return on CNGC'S equity capital?

A. My recommended return on common equity for CNGC is predicated on the adoption of the Company's proposed capital structure consisting of 50% common equity capital and 50% debt capital.

Q. Did you examine the reasonableness of the Company's test year capital structure?

A. Yes, I did. I have compared CNGC's proposed capital structure with investor-owned natural gas LDCs capital structures adopted by regulators. The October 2005 edition of

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

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approximately 6% 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.

If a capital structure consisting of substantially more (less) debt than the proposed capital structure is ascribed to the Company, the higher (lower) common equity cost rate related to a changed common equity ratio should be reflected in the approach. It is a rudimentary tenet of finance that the greater the amount of financial risk borne by common shareholders, the greater the return required by shareholders in order to be compensated for the added financial risk imparted by the greater use of senior debt financing. In other words, the greater the debt ratio, the greater is the return required by common equity investors. Both the cost of incremental debt and the cost of equity must be adjusted to reflect the additional risk associated with the more debt-heavy capital structure. Lower common equity ratios imply greater risk and higher capital cost, and conversely.

Q. If capital market conditions change significantly between the date of filing your prepared testimony and the date oral testimony is presented, would this cause you to revise your estimated cost of equity?

A. Yes. Interest rates and security prices do change over time, and risk premiums change also, although much more sluggishly. If substantial changes were to occur between the filing date and the time my oral testimony is presented, I will update my testimony accordingly.

Q. Does this conclude your testimony?

A. Yes

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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

REBUTTAL TESTIMONY
OF
DR. ROGER A. MORIN
ON BEHALF OF
CASCADE NATURAL GAS CORPORATION

Q. PLEASE STATE YOUR NAME, ADDRESS, AND OCCUPATION.

A. My name is Dr. Roger A. Morin. My business address is Georgia State University, Robinson College of Business, University Plaza, Atlanta, Georgia, 30303. I am Professor of Finance at the College of Business, Georgia State University and Professor of Finance for Regulated Industry at the Center for the Study of Regulated Industry at Georgia State University. I am also a principal in Utility Research International, an enterprise engaged in regulatory finance and economics consulting to business and government.

Q. ARE YOU THE SAME DR. MORIN WHO PREVIOUSLY FILED DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes, I am.

Q. PLEASE DESCRIBE THE PURPOSE OF YOUR REBUTTAL TESTIMONY.

A. I have been asked to rebut the cost of capital testimony submitted by David C. Parcell on behalf of Commission Staff in this proceeding.

Q. **DO YOU AGREE WITH MR. PARCELL'S RECOMMENDATIONS?**

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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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Mr Parcell's recommended capital structure contributes to a further understatement of Cascade's required ROR as a result of focusing on a single snapshot D/E ratio for Cascade and not acknowledging industry norms and investor expectations. He also fails to recognize that Cascade had publicly filed data for two subsequent quarters demonstrating that the December 31, 2005 snapshot was not reflective of either Cascade's current ratios nor its ability to achieve the industry norm of 50% debt and 50% equity within a few years. The requirements of Wall Street and individual investors determine the appropriate capital structure for operations and assets similar to Cascade's. Given that Cascade has already significantly improved its ratios from last December 31 and has demonstrated its ability to achieve a 50/50 capital structure, its rate calculations need to be on that basis. Cascade's approved ROR should be calculated using a 50% debt and 50% equity capital structure.Combining these indicators, Mr. Parcell's recommended ROR of 8.43% is almost 75 basis points lower than the minimum supportable by the benchmarks both of us used.

Q. PLEASE SUMMARIZE MR. PARCELL'S RATE OF RETURN RECOMMENDATION.

A. Mr. Parcell recommends that a return of 9.75% be employed on the common equity capital of Cascade Natural Gas Corporation (CNGC or the Company). In determining CNGC's cost of equity, Mr. Parcell applies a Discounted Cash Flow (DCF) analysis to three groups of utilities. For the growth component of his DCF analysis, he uses a blend of analysts' growth forecasts, historical growth rates, and the earnings retention method. Mr. Parcell's DCF estimates from the three groups, summarized on page 27 of his testimony, indicate estimates of CNGC's cost of 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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and for his sample companies. The average allowed return for natural gas utilities in the years 2003, 2004, 2005, and 2006 is 11.0%, 10.6%, 10.5%, and 10.6%, respectively. For the each of the three groups of utilities on which he relies, the currently authorized ROEs average 11.0%, 10.8%, and 10.72%, respectively. These authorized returns exceed by a significant margin Mr. Parcell's 9.75% recommended return for CNGC.

2. The DCF Model Understates the Cost of Equity. It is well known that application of the standard DCF model to utility stocks understates investors' expected return when the Market-to-Book (M/B) ratio exceeds unity. This is particularly relevant in the current capital market environment where utility stocks are trading at M/B ratios well above unity.

3. Understated Dividend Yield. Mr. Parcell's dividend yield component is understated because it is not consistent with the annual form of the DCF model. It is inappropriate to increase the dividend yield by adding one-half of the future growth rate (1 + ½g) to the spot dividend yield. The appropriate manner of computing the expected dividend yield when using the standard annual DCF model which Mr. Parcell uses is to add the *full* growth rate rather than *one-half* of the growth rate. This error understates the DCF results by about 15 basis points.

4. Flotation Costs. Mr. Parcell's dividend yield component is understated by 30 basis points because it does not allow for flotation costs and, as a result, a legitimate expense is left unrecovered.

5. DCF Retention Growth Method. One of Mr. Parcell's growth proxies, the retention growth method, contains a logical inconsistency because one is forced to assume the answer to implement the method.

6. DCF Historical Growth Rates. Historical growth rates are questionable proxies for expected growth in view of the substantial changes that have occurred in the energy utility 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.

11. CAPM and the Empirical CAPM (ECAPM). The plain vanilla version of the CAPM, which Mr. Parcell uses, understates the Company's cost of equity for low-beta securities.

12. Comparable Earnings Test. The ROE results from the Comparable Earnings tests exceed Mr. Parcell's recommended 9.75% ROE.

13. Capital Structure Adjustment. Mr. Parcell did not adjust his recommended ROE for the fact that the capital structure he attributes to CNGC is more highly leveraged than that of the comparable companies he uses. As a result, his ROE recommendation is understated by 40 - 70 basis points.

I also find that Mr. Parcell's criticisms of my testimony are unfounded.

I discuss each of these points in the following sections of my testimony.

1. ALLOWED RETURNS ON EQUITY

Q. IS MR. PARCELL'S ROE RECOMMENDATION COMPATIBLE WITH CURRENTLY ALLOWED RETURNS IN THE GAS UTILITY INDUSTRY?

A. No, it is not. Allowed returns, while certainly not a precise indication of a company's cost of equity capital, are nevertheless important determinants of investors' growth perceptions and investors' expected returns. They also serve to provide some perspective on the validity and reasonableness of Mr. Parcell's recommendation.

The average allowed return in the natural gas utility industry in the years 2003, 2004, 2005, and 2006 is 11.0%, 10.6%, 10,5%, and 10.6%, respectively, as reported by Regulatory Research

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%.

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TABLE 2

COMPANY	% ALLOWED ROE
American Electric Power	11.09%
Ameren Corp.	10.92%
CenterPoint Energy	10.22%
CH Energy Group	10.30%
Consolidated Edison	11.08%
Constellation Energy	11.00%
Duquesne Light Holdings	
Energy East Corp.	10.77%
Exelon	11.72%
FirstEnergy Corp.	9.75%
Northeast Utilities	10.03%
NSTAR	12.50%
PEPCO Holdings	10.26%
PPL Corp	10.70%
Public Service Enter. Group	9.88%
SCANA Corp.	10.71%
Sempra Energy	10.70%
TXU Corp.	11.25%
Vectren Corp.	11.03%
Wisconsin Energy	11.20%
AVERAGE	**10.80%**
LOW	**9.75 %**
HIGH	**12.50%**

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

For the natural gas utilities in Mr. Parcell's third sample group, the currently authorized ROEs, shown in Table 3 below, average 10.7% and range from 10.0% to 11.8%.

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

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Q. DO DCF RESULTS UNDERSTATE THE COST OF EQUITY?

A. Yes, they do, and the same is true for my own DCF results. Application of the DCF model produces estimates of common equity cost that are consistent with investors' expected return only when stock price and book value are reasonably similar, that is, when the M/B ratio is close to unity. As shown below, application of the standard DCF model to utility stocks understates investors' expected return when the M/B ratio of a given common stock exceeds unity. This is particularly relevant in the current capital market environment where utility stocks are trading at M/B ratios well above unity and have been for two decades. The converse is also true, that is, the DCF model overstates investors' required return when the stock's M/B ratio is less than unity. The reason for the distortion is that the DCF market return is applied to a book value rate base by the regulator, that is, a utility's earnings are limited to earnings on a book value rate base. Mr. Parcell acknowledges this shortcoming of the DCF model on page 28 lines 13-15.

Q. CAN YOU ILLUSTRATE THE EFFECT OF THE MARKET-TO-BOOK RATIO ON THE DCF MODEL BY MEANS OF A SIMPLE EXAMPLE?

A. Yes. The simple numerical illustration shown in the table below demonstrates the result of applying a market value cost rate to book value rate base under three different M/B scenarios. The three columns correspond to three M/B scenarios: the stock trades below, equal to, and above book value, respectively. The last situation (shaded portion of the table) is noteworthy and representative of the current capital market environment. The DCF cost rate of 10%, made up of a 5% dividend yield and a 5% growth rate, is applied to the book value rate base of $50 to produce $5.00 of earnings. Of the $5.00 of earnings, the full $5.00 is required for dividends to

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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 concerns with the DCF model in that the model understates the cost of equity. In Cause No. 39871 Final Order, the IURC states on page 24:

> *"....the DCF model, heavily relied upon by the Public, understates the cost of common equity. The Commission has recognized this fact before. In Indiana Mich. Power Co. (IURC 8/24/90), Cause No. 38728, 116 PUR4th 1, 17-18, we found:*
>
> > *The unadjusted DCF result is almost always well below what any informed financial analyst would regard as defensible, and therefore requires an upward adjustment based largely on the expert witness's judgment."*

Q. IS THE INDIANA COMMISSION UNIQUE IN THAT REGARD?

A. No, it is not. A vast majority of regulatory commissions do not rely ***solely*** on the DCF in setting the allowed rate of return on common equity. Instead, they utilize a variety of methods, as evidenced by the results posted in a survey conducted by the National Association of Regulatory Utility Commissioners (NARUC).

Q. ARE THERE ANY ADDITIONAL CONCERNS WITH THE DCF MODEL?

A. Yes, there are. A major concern with the DCF approach relates to the constant growth rate assumption and the difficulty of finding an adequate proxy for that growth rate. The standard DCF model assumes that a single growth rate of dividends is applicable in perpetuity. It is difficult to imagine that today's energy utility industry can be described as stable. Not only is the constant growth rate assumption somewhat unrealistic, but it is difficult to proxy. Analysts' growth forecasts are usually made for not more than 2 to 5 years or, if they are made for more than a few years, they are dominated by the near-term earnings and dividends picture. In short, the perpetual growth term of the DCF model does not square well with the shorter-term focus of institutional investors.

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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.

As seen from the table, the DCF results are widely scattered, ranging from a low of 3.6% for CNGC to a high of 21.1% for Energen. Some estimates are below or barely above the cost of debt. The significant variability in the results demonstrates the lack of reliability of the DCF approach. The same pattern emerges from Mr. Parcell's second and third comparable groups.

3. UNDERSTATED DIVIDEND YIELD

Q. DR. MORIN, DO YOU HAVE ANY COMMENT ON THE FUNCTIONAL FORM OF THE DCF MODEL USED BY MR. PARCELL?

A. Yes, I do. I disagree with Mr. Parcell's dividend yield calculation in his DCF analysis because he multiplied the spot dividend yield by one plus one half the expected growth rate (1 + 0.5g) rather than by one plus the expected growth rate (1 + g). This procedure understates the return expected by the investor.

The fundamental assumption of the standard annual DCF model is that dividends are received annually at the end of each year and that the first dividend is to be received one year from now. Instead, Mr. Parcell calculates the expected dividend yield by multiplying the spot dividend yield by only one plus one-half the growth rate (1 + ½g) instead of multiplying by one plus the growth rate (1 + g). Since the appropriate dividend to use in the standard DCF model is the prospective dividend one year from now rather than the dividend one-half of the year from now, Mr. Parcell's approach understates the proper dividend yield. This creates a downward bias in his dividend yield component, and underestimates the cost of equity by approximately 20 basis points. For example, for a spot dividend yield of 5% and a growth rate of 5%, the correct expected dividend yield is 5% times (1 + 0.05), which equals 5.3%, and not 5% times (1 + ½ x

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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.

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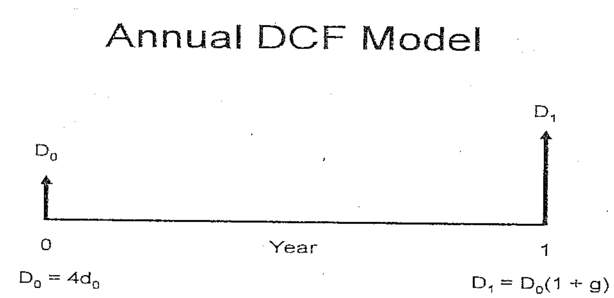
Q. DOES THE DCF MODEL VARIATION USED BY MR. PARCELL REFLECT THE QUARTERLY COMPOUNDING OF DIVIDENDS?

A. No, it does not. On page 26, lines 1-2, Mr. Parcell states that multiplying the spot dividend yield by (1 + ½g) instead of multiplying by (1 + g) is a "quarterly compounding variant" of the DCF model. This is simply incorrect. Multiplying the spot dividend yield by (1 + ½g) does not account for the quarterly nature of dividend payments.

Q. DR. MORIN, WHAT IS THE CORRECT FORM OF THE QUARTERLY DCF MODEL?

A. The annual DCF model assumes that dividends grow at a constant annual rate of g% per year, as depicted in the figure below.



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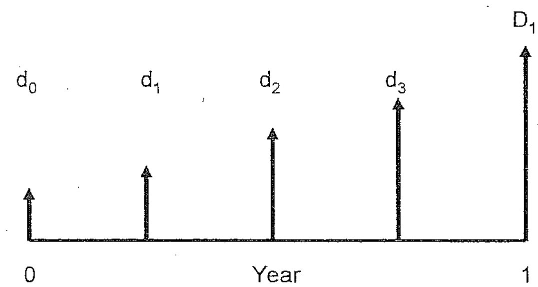
In the quarterly version of the DCF model, quarterly dividends are assumed to differ from the preceding quarterly dividend by the factor $(1 + g)^{0.25}$, where g is a percentage figure and 0.25 indicates that the growth has occurred for one quarter of the year, as shown in the figure below.

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:

Quarterly DCF Model
Constant Growth

$$K = \left[\frac{d_0(1+g)^{1/4}}{P_0} + (1+g)^{1/4}\right]^4 - 1$$

In short, multiplying the spot dividend yield by (1 + ½g) does not account for the quarterly nature of dividend payments. The correct DCF expression that allows for the constant growth of quarterly dividends is the equation above. Comparing the annual with the quarterly versions of the DCF model, the former understates the latter by approximately 20 basis points.

4. DCF DIVIDEND YIELD AND FLOTATION COSTS

Q. PLEASE DISCUSS MR. PARCELL'S TESTIMONY WITH REGARD TO FLOTATION COSTS.

A. Mr. Parcell does not include any allowance for flotation costs, and his DCF methodology therefore understates the expected return on equity by approximately 30 basis points. As a result, the Company is denied the opportunity to recover a reasonable and legitimate expense. Since Mr. Parcell does not discuss this issue, it is not clear the basis upon which he would deny recovery of these costs. I presume that Mr. Parcell supports the notion that flotation costs should be recognized as long as they are demonstrated. Casual inspection of any prospectus in a past public

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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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6. DCF HISTORICAL GROWTH RATES

Q. ARE THE HISTORICAL GROWTH RATES OF GAS AND ELECTRIC UTILITIES RELIABLE?

A. No, they are not. Mr. Parcell uses historical growth rates in dividends, earnings, and book value as proxies for expected growth, as shown on his Exhibit No. ___ (DCP-3), Schedule 7, Page 3. If historical growth rates are to be representative of long-term future growth rates, they must not be biased by non-recurring events. This bias is clearly present in the case of electric and gas utilities, where growing competition, diversification programs, acquisitions, restructurings and write-off activities exerted a dilutive effect on historical earnings and dividends. In such cases, it is obvious that analysts' growth forecasts provide a more realistic and representative growth proxy for what is likely to happen in the future than historical growth. In any event, historical growth rates are somewhat redundant given that analysts formulate their growth expectations based in part on historical patterns.

Mr. Parcell's historical growth rates thus should be given considerably less, if any, weight than the analysts' growth forecasts.

7. DCF DIVIDEND GROWTH RATES

Q. SHOULD DIVIDEND GROWTH RATES BE CONSIDERED IN APPLYING THE DCF MODEL TO GAS AND ELECTRIC UTILITIES?

A. No, not at this time. In arriving at his proxies for the DCF growth component, Mr. Parcell considers historical and projected dividend growth rates reported by Value Line and shown in the above table and on his Exhibit No. ___ (DCP-3), Schedule 7, Page 3.

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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 and dividends will not grow at the same rate in the future. This is evident in Mr. Parcell's own table on Exhibit No. ___ (DCP-3), Schedule 7, page 3 where the projected dividend growth rates are considerably less than the earnings growth rate. 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.

Q. WHAT DOES THE PUBLISHED ACADEMIC LITERATURE SAY ON THE SUBJECT OF GROWTH RATES IN THE DCF MODEL?

A. The best proxy for the growth component of the DCF model is analysts' long-term earnings growth forecasts. These forecasts are made by large reputable organizations, and the data are readily available to investors and are representative of the consensus view of investors. Published studies in the academic literature demonstrate that growth forecasts made by security analysts are reasonable indicators of investor expectations, and that investors rely on analysts' forecasts. Cragg and Malkiel ["Expectations and the Structure of Share Prices," Chicago: University of Chicago Press, 1982] present detailed empirical evidence that the average analysts' expectation is more similar to expectations being reflected in the marketplace than are historical growth rates, and represents the best possible source of DCF growth rates. Cragg and Malkiel show that historical growth rates do not contain any information that is not already impounded in analysts' growth forecasts. A study by Professors Vander Weide and Carleton ["Investor Growth Expectations: Analysts vs. History," *The Journal of Portfolio Management*, Spring 1988] also confirms the superiority of analysts' forecasts over historical growth extrapolations. Another study by Timme & Eiseman ["On the Use of Consensus Forecasts of Growth in the Constant

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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.

The net impact on Mr. Parcell's DCF estimate is an understatement of approximately 50 basis points, assuming equal weight is accorded to each of the three groups.

Q. PLEASE COMMENT ON MR. PARCELL'S CRITICISM OF YOUR DCF ANALYSIS.

A. On page 45, lines 4-6 of his testimony, Mr. Parcell deplores the fact that I have used only one indicator of growth in the DCF analysis (namely, analyst growth projections) and that I have ignored other proxies such as historical and projected growth rates in dividends and book value. I have previously discussed the impropriety of relying on "near-term" dividend growth because it is widely expected that energy utilities will continue to lower their dividend payout ratio over the next several years in response to increased business risk, and that earnings and dividends are not expected to grow at the same rate in the future. Moreover, what is driving dividend growth is clearly earnings growth. There can be no dividends without earnings. I have already discussed the merits of using consensus analysts' earnings growth forecasts in the DCF model and the supportive empirical literature.

9. CAPM MARKET RISK PREMIUM MIS-SPECIFICATION

Q. BEFORE DISCUSSING PROBLEMS WITH MR. PARCELL'S CAPM ANALYSIS, ARE THERE AREAS IN WHICH YOU AGREE WITH MR. PARCELL'S CAPM ANALYSIS?

A. Yes, I agree with the magnitude of the risk-free rate chosen by Mr. Parcell. I also agree with Mr. Parcell's Beat estimates in his CAPM analysis.

Q. DO YOU AGREE WITH MR. PARCELL'S FIRST ESTIMATE OF THE MARKET

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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?

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A. My third concern is that Mr. Parcell has departed significantly from his past practices in deriving the MRP. In numerous past testimonies, Mr. Parcell has relied on the realized market return on stocks, as he did in this testimony. But rather than subtracting the current risk-free rate as he usually does, in this proceeding he subtracted the historical average risk-free rate.

Q. WHAT MRP ESTIMATE DID MR. PARCELL RECOMMEND IN A RECENT PROCEEDING REGARDING DELMARVA POWER & LIGHT BEFORE THE DELAWARE PUBLIC SERVICE COMMISSION?

A. In a recent proceeding regarding Delmarva Power & Light before the Delaware Public Service Commission (Docket No. 05-304), Mr. Parcell recommended a MRP of 9.0% obtained by subtracting the current level of the risk-free rate of 5.0% from the realized return on stocks of 14.0%.

Q. DOES MR. PARCELL OFFER ANY EXPLANATION FOR DEVIATING FROM HIS GENERAL PRACTICE OF RELYING ON THE AVERAGE REALIZED STOCK RETURN LESS THE CURRENT RISK-FREE RATE IN ORDER TO DERIVE HIS MRP?

A. No, he does not.

Q. WHAT WOULD MR. PARCELL'S CAPM ESTIMATES BE HAD HE FOLLOWED HIS PAST PRACTICE AND RELIED UPON THE SAME PROCEDURE AS IN THE PAST?

A. Had Mr. Parcell adhered to his usual procedure, using the current risk-free rate of 5.29% throughout, his CAPM estimates for each of the three comparable groups of companies would

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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

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component of bond returns because the intent, even using historical data, is to identify an expected MRP. Ibbotson Associates recommend the use of the latter as a more reliable estimate of the historical MRP because the income component of total bond return (*i.e.*, the coupon rate) is a far better estimate of expected return than the total return (*i.e.*, the coupon rate plus capital gains) because realized capital gains/losses are largely unanticipated by investors. This particular CAPM estimate of the cost of common equity is therefore downward-biased by close to 50 basis points as a result of this omission alone (the difference between 7.1% and 6.5% times Mr. Parcell's beta estimate of 0.86 for gas companies).

Q. IS IT APPROPRIATE TO USE GEOMETRIC AVERAGES IN MEASURING EXPECTED RETURN?

A. No, it is not. As I stated above, arithmetic means rather than geometric means are appropriate for forecasting and estimating the cost of capital.[1] Indeed, the Ibbotson Associates publication from which Mr. Parcell's MRP estimate is derived contains a detailed and rigorous discussion of the impropriety of using geometric averages in estimating the cost of capital. There is no theoretical or empirical justification for the use of geometric mean rates of returns. Please see pages 133-143 of my book, *New Regulatory Finance* (2006), for a discussion regarding the theoretical underpinnings, empirical validation, and the consensus of academics on why geometric means are inappropriate for forecasting and estimating the cost of capital.

Q. WHAT IS THE EFFECT OF MR. PARCELL'S USE OF THE GEOMETRIC MEAN

[1] *See* Roger A. Morin, *Regulatory Finance: Utilities' Cost of Capital*, chapter 11 (1994); Roger A. Morin, *The New Regulatory Finance: Utilities' Cost of Capital*, chapter 4 (2006); Richard A Brealey, *et al.*, *Principles of Corporate Finance* (8th ed. 2005).

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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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testimony. I should also point out that in the case of utility stocks, the CAPM understates the rate of return on equity by approximately 50 basis points.

There have been countless empirical tests of the CAPM in the finance literature to determine the extent to which security returns and betas are related in the manner predicted by the CAPM as I discuss in my direct testimony.

In short, I do not share Mr. Parcell's view that the Empirical CAPM is inappropriate for utilities.

Q. MR. PARCELL DISAGREES WITH THE RISK PREMIUM METHODOLOGY BECAUSE HE CLAIMS THAT ECONOMIC CONDITIONS TODAY ARE DIFFERENT AND THAT RISK PREMIUMS ARE UNSTABLE FROM YEAR TO YEAR. HOW DO YOU RESPOND?

A. On page 38 of his testimony, Mr. Parcell criticizes the risk premium method on two grounds: 1) the method assumes that past is prologue, and 2) the method assumes that the risk premium is constant over time while in fact the risk premium results are volatile and dominated by the influence of capital gains in many years.

The first criticism is unwarranted. I employed returns realized over long time periods rather than returns realized over more recent time periods. Realized returns can be substantially different from prospective returns anticipated by investors, especially when measured over short time periods. A risk premium study should consider the longest possible period for which data are available. Short-run periods during which investors earned a lower risk premium than they expected are offset by short-run periods during which investors earned a higher risk premium 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.

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His results are summarized in table form on page 35 of his testimony. I agree with Mr. Parcell that these results indicate that returns of 11.5% - 12.6% have been adequate to provide market-to-book ratios above 100% and that projected ROEs in the range of 11.2% - 14.0% do so as well. I note, however, that most of the ROEs indicated by the Comparable Earnings results are well in excess of Mr. Parcell's recommended ROE of 9.75% and that he should have recommended a range consistent with those results.

13. CAPITAL STRUCTURE ADJUSTMENT

Q. DID MR. PARCELL ADJUST HIS RECOMMENDED ROE FOR THE FACT THAT CNGC IS MORE LEVERAGED THAN ITS PEERS?

A. No, he did not. Mr. Parcell should have adjusted his recommended ROE of 9.75% upward to reflect the higher relative risk associated with CNGC's capital structure.

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

A. On his Exhibit No. ___ (DCP-3), Schedule 6, page 1, Mr. Parcell reports the following actual and projected common equity ratios (excluding short-term debt) for Cascade and his comparable group in 2005:

	Actual 2005	Projected 2009-2011
Cascade	40.6%	48.0%
Gas Group Avg.	50.9%	53.6%
Difference	10.3%	5.6%

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.

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The smallest reported difference in common equity ratio between CNGCC and Mr. Parcell's comparable gas group is 5%. The above-described research suggests that Mr. Parcell should adjust his recommended ROE upward by at least 40 basis points (7.6 x 5) to 70 basis points (13.8 x 5) to reflect Cascade's more leveraged capital structure. Therefore, at a minimum, Mr. Parcell should have adjusted his recommended ROE upward by approximately 40-70 basis points to reflect CNGC's more leveraged capital structure. If Mr. Parcell adjusted his recommended ROE by the midpoint of this range (55 basis points), the ROE for CNGC would be 9.75% + 0.55% = 10.30%.

Q. WHAT DO YOU CONCLUDE FROM MR. PARCELL'S RATE OF RETURN RECOMMENDATION?

A. I believe that Mr. Parcell's recommended ROE is understated by at least 125 basis points. Recognition of flotation cost (30 basis points), the proper functional form of the DCF model (20 basis points), a greater emphasis on analysts' growth forecasts in the DCF analysis (50 basis points), the appropriate historical market risk premium in the CAPM analysis, and consistency with his Comparable Earnings results would suggest returns very close to 11.0% for CNGC. I consider my critique conservative, for it does not reflect the consistent tendency of the DCF to understate the cost of equity, nor does it reflect the understatement of the cost of equity which results from the plain vanilla form of CAPM analysis used by Mr. Parcell.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

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[2] *See* Roger A. Morin, *Regulatory Finance: Utilities' Cost of Capital*, 409-33 (1994) for a summary of the comprehensive and rigorous empirical studies of the relationship between cost of capital and leverage for public utilities.

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1 A. Yes, it does.

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