IN THE MATTER OF THE PETITION OF PIVOTAL UTILITY HOLDINGS INC. D/B/A ELIZABETHTOWN GAS FOR APPROVAL OF INCREASED BASE TARIFF RATES AND CHARGES FOR GAS SERVICE AND OTHER TARIFF REVISIONS

BPU DOCKET NO. GR09_____

DIRECT TESTIMONY

OF

ROGER A. MORIN, PhD

On Behalf Of
Pivotal Utility Holdings, Inc.
d/b/a Elizabethtown Gas

Schedule P-7

March 3, 2009

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OF
ROGER A. MORIN, PhD

I. INTRODUCTION AND PURPOSE

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 Emeritus 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, Inc., where I continue to conduct frequent national executive-level education seminars throughout the United States and Canada. In the last thirty 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. and Exnet (now SNL Energy) 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 Utilities Fortnightly. I published a widely-used treatise on regulatory finance, Utilities' Cost of Capital, Public Utilities Reports, Inc., Arlington, Va. 1984. In late 1994, the same publisher released Regulatory Finance, a voluminous treatise on the application of finance to regulated utilities. A revised and expanded edition of this book entitled The New Regulatory Finance was published in August 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. Schedule No. ___ RAM-1 describes my professional credentials in more detail.

Q. HAVE YOU PREVIOUSLY TESTIFIED ON COST OF CAPITAL BEFORE UTILITY REGULATORY BOARDS?

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

Alabama	Florida	Missouri	Ontario
Alaska	Georgia	Montana	Oregon
Alberta	Hawaii	Nevada	Pennsylvania
Arizona	Illinois	New Brunswick	Quebec
Arkansas	Indiana	New Hampshire	South Carolina
British Columbia	Iowa	New Jersey	South Dakota
California	Kentucky	New Mexico	Tennessee
City of New Orleans	Louisiana	New York	Texas
Colorado	Maine	Newfoundland	Utah
CRTC	Manitoba	North Carolina	Vermont
Delaware	Maryland	North Dakota	Virginia
District of Columbia	Michigan	Nova Scotia	Washington
FCC	Minnesota	Ohio	West Virginia
FERC	Mississippi	Oklahoma	

Details of my participation in regulatory proceedings are provided in Schedule 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 utility operations of Pivotal Utility Holdings, Inc. d/b/a Elizabethtown Gas ("EGC" or the "Company") in the State of New Jersey with particular emphasis on the fair return on EGC'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 customer, (2) allow 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 schedules were prepared by me or under my direct supervision and control. The source documents for my testimony are Company records, public documents, commercial data sources, and my personal knowledge and experience.

Q. PLEASE BRIEFLY IDENTIFY THE SCHEDULES AND APPENDICES ACCOMPANYING YOUR TESTIMONY.

A. I have attached to my testimony Schedule RAM-1 through Schedule RAM-8 and Appendices A and B. These Schedules and

Appendices listed below relate directly to points in my testimony, and are described in further detail in connection with the discussion of those points in my testimony.

SCHEDULE RAM-1	Resume of Roger A. Morin
SCHEDULE RAM-2	Natural Gas Distribution Utilities/Beta Estimates and Combination Gas & Electric Beta Estimates
SCHEDULE RAM-3	S&P Utility Index Common Stocks Over Long Term Treasury Bonds and Over A-Rated Utility Bonds – Annual Long-Term Risk Premium Analysis
SCHEDULE RAM-4	Natural Gas Utilities DCF Analysis: Analysts' Growth Forecasts
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SCHEDULE RAM-7	Combination Gas & Electric Utilities – DCF Analysis: Analysts' Growth Projections
SCHEDULE RAM-8	Natural Gas Common Equity Ratios
Appendix A	CAPM and Empirical CAPM
Appendix B	Flotation Cost Allowance

Q. PLEASE SUMMARIZE YOUR FINDINGS AND RECOMMENDATION.

A. I have examined EGC's risks, and concluded that EGC's risk environment is comparable to the industry average. It is my opinion that a just and reasonable rate of return on common equity ("ROE") invested in EGC's natural gas delivery operations is 11.25%, assuming that the Revenue Decoupling Mechanism ("RDM") and the Utility Infrastructure Enhancement ("UIE") Cost Recovery Rider requested by the Company are approved, and that the Company's proposed capital structure is adopted. My recommendation is derived from studies that

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 also performed a historical risk premium analysis on the utility industry. Lastly, I performed DCF analyses on two surrogates for the Company's natural gas delivery business. They are: a group of investment-grade natural gas distribution utilities and a group of investment-grade combination gas and electric utilities.

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. My recommended ROE also assumes the approval of the Company's proposed rate year capital structure consisting of 54% common equity capital (exclusive of short term debt) and approval of the RDM and UIE mechanisms requested by the Company.

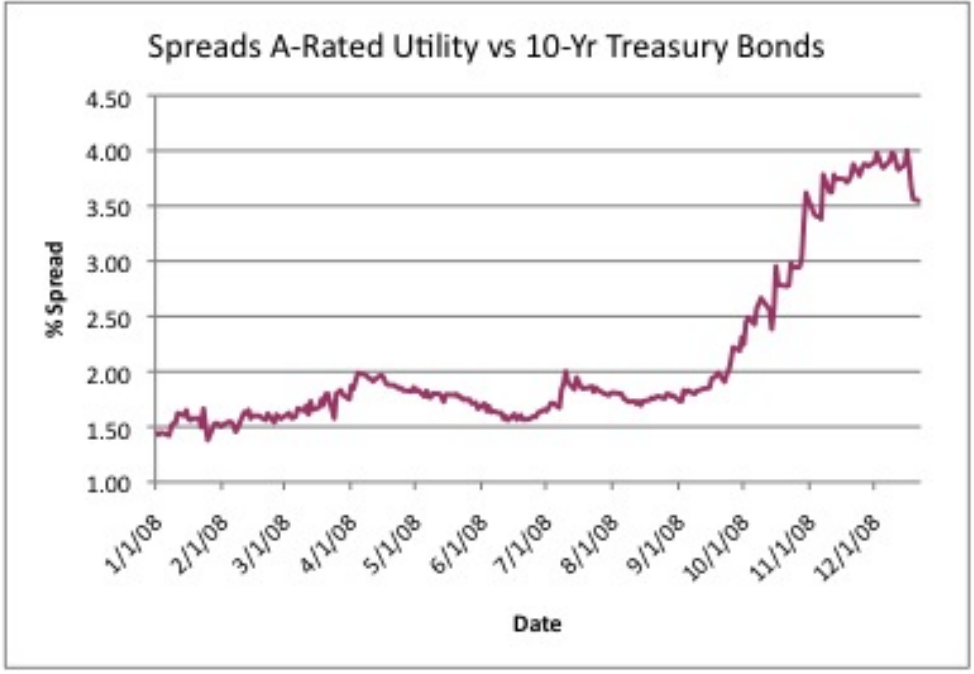
Q. PLEASE DESCRIBE FOR US THE CURRENT STATE OF THE CAPITAL MARKETS.

A. Capital markets are currently in a state of turmoil. In the past six months, the financial markets, both in the U.S. and abroad, have become extremely volatile, unpredictable, and have displayed unusual behavior. To illustrate, daily percentage changes in the Dow Jones Industrial Index have

experienced unprecedented swings. Moreover, the Chicago Board of Options Exchange (CBOE) Volatility Index (VIX) which measures the volatility of the S&P 500 Index has increased to record highs. The turmoil in the capital markets is also reflected by highly unusual events, for example, the government bailout of $700 billion, the economic stimulus package of some $850 billion, the bankruptcy of Lehman Brothers and Bear Stearns, and the acquisition of Merrill Lynch by Bank of America and the conversion of other major investment banks such as Morgan Stanley and Goldman Sachs to bank holdings companies, leaving no major investment banks.

Borrowers are now forced to compete in a market with dramatically less capital to invest. As a result, the cost of money for corporations has increased, and new debt issues are generally limited to the highest rated issuers. New stock issues are almost non-existent. The commercial paper market functions only due to decisive U.S. Treasury intervention. The debt markets have witnessed record high yield spreads (i.e., the incremental yield over Treasury rates needed to issue debt) and a more severe differentiation between the spreads charged to companies with different credit ratings. These market conditions have led to an increased value for higher credit ratings and for conservative capital structures.

To illustrate, the chart below depicts the rising and record high spreads in recent months for utilities rated single A. Whereas throughout most of early 2008, utilities were borrowing money at some 150-200 basis points over Treasuries, the current secondary market spread (not including a significant new issuance premium) is 350 basis points, an increase of 150-200 basis points, virtually the same upward increase as has been observed in DCF estimates. The Company has informed me that a new debt issue would warrant a spread of nearly 500 basis points over Treasury yields. In a nutshell, there is a fundamental structural upward shift in risk aversion as capital markets are re-pricing risk, and capital has become, and will continue to be, more expensive for all market participants.



Q. CAN YOU BRIEFLY DESCRIBE THE RECENT BEHAVIOR OF INTEREST RATES?

A. Yes. Appreciable changes have occurred in capital market conditions in the last few months. The current level of U.S. Treasury 30-year long-term bond yield is approximately 3.5%, versus 4.0% - 4.5% over the past several years. The decrease in Treasury interest rates produces very low CAPM and Risk Premium estimates that are based on this risk-free rate and do not capture the recent escalation in capital costs for the private sector.

Q. DR. MORIN, HAS THE MARKET RISK PREMIUM IN THE CAPM ANALYSIS CHANGED RECNETLY?

A. Not significantly, the current financial crisis notwithstanding. It should be noted that the market risk premium used in the CAPM analysis is measured over a long term and likely does not capture the re-pricing of risk that may be occurring in the financial marketplace.

Q. DR. MORIN, PLEASE DESCRIBE WHAT HAS HAPPENED TO DCF-BASED COST OF EQUITY ESTIMATES RESULTS SINCE THE FINANCIAL CRISIS COMMENCED.

A. Set forth below is a graph that replicates the movements of the Dow Jones Utility Average over the past six months. The devastating downward impact of the financial crisis on utility stock prices is clear from the graph, with the utility index falling some 35% over the past six months. Lower stock prices imply higher dividend yields which in turn imply higher DCF estimates.

Q. WOULD IT BE IN THE BEST INTERESTS OF CUSTOMERS FOR THE BOARD TO ADOPT YOUR RECOMMENDED 11.25% ROE FOR EGC?

A. Yes. My analysis shows that a ROE of 11.25% is required to fairly compensate investors, and to strengthen the Company's

credit position. Adopting a lower ROE would increase costs for EGC's ratepayers.

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 ROE 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 ROE 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 that 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 price per share of common stock decreases, the net proceeds from issuing common stock are reduced. Second, because the utility's market to book ratio decreases with the decrease in the share price of common stock, the potential risk 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 even greater uncertainty about future dividends and earnings from the firm. As a 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 EGC has access to capital markets for its capital needs, a fair and reasonable authorized ROE of 11.25% is required.

It is imperative the Company have access to capital funds at reasonable terms and conditions. The Company must secure outside funds from capital markets to finance new infrastructure, irrespective of capital market conditions, interest rate conditions and the quality consciousness of market participants. Because the Company will need to rely heavily on capital markets, rate relief requirements and

supportive regulatory treatment, including approval of my recommended ROE, are essential requirements.

Q. DR. MORIN, 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 Cost of Equity 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. The third section summarizes the results from the various approaches used in determining a fair return.

II. REGULATORY FRAMEWORK AND RATE OF RETURN

Q. WHAT ECONOMIC AND FINANCIAL CONCEPTS HAVE GUIDED YOUR ASSESSMENT OF EGC'S COST OF COMMON EQUITY?

A. Two fundamental economic principles underlie the appraisal of the Company's cost of 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 Board 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. HOW DOES EGC'S COST OF CAPITAL RELATE TO THAT OF ITS PARENT COMPANY, AGL RESOURCES INC. ("AGL")?

A. I am treating EGC's natural gas delivery operations as a separate stand-alone entity, distinct from its holding company, AGL, because it is the cost of capital for EGC's natural gas utility business that we are attempting to measure and not the cost of capital for AGL's consolidated activities. Financial theory establishes that the true cost of capital depends on the use to which the capital is put, in this case EGC's natural gas delivery operations in the State of New Jersey. The specific source of funding an investment and the cost of funds to the investor are irrelevant considerations.

For example, if an individual investor borrows money at the bank at an after-tax cost of 8% and invests the funds in a speculative oil extraction venture, the required return on the investment is not the 8% cost but, rather, the return foregone in speculative projects of similar risk, say 20%. Similarly, the required return on EGC is the return foregone in comparable risk energy delivery operations, and is unrelated to the parent's cost of capital. The cost of capital is governed by the risk to which the capital is exposed and not by the source of funds. The identity of the shareholders has no bearing on the cost of equity, be it either individual investors or a parent holding company.

Just as individual investors require different returns from different assets in managing their personal affairs, corporations behave in the same manner. A parent company normally invests money in many operating companies of varying sizes and varying risks. These operating subsidiaries pay different rates for the use of investor capital, such as for long-term debt capital, because investors recognize the differences in capital structure, risk, and prospects between subsidiaries. Thus, the cost of investing funds in an operating utility entity such as EGC is the return foregone on investments of similar risk and is unrelated to the investor's identity.

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 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 EGC's cost of common equity capital.

Q. DR. MORIN, WHAT MUST BE CONSIDERED IN ESTIMATING A FAIR ROE?

A. The legal requirement is that the allowed ROE 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 that investors anticipate when they purchase equity shares of comparable risk in the financial marketplace. This return 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. WHAT FUNDAMENTAL PRINCIPLES UNDERLIE THE DETERMINATION OF A FAIR AND REASONABLE ROE?

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 & Improvement Co. v. Public Service Commission of West Virginia, 262 U.S. 679 (1923).

2. Federal Power Commission v. Hope Natural Gas Company, 320 U.S. 591 (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 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 & Water Division, 411 U.S. 458 (1973), in Permian Basin Rate Cases, 390 U.S. 747 (1968), and most recently in Duquesne Light Co. vs. 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 the Board's decision should be to allow EGC 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 utility. It is the composite weighted cost of the various classes of capital (*i.e.*, 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. 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 in a particular jurisdiction.

While utilities like EGC 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 factors of production, whether they be labor, materials, machines, or capital. 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 item 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 market return on common and/or preferred 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 also are exposing their funds to risk and forgoing returns from investing their money in alternative comparable-risk investments. The compensation that they require is the price of capital. 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 price differences in much the same way that differences in the characteristics of commodities are reflected in different prices.

The important point is that the prices of debt capital and equity capital are set by supply and demand, and both are influenced by the relationship between the risk and return expected for the respective 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 and equity capital. The latter consists of common equity capital. The cost of debt funds and preferred stock funds can be ascertained easily from an examination of the contractual terms for the interest payments and preferred dividends. 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 cost of debt and preferred stock, based on the utility's

capital structure, in order to arrive at the overall cost of capital.

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. Investors set return requirements according to their perception of the risks inherent in the investment, recognizing the opportunity cost of forgone investments, and the returns available from other investments of comparable risk.

III. COST OF EQUITY ESTIMATES

Q. DR. MORIN, HOW DID YOU ESTIMATE THE FAIR ROE FOR EGC?

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

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 difficulties and vagaries in individual companies' market data. Examples of such vagaries include dividend suspension, insufficient or unrepresentative historical data due to 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 common equity.

As I have stated, there are three broad generic methodologies available to measure the cost of equity: DCF, Risk Premium, and CAPM. All three of these methodologies are accepted and used by the financial community and firmly supported in the financial literature. The weight accorded to any one methodology may very well vary depending on unusual circumstances in capital market conditions.

When measuring the cost of common equity, which essentially deals with 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 all of 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. There is no guarantee that a single DCF result is necessarily the ideal predictor of the stock price and of the cost of equity reflected in that price, just as there is no guarantee that a single CAPM or Risk Premium result constitutes the perfect explanation of a stock's price or the cost of equity.

Q. ARE THERE ANY PRACTICAL DIFFICULTIES IN APPLYING COST OF CAPITAL METHODS IN THE CURRENT ENVIRONMENT OF CHANGES IN CAPITAL MARKETS AND IN THE UTILITY INDUSTRY?

A. Yes, there are, especially under current capital market conditions. All the traditional cost of equity estimation methods are difficult to implement when you are dealing with the unprecedented conditions of instability and volatility in the capital markets and the fast-changing circumstances of the utility industry. This is not only because stock prices are extremely volatile at this time, but also utility company historical data have become less meaningful for an industry experiencing unprecedented volatility. Past earnings and dividend trends may simply not be indicative of the future. For example, historical growth rates of earnings and dividends have been depressed by eroding margins due to a variety of factors including structural transformation, restructuring, and the transition to a more competitive environment. As a result, this historical data may not be representative of the future long-term earning power of these companies. Moreover, historical growth rates may not be representative of future trends for several utilities involved in mergers and acquisitions, as these companies going forward are not the same companies for which historical data are available.

Q. DR. MORIN, PLEASE PROVIDE AN OVERVIEW OF YOUR RISK PREMIUM ANALYSES.

A. In order to quantify the risk premium for EGC, I have performed three risk premium studies on proxies for the Company. The first two studies deal with aggregate stock market risk premium evidence using two versions of the CAPM method and the third study deals directly with the utility industry.

A. CAPM ESTIMATES

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. Simply put, 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 their:

EXPECTED RETURN = RISK-FREE RATE + RISK PREMIUM

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

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

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 determined by $\beta(R_M - R_F)$. 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 3.5% based on the current level of long-term Treasury interest rates. For beta, I used 0.82 and for the market risk premium ("MRP"), I used 7.1%. These inputs to the CAPM are explained below.

Q. HOW DID YOU DERIVE THE RISK FREE RATE OF 3.5%?

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 in the CAPM, I have relied on the current level of 30-year Treasury bond yields. As I discuss more fully below, I do not believe that is appropriate to use a government bond yield to perform the risk premium analysis under current market conditions. Thus, I use a utility bond yield to perform the risk premium analyses.

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. Common stock is a very long-term investment because the cash flows to investors in the form of dividends last indefinitely. Thus, 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. Thus 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.

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 (e.g., 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 therefore will 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 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, ARE SHORT-TERM INTEREST RATES APPROPRIATE PROXIES FOR THE RISK-FREE RATE IN IMPLEMENTING THE CAPM?

A. No, they are not. 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, as was seen recently in an attempt to combat the weak economy, 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.

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 ARE U.S. TREASURY 30-YEAR BONDS CURRENTLY YIELDING?

A. The yield on U.S. Treasury 30-year bonds prevailing in February 2009, as reported in Value Line and the Federal Reserve Bank, was 3.5%. Accordingly, I shall use 3.5% as my estimate of the risk-free rate component of the CAPM. As I discuss later, while interest rates on Treasury securities have decreased in the past year in response to the Federal Reserve Bank's efforts to jumpstart the economy, the cost of borrowing for companies generally and utilities in particular has increased substantially.

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 the 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 that are reflected in investors' return requirements.

Technically, the beta of a stock is a measure of the covariance of the return on the stock with the return on the market as a whole. Accordingly, it measures dispersion in a stock's return that cannot be reduced through diversification. In abstract theory for a large diversified portfolio, dispersion in the rate of return on the entire portfolio is the weighted sum of the beta coefficients of its constituent stocks.

EGC is not publicly traded and, therefore, proxies must be used for EGC. As a first proxy for the Company's beta, I have examined the betas of a sample of widely-traded, investment-grade, and dividend-paying natural gas utilities covered by Value Line. This group is examined in more detail later in my testimony, in connection with the DCF estimates of the cost of common equity. As displayed on page 1 of Schedule RAM-2, the average beta for the natural gas group is currently 0.82. The average beta remains at 0.82 if we remove the two companies with less than 50% of their revenues from natural gas utility operations

In view of the scarcity of publicly-traded pure-play natural gas distributors, I also examined the betas of a sample of widely-traded investment-grade combination gas and

electric utilities with at least 50% of their revenues from regulated utility operations as a second proxy for the Company's natural gas business. This group is examined in more detail later in my testimony, in connection with the DCF estimates of the cost of common equity. As shown on page 2 of Schedule RAM-2, the average beta of the distribution group is also 0.82, confirming the risk comparability of the two groups. Based on these results, I shall use 0.82 as a beta estimate for EGC's natural gas delivery operations. It is important to note that betas are estimated on five-year historical periods and, therefore, do not capture the dramatic increase in capital costs that have occurred since October 2008.

Q. WHY DID YOU USE A MARKET RISK PREMIUM (MRP) ESTIMATE OF 7.1% IN YOUR CAPM ANALYSIS?

A. The MRP estimate of 7.1% was based on the results of both forward-looking and historical studies of long-term risk premiums, mainly the latter. First, the Morningstar (formerly Ibbotson Associates) study, Stocks, Bonds, Bills, and Inflation, 2008 Yearbook, compiling historical returns from 1926 to 2007, shows that a broad market sample of common stocks outperformed long-term U. S. Treasury bonds by 6.5%. The historical MRP over the income component of long-term Treasury bonds rather than over the total return is 7.1%. Ibbotson Associates recommend the use of the latter as a more reliable estimate of the historical MRP, and I

concur with this viewpoint. The historical MRP should be computed using the income component of bond returns because the intent, even using historical data, is to identify an expected market risk premium. The more accurate way to estimate the MRP from historic data is to use the income return, not total returns on government bonds, as explained at page 77 of Ibbotson Associates, Stocks, Bonds, Bills, and Inflation: Valuation Edition, 2008 Yearbook. 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. The long-horizon (1926-2007) MRP (based on income returns, as required) is specifically calculated to be 7.1% rather than 6.5%.

Q. WHAT MATURITY BOND IS USED IN THE IBBOTSON HISTORICAL RISK PREMIUM DATA?

A. Because 30-year bonds were not always traded or even available throughout the entire 1926-2007 period covered in the Ibbotson Associate Study of historical returns, the study relied on bond return data based on 20-year Treasury bonds. To the extent that the normal yield curve is virtually flat above maturities of 20 years over most of the period covered in the Ibbotson study, the difference in yield is not material. In fact, the difference in yield between 30-year and 20-year bonds is actually negative. The

average difference in yield over the 1977-2006 period is 13 basis points, that is, the yield on 20-year bonds is slightly higher than the yield on 30-year bonds.

Q. WHY DID YOU USE LONG TIME PERIODS IN ARRIVING AT YOUR HISTORICAL MRP?

A. Realized returns can be substantially different from prospective returns anticipated by investors when measured over short time periods. Only over long time periods will investor return expectations and realizations converge. 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. Thus, it is important to employ returns realized over long time periods rather than returns realized over more recent time periods when estimating the MRP with historical returns. A risk premium study should consider the longest possible period for which data are available.

I have therefore disregarded realized risk premiums measured over short time periods, as 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. Because I found no evidence that the MRP 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. DID YOU CHECK YOUR HISTORICAL MRP ESTIMATE WITH ANY OTHER SOURCE?

A. Yes, I did. As a check on my MRP estimate, I examined a 2003 comprehensive article published in Financial Management, Harris, Marston, Mishra, and O'Brien (HMMO) that provides estimates of the expected returns for S&P 500 companies over the period 1983-1998. 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 MRP for that year. The average prospective MRP estimate from that study for the overall period 1983 to

1998 is 7.2%, which is very close to the historical MRP estimate of 7.1%.

Q. WHAT IS YOUR RISK PREMIUM ESTIMATE OF EGC'S COST OF EQUITY USING THE CAPM APPROACH?

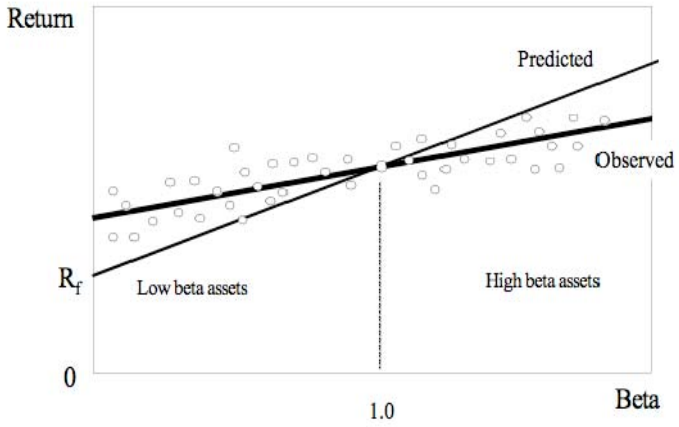
A. Inserting those input values in the CAPM equation, namely a risk-free rate of 3.5%, a beta of 0.82, and a MRP of 7.1%, the CAPM estimate of the cost of common equity for EGC is: 3.5% + 0.82 x 7.1% = 9.3%. This estimate becomes 9.6% with flotation costs. The need for a flotation cost allowance is discussed later in my testimony.

Q. CAN YOU DESCRIBE YOUR APPLICATION OF THE EMPIRICAL VERSION OF THE CAPM?

A. There have been countless empirical tests of the CAPM in the finance literature in order 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 1994 book, Regulatory Finance, and Chapter 6 of my latest book, The New Regulatory Finance, both published by Public Utilities Reports 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. In other words, 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:

$$K = R_F + \bullet + \bullet \times (MRP - \bullet)$$

where the symbol alpha, •, represents the "constant" of the risk-return line, 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 produces results that are indistinguishable from the following more tractable ECAPM expression:

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

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. In other words, 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 the use of raw betas also incorporates some of the desired effect of using the ECAPM. Thus, it is reasonable to apply a conservative alpha adjustment.

Q. IS THE USE OF THE ECAPM CONSISTENT WITH THE USE OF ADJUSTED BETAS?

A. Yes, it is. Some have argued that the use of the ECAPM is inconsistent with the use of adjusted betas, such as those supplied by Value Line. This is because the reason for using the ECAPM is to allow for the tendency of betas to

regress toward the mean value of 1.00 over time, and, since Value Line betas are already adjusted for such trend, an ECAPM analysis results in double-counting. This argument is erroneous. Fundamentally, the ECAPM is not an adjustment, increase or decrease, in beta. This is obvious from the fact that the observed return on high beta securities is actually lower than that produced by the CAPM estimate. The ECAPM is a formal recognition that the observed risk-return tradeoff is flatter than predicted by the CAPM based on myriad empirical evidence. The ECAPM and the use of adjusted betas comprise two separate features of asset pricing. Even if a company's beta is estimated accurately, the CAPM still understates the return for low-beta stocks. Even if the ECAPM is used, the return for low-beta securities is understated if the betas are understated. Referring back to the previous graph, the ECAPM is a return (vertical axis) adjustment and not a beta (horizontal axis) adjustment. Both adjustments are necessary. Moreover, the use of adjusted betas compensates for interest rate sensitivity of utility stocks not captured by unadjusted betas, as explained in Appendix A.

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:

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

Inserting 3.5% for the risk-free rate R_F, a MRP of 7.1% for $(R_M - R_F)$ and a beta of 0.82 in the above equation, the ROE is 9.6% without flotation costs and 9.9% with flotation costs.

Q. DR. MORIN, PLEASE SUMMARIZE YOUR CAPM ESTIMATES.

A. The table below summarizes the common equity estimates obtained from my CAPM studies. I note that these CAPM estimates are not significantly above the current cost of new debt capital and likely understate the cost of equity capital under current unsettled capital market conditions.

CAPM	% ROE
CAPM	9.6%
Empirical CAPM	9.9%

Q. HOW MUCH WEIGHT SHOULD BE ACCORDED TO THE CAPM RESULTS UNDER CURRENT MARKET CIRCUMSTANCES?

A. The CAPM estimates of are barely above the corporate cost of new corporate long-term debt (7% - 8%) and are therefore suspect. I believe that less weight should be accorded to the CAPM results under present economic circumstances for two reasons. First, because the betas employed in the CAPM analysis are estimated over five-year historical periods, the impact of the ongoing financial crisis is not yet fully captured in the five-year historical betas. Second,

government interest rates have decreased substantially following the Federal Reserve's expansionary policies designed to jumpstart the stalled economy, thus lowering the CAPM results. At the same time, the cost of corporate debt and the cost of equity for utilities have increased significantly, as evidenced by the record high corporate yield spreads discussed earlier in my testimony, and by the DCF results for utilities that have increased significantly by some 150-200 basis points in response to lower stock prices (higher dividend yields) following the financial crisis. The DCF analysis is presented below.

This anomaly between actual market costs and the estimation techniques used in this proceeding puts the Company at significant financing risk. As such, much less weight should be accorded to the CAPM method at present. As I mentioned above, there is a fundamental structural upward shift in risk aversion as capital markets are re-pricing risk, and capital has become, and will continue to be, more expensive for all non-government market participants over the next 18-24 months at least.

B. HISTORICAL RISK PREMIUM

Q. CAN YOU DESCRIBE YOUR HISTORICAL RISK PREMIUM ANALYSIS OF THE NATURAL GAS UTILITY INDUSTRY?

A. Yes. As a proxy for the risk premium applicable to the natural gas utility business, I estimated the historical risk premium for the utility industry with an annual time

series analysis applied to the utility industry as a whole over the 1930-2007 period, using *Standard and Poor's Utility Index* as an industry proxy. The analysis is depicted on Schedule RAM-3. The risk premium was estimated by computing the actual realized return on equity capital for the S&P Utility Index for each year, using the actual year-to-year changes in the index, and then subtracting the long-term government bond return for that year.

As shown on Schedule RAM-3, the average risk premium over the period was 6.1% over historical long-term Treasury bond returns and 6.3% over long-term Treasury bond yields. Given that the risk-free rate is 3.5%, and using the historical estimate of 6.1%, the implied cost of equity for the average risk utility from this particular method is 3.5% + 6.1% = 9.3%. As discussed below, I do not believe that this analysis provides a reliable estimate of the current cost of equity for a natural gas distribution utility.

In past testimonies, I have relied on the Moody's Electric Utility Index to perform my historical risk premium study. Following the acquisition of Moody's by Mergent in 2002, publication of the electric utility index was discontinued. Therefore, I chose to rely on the S&P Utility Index instead of the Moody's Index in order to ensure continuity and timeliness of the risk premium data. I note that the results using the S&P Index are not materially different from those using the discontinued Moody's index.

Q. WHAT IS CURRENTLY HAPPENING IN THE DEBT AND EQUITY MARKETS?

A. The debt markets have witnessed record high yield spreads (the incremental yield over Treasury rates needed to issued debt) and a more severe differentiation between the spreads charged to companies with different levels of credit. As discussed earlier, these spreads have reached record high spreads in recent months. Whereas utilities were borrowing money at some 150-200 basis points over Treasuries, the current spread is 350-400 basis points, an increase of 150-200 basis points, virtually the same upward increase in the DCF estimates. In terms of market accessibility, the equity new issuance markets are all but closed and the debt markets are largely limited to high-quality borrowers. In a nutshell, there is a fundamental structural upward shift in risk aversion as capital markets are re-pricing risk, and capital has become, and will continue to be, more expensive for all market participants.

Q. DR. MORIN, GIVEN THE CURRENT STATE OF THE CAPITAL MARKETS AT THIS TIME, IS YOUR HISTORICAL RISK PREMIUM ANALYSIS USING GOVERNMENT BOND YIELDS APPROPRIATE?

A. No, I do not believe it is. Trends in utility cost of capital are directly reflected in their cost of debt and are not directly captured by a risk premium estimate tied to government bond yields. This is especially germane in the current financial crisis where corporate spreads have reached record levels. Because a utility's cost of capital is

determined by its business and financial risks, it is reasonable to surmise that its cost of equity will track its cost of debt more closely than it will track the government bond yield. To guard against this possibility, I have replicated my historical premium analysis using the utility bond yield instead of the government bond yield.

Q. CAN YOU DESCRIBE YOUR HISTORICAL RISK PREMIUM ANALYSIS OF THE NATURAL GAS UTILITY INDUSTRY USING UTILITY BOND YIELDS?

A. Yes. The same risk premium analysis using Treasury bond yields is replicated on Schedule RAM-3 page 2, only this time using A-rated utility bond yields. The risk premium was estimated by computing the actual realized return on equity capital for the S&P Utility Index for each year, using the actual year-to-year changes in the index, and then subtracting the long-term A-rated utility bond return for that year.

As shown on page 2 of Schedule RAM-3, the average risk premium over the period was 5.0% over both utility bond returns and utility bond yields. Given that the current yield on utility bonds rated single A is 6.0%, and using the historical risk premium estimate of 5.0%, the implied cost of equity from this particular method is 6.0% + 5.0% = 11.0% without flotation costs and 11.3% with flotation costs.

Q. DR. MORIN, ARE RISK PREMIUM STUDIES WIDELY USED?

A. Yes, they are. Risk Premium analyses are widely used by analysts, investors, economists, and expert witnesses. Most

college-level corporate finance and/or investment management texts, including Investments by Bodie, Kane, and Marcus, McGraw-Hill Irwin, 2002, which is a recommended textbook for CFA (Chartered Financial Analyst) certification and examination, contain detailed conceptual and empirical discussion of the risk premium approach. The latter is typically recommended as one of the three leading methods of estimating the cost of capital. Professor Brigham's best-selling corporate finance textbook, for example, Corporate Finance: A Focused Approach, 3rd ed., South-Western, 2008, recommends the use of risk premium studies, among others. Techniques of risk premium analysis are widespread in investment community reports. Professional certified financial analysts are certainly well versed in the use of this method.

Q. ARE THE ASSUMPTIONS THAT UNDERLIE THE HISTORICAL RISK PREMIUM METHODOLOGY REALISTIC?

A. Yes, I believe they are. I also believe that they are no more restrictive than the assumptions that underlie the DCF model or the CAPM. While it is true that the method looks backward in time and assumes that the risk premium is constant over time, these assumptions are not necessarily restrictive. By employing returns realized over long time periods rather than returns realized over more recent time periods, investor return expectations and realizations converge. Realized returns can be substantially different

from prospective returns anticipated by investors, especially when measured over short time periods. By ensuring that the risk premium study encompasses 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 invest any money.

C. 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 standard 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, stock price, book value.

The standard 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, and Chapter 8 of my latest textbook, The New Regulatory Finance. The standard 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 standard 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 EGC'S COST OF EQUITY WITH THE DCF MODEL?

A. I applied the DCF model to two proxy groups of companies for EGC's natural gas delivery operations: a group consisting of investment-grade dividend-paying natural gas utilities and a group consisting of investment-grade dividend-paying combination gas and electric utilities. In the case of both groups, the companies had to derive at least 50% of their revenues from regulated energy operations.

In order to apply the DCF model, two components are required: the expected dividend yield (D_1/P_o) 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 the current stock price provides 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, the current price reflects 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 evidence implies that observed current prices represent the fundamental value of a security, and that a cost of capital estimate should be based on current prices.

In implementing the DCF model, I have used the current dividend yields reported in the latest edition of Value Line's VLIA software. Basing dividend yields on average results from a large group of companies reduces the concern that idiosyncrasies of individual company stock prices will result in an unrepresentative 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 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 a proxy.

Q. WHY DID YOU REJECT THE USE OF HISTORICAL GROWTH RATES IN APPLYING THE DCF MODEL TO UTILITIES?

A. I have rejected historical growth rates as proxies for expected growth in the DCF calculation because historical growth patterns are already incorporated in analysts' growth forecasts that should be used in the DCF model, and are therefore somewhat redundant.

Q. DID YOU CONSIDER ANY OTHER METHOD OF ESTIMATING EXPECTED GROWTH IN THE DCF MODEL?

A. Yes, I did. I considered using the so-called "sustainable growth" method, also referred to as the "retention growth" method. According to this method, future growth is estimated by multiplying the fraction of earnings expected

to be retained by the company, 'b', by the expected return on book equity, 'ROE', as follows:

$$g = b \times ROE$$

where: g = expected growth rate in earnings/dividends

b = expected retention ratio

ROE = expected return on book equity

However, I do not generally subscribe to the growth results produced by this particular method for several reasons. First, the sustainable method of predicting growth is only accurate under the assumptions that the ROE is constant over time and that no new common stock is issued by the company, or if so, it is sold at book value. Second, and more importantly, the sustainable growth method contains a logic trap: the method requires an estimate of ROE to be implemented. But if the ROE input required by the model differs from the recommended return on equity, a fundamental contradiction in logic follows. Third, the empirical finance literature demonstrates that the sustainable growth method of determining growth is not as significantly correlated to measures of value, such as stock prices and price/earnings ratios, as analysts' growth forecasts. I therefore placed no reliance on this method.

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 Investment, 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, Value Line's principal investment rating assigned to individual stocks, Timeliness Rank, is based primarily on earnings, which account for 65% of the ranking.

Q. WHAT DCF RESULTS DID YOU OBTAIN FOR THE NATURAL GAS UTILITIES GROUP USING ANALYSTS' GROWTH FORECASTS?

A. As a proxy for EGC's natural gas business, I have examined the expected returns of investment-grade dividend-paying natural gas distribution utilities contained in Value Line's natural gas distribution universe with a market value in excess of $500 million and with at least 50% of their revenues from regulated natural gas operations. The group is shown in Schedule RAM-4.

As shown on Column 2 of Schedule RAM-4, the average long-term growth forecast obtained from the Zacks corporate

earnings database is 7.18% for the natural gas distribution group. Combining this growth rate with the average expected dividend yield of 4.29% shown in Column 3 produces an estimate of equity costs of 11.47% for the gas distribution group shown in Column 4. Recognition of flotation costs brings the cost of equity estimate to 11.70%, shown in Column 5.

Repeating the exact same procedure, only this time using Value Line's long-term earnings growth forecast of 5.11% instead of the Zacks consensus growth forecast, the cost of equity for gas distribution group is 9.3%, unadjusted for flotation costs. Adding an allowance for flotation costs brings the cost of equity estimate to 9.55%. This analysis is displayed on Schedule RAM-5.

Q. PLEASE DESCRIBE YOUR SECOND PROXY GROUP FOR THE COMPANY'S NATURAL GAS DISTRIBUTION BUSINESS?

A. It is reasonable to postulate that the Company's natural gas utility operations possess an investment risk profile similar to the combination gas and electric utility business. Combination gas and electric utilities are reasonable proxies for natural gas distribution utilities, for they possess economic characteristics very similar to those of natural gas utilities. They are both involved in the transmission-distribution of energy services products at regulated rates in a cyclical and weather-sensitive market. They both employ a capital-intensive network with similar

physical characteristics. They are both subject to rate of return regulation and have enjoyed virtually identical allowed rates of return, attesting to their risk comparability.

For my second proxy group of companies, I have therefore examined a group of investment-grade, dividend-paying utilities designated as "combination gas and electric utilities" by AUS Utility Reports and covered in Value Line. Companies with less than 50% of their revenues from regulated operations were eliminated. The same group utilized earlier in connection with beta estimates was retained for the DCF analysis.

Q. WHAT DCF RESULTS DID YOU OBTAIN FOR THE COMBINATION GAS & ELECTRIC UTILITIES GROUP USING VALUE LINE GROWTH PROJECTIONS?

A. As shown on Column 2 of Schedule RAM-6, the average long-term growth forecast obtained from Value Line is 7.56% for this group. No growth projection was available for UniSource. Combining this growth rate with the average expected dividend yield of 5.20% shown in Column 3 produces an estimate of equity costs of 12.76% 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 13.04%, shown in Column 5.

Q. WHAT DCF RESULTS DID YOU OBTAIN FOR THE COMBINATION GAS & ELECTRIC UTILITIES GROUP USING THE ANALYST'S CONSENSUS GROWTH FORECAST?

A. Using the median consensus analysts' earnings growth forecast published by Zacks of 7.78% instead of the Value Line forecast, the cost of equity for the group is 12.93%. Allowance for flotation costs brings the cost of equity estimate to 13.20%. This analysis is shown on Schedule RAM-7. No analysts' growth forecasts were available from Zacks for Empire District, MGE Energy, and UniSource.

Q. PLEASE SUMMARIZE YOUR DCF ESTIMATES.

A. The table below summarizes my DCF estimates for EGC. It is clear from this table that the DCF estimate of 9.8% derived from the natural gas group using Value Line growth forecast is an outlier.

DCF STUDY	ROE
DCF Natural Gas Utilities Value Line Growth	9.55%
DCF Natural Gas Utilities Zacks Growth	11.70%
DCF Combination Gas & Elec Utilities Value Line Growth	13.04%
DCF Combination Gas & Elec Utilities Zacks Growth	13.20%

Q. DR. MORIN, PLEASE NOW TURN TO 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 incurred; they are not expensed at the time of issue and, therefore, must be recovered via a rate of return adjustment. This treatment is done routinely for bond and preferred stock issues by most regulatory Boards, 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 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 approximately 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 recommendation is that investors be compensated for flotation costs on an on-going basis rather than through expensing, and that the flotation cost adjustment continue 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 item 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.

Q. IS A FLOTATION COST ADJUSTMENT REQUIRED FOR AN OPERATING SUBSIDIARY LIKE EGC THAT DOES NOT TRADE PUBLICLY?

A. Yes, it is. It is sometimes alleged that a flotation cost allowance is inappropriate if the utility is a subsidiary whose equity capital is obtained from its parent, in this case, AGL. This objection is unfounded since the parent-subsidiary relationship does not eliminate the costs of a new issue, but merely transfers them to the parent. It would be unfair and discriminatory to subject parent shareholders to dilution while individual shareholders are absolved from such dilution. Fair treatment must consider that, if the utility-subsidiary had gone to the capital markets directly, flotation costs would have been incurred.

IV. SUMMARY OF COST OF EQUITY RECOMMENDATION

Q. PLEASE SUMMARIZE YOUR RESULTS AND RECOMMENDATION.

A. To arrive at my final recommendation, I performed three 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 third risk premium analysis was performed on historical risk premium data from utility industry aggregate data. I also performed DCF analyses on two surrogates for the Company's natural gas delivery business. They are: a group of investment-grade natural gas distribution utilities and a group of investment-grade

combination gas and electric utilities. The results from all the various tests are summarized in the table below.

METHODOLOGY

ROE

CAPM	9.60%
Empirical CAPM	9.90%
Historical Risk Premium Electric	11.30 %
DCF Natural Gas Utilities Analysts Growth	11.70 %
DCF Natural Gas Utilities Value Line Growth	9.55%
DCF Combination Gas & Elec Utilities Value Line Growth	13.04 %
DCF Combination Gas & Elec Utilities Analysts Growth	13.20 %

The results range from a low of 9.55% to a high of 13.20% with a midpoint of 11.38%. The average result from all the tests is 11.18% and the truncated average is 11.12%, and the median is 11.30%. Based on these results, I believe that 11.25% is a reasonable, albeit conservative, estimate of the Company's cost of common equity. By virtue of the averaging process, it should be noted that for reasons discussed earlier, the CAPM results are accorded less weight than the DCF results.

Q. DR. MORIN, WHAT IS YOUR FINAL CONCLUSION REGARDING EGC'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 EGC, it is my opinion that a just and reasonable return on the common equity capital of EGC's

natural gas utility operations in the state of New Jersey is 11.25%. Currently, capital markets are in a state of turmoil. It is important to note that my recommended return assumes that more stable circumstances will return to capital markets. However, the current market circumstances are anything but normal as I discussed earlier, and I deem my 11.25% ROE recommendation as barebones and extremely conservative.

Q. DR. MORIN, WHAT CAPITAL STRUCTURE ASSUMPTION UNDERLIES YOUR RECOMMENDED RETURN ON EGC'S COMMON EQUITY CAPITAL?

A. My recommended ROE for EGC is predicated on the adoption of a test year capital structure consisting of approximately 54% common equity capital when measured without reference to short-term debt.

Q. DID YOU EXAMINE THE REASONABLENESS OF THE COMPANY'S RATE YEAR CAPITAL STRUCTURE?

A. Yes, I did. I have compared EGC's rate year capital structure with: 1) the capital structures adopted by regulators for gas utilities, and 2) the actual capital structures of natural gas utilities.

The January 2009 edition of SNL Energy's "*Regulatory Focus: Major Rate Case Decisions*" reports an average percentage of common equity in the adopted capital structure of 50.5% for gas utilities for 2008. I have also examined the actual capital structures of my comparable group of natural gas utilities as reported by Value Line. The

average common equity ratio for the group is 54% as shown on Schedule RAM-8. I conclude that the Company's common equity ratio of 54% (exclusive of short term debt) is reasonable for ratemaking purposes.

If the Board were to impute a capital structure consisting of substantially more (less) debt than the rate year capital structure, the higher (lower) common equity cost rate related to a changed common equity ratio should be reflected in the approach. If the Board ascribes a capital structure different from the test year capital structure, which imputes a higher debt amount for example, the repercussions on equity costs must be recognized. It is a rudimentary tenet of basic 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 debt financing. In other words, the greater the debt ratio, the greater is the return required by 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.

Several researchers have studied the relationship between the cost of capital, capital-structure changes, and

the value of the firm's securities.[1] The results of these studies indicate that when the debt ratio increases from 40% to 50%, required equity returns increase between 34 to 237 basis points. The empirical studies indicate an average increase of 76 basis points, or 7.6 basis points per one percentage point increase in the debt ratio. The theoretical studies indicate 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, and more recent studies indicate that the upper end of that range is more indicative of the repercussions on required equity returns.

To illustrate, if the Board were to impute a common equity ratio of 45% for example compared to the average equity ratio for the industry is 50%, a difference of 5%, the above-described research indicates that the ROE should be adjusted upward by approximately 38 basis points (7.6 x 5) to 69 basis points (13.8 x 5) to reflect the more leveraged capital structure, with a midpoint slightly in excess of 50 basis points.

Q. DID YOU ADJUST YOUR FINAL RECOMMENDATION IN ORDER TO ACCOUNT FOR THE COMPANY'S RDM AND UIE MECHANISMS?

[1] *See* Roger A. Morin, *The New Regulatory Finance* (2006) Chapter 16 section 16-4 for a summary of the comprehensive and rigorous empirical studies of the relationship between cost of capital and leverage for public utilities.

A. No, I did not. Any risk-mitigating impact such mechanisms could have on the Company's risk profile is already reflected in the capital market data of the comparable gas companies. Because most, if not all, of the gas companies in my comparable group possess some form of revenue decoupling and/or pipe replacement rider mechanism, it is unnecessary to account separately for the presence of such a mechanism on the Company's ROE. In the absence of such risk-mitigating mechanisms, my recommended ROE would increase from 11.25% to 11.5%

Q. FINALLY, DR. MORIN, IF CAPITAL MARKET CONDITIONS CHANGE SIGNIFICANTLY BETWEEN THE DATE OF FILING YOUR PREPARED TESTIMONY AND THE DATE YOUR 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. This is especially true in the current capital market environment of turbulence, volatility, and unpredictability. 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 DIRECT TESTIMONY?

A. Yes, it does.

RESUME OF ROGER A. MORIN

(Spring 2009)

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(902) 823-0000 summer office

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RANK: Emeritus Professor of Finance

HONORS: Professor of Finance for Regulated Industry
Director Center for the Study of Regulated Industry,
Robinson College of Business, Georgia State University.

EDUCATIONAL HISTORY

- Bachelor of Electrical Engineering, McGill University, Montreal, Canada, 1967.

- Master of Business Administration, McGill University, Montreal, Canada, 1969.

- PhD in Finance & Econometrics, Wharton School of Finance, University of Pennsylvania, 1976.

EMPLOYMENT HISTORY

- Lecturer, Wharton School of Finance, Univ. of Pennsylvania, 1972-3

- Assistant Professor, University of Montreal School of Business, 1973-1976.

- Associate Professor, University of Montreal School of Business, 1976-1979.

- Professor of Finance, Georgia State University, 1979-2008

- Professor of Finance for Regulated Industry and Director, Center for the Study of Regulated Industry, Robinson College of Business, Georgia State University, 1985-2008

- Visiting Professor of Finance, Amos Tuck School of Business, Dartmouth College, Hanover, N.H., 1986

- Emeritus Professor of Finance, Georgia State University, 2007-9

OTHER BUSINESS ASSOCIATIONS

- Communications Engineer, Bell Canada, 1962-1967.

- Member of the Board of Directors, Financial Research Institute of Canada, 1974-1980.

- Co-founder and Director Canadian Finance Research Foundation, 1977.

- Vice-President of Research, Garmaise-Thomson & Associates, Investment Management Consultants, 1980-1981.

- Executive Visions Inc., Board of Directors, Member

- Board of External Advisors, College of Business, Georgia State University, Member 1987-1991

PROFESSIONAL CLIENTS

AGL Resources
AT & T Communications
Alagasco - Energen
Alaska Anchorage Municipal Light & Power
Alberta Power Ltd.
Allete
Ameren
American Water Works Company
Ameritech
Arkansas Western Gas
Baltimore Gas & Electric – Constellation Energy
Bangor Hydro-Electric
B.C. Telephone
B C GAS
Bell Canada
Bellcore
Bell South Corp.
Bruncor (New Brunswick Telephone)
Burlington-Northern
C & S Bank

Cajun Electric
Canadian Radio-Television & Telecomm. Commission
Canadian Utilities
Canadian Western Natural Gas
Cascade Natural Gas
Centel
Centra Gas
Central Illinois Light & Power Co
Central Telephone
Central & South West Corp.
Chattanoogee Gas Company
Cincinnatti Gas & Electric
Cinergy Corp.
Citizens Utilities
City Gas of Florida
CN-CP Telecommunications
Commonwealth Telephone Co.
Columbia Gas System
Consolidated Natural Gas
Constellation Energy
Delmarva Power & Light Co
Deerpath Group
Detroit Edison Company
DTE Energy
Edison International
Edmonton Power Company
Elizabethtown Gas Co.
Emera
Energen
Engraph Corporation
Entergy Corp.
Entergy Arkansas Inc.
Entergy Gulf States, Inc.
Entergy Louisiana, Inc.
Entergy Mississippi Power
Entergy New Orleans, Inc.
First Energy
Florida Water Association
Fortis
Garmaise-Thomson & Assoc., Investment Consultants
Gaz Metropolitain
General Public Utilities
Georgia Broadcasting Corp.
Georgia Power Company
GTE California - Verizon
GTE Northwest Inc. - Verizon

GTE Service Corp. - Verizon
GTE Southwest Incorporated - Verizon
Gulf Power Company
Havasu Water Inc.
Hawaiian Electric Company
Hawaiian Elec & Light Co
Heater Utilities – Aqua - America
Hope Gas Inc.
Hydro-Quebec
ICG Utilities
Illinois Commerce Commission
Island Telephone
Jersey Central Power & Light
Kansas Power & Light
KeySpan Energy
Manitoba Hydro
Maritime Telephone
Maui Electric Co.
Metropolitan Edison Co.
Minister of Natural Resources Province of Quebec
Minnesota Power & Light
Mississippi Power Company
Missouri Gas Energy
Mountain Bell
National Grid
Nevada Power Company
New Brunswick Power
Newfoundland Power Inc. - Fortis Inc.
New Market Hydro
New Tel Enterprises Ltd.
New York Telephone Co.
Niagara Mohawk Power Corp
Norfolk-Southern
Northeast Utilities
Northern Telephone Ltd.
Northwestern Bell
Northwestern Utilities Ltd.
Nova Scotia Power
Nova Scotia Utility and Review Board
NUI Corp.
NYNEX
Oklahoma G & E
Ontario Telephone Service Commission
Orange & Rockland
PNM Resources
Pacific Northwest Bell

People's Gas System Inc.
People's Natural Gas
Pennsylvania Electric Co.
Pepco Holdings
Potomac Electric Power Co.
Price Waterhouse
PSI Energy
Public Service Electric & Gas
Public Service of New Hampshire
Public Service of New Mexico
Puget Sound Electric Co.
Quebec Telephone
Regie de l'Energie du Quebec
Rochester Telephone
San Diego Gas & Electric
SaskPower
Sierra Pacific Power Company
Sierra Pacific Resources
Southern Bell
Southern States Utilities
Southern Union Gas
South Central Bell
Sun City Water Company
TECO Energy
The Southern Company
Touche Ross and Company
TransEnergie
Trans-Quebec & Maritimes Pipeline
TXU Corp
US WEST Communications
Union Heat Light & Power
Utah Power & Light
Vermont Gas Systems Inc.

MANAGEMENT DEVELOPMENT AND PROFESSIONAL EXECUTIVE EDUCATION

- Canadian Institute of Marketing, Corporate Finance, 1971-73

- Hydro-Quebec, "Capital Budgeting Under Uncertainty," 1974-75

- Institute of Certified Public Accountants, Mergers & Acquisitions, 1975-78

- Investment Dealers Association of Canada, 1977-78

- Financial Research Foundation, bi-annual seminar, 1975-79

- Advanced Management Research (AMR), faculty member, 1977-80

- Financial Analysts Federation, Educational chapter: "Financial Futures Contracts" seminar

- Exnet Inc. a.k.a. The Management Exchange Inc., faculty member 1981-2008.
  National Seminars:

  Risk and Return on Capital Projects
  Cost of Capital for Regulated Utilities
  Capital Allocation for Utilities
  Alternative Regulatory Frameworks
  Utility Directors' Workshop
  Shareholder Value Creation for Utilities
  Fundamentals of Utility Finance in a Restructured Environment
  Contemporary Issues in Utility Finance

- SNL Center for Financial Education. faculty member 2008-2009.
  National Seminars:

  Essentials of Utility Finance

- Georgia State University College of Business, Management
  Development Program, faculty member, 1981-1994.

EXPERT TESTIMONY & UTILITY CONSULTING AREAS OF EXPERTISE

Corporate Finance
Rate of Return
Capital Structure
Generic Cost of Capital
Costing Methodology
Depreciation
Flow-Through vs Normalization
Revenue Requirements Methodology
Utility Capital Expenditures Analysis
Risk Analysis
Capital Allocation
Divisional Cost of Capital, Unbundling
Incentive Regulation & Alternative Regulatory Plans
Shareholder Value Creation
Value-Based Management

REGULATORY BODIES

Alabama Public Service Commission
Alaska Public Utility Commission
Alberta Public Service Board
Arizona Corporation Commission
Arkansas Public Service Commission
British Columbia Board of Public Utilities
California Public Service Commission
Canadian Radio-Television & Telecommunications Comm.
Colorado Public Utilities Board
Delaware Public Utility Commission
District of Columbia Public Service Commission
Federal Communications Commission
Federal Energy Regulatory Commission
Florida Public Service Commission
Georgia Public Service Commission
Georgia Senate Committee on Regulated Industries
Hawaii Public Service Commission
Illinois Commerce Commission
Indiana Utility Regulatory Commission
Iowa Board of Public Utilities
Louisiana Public Service Commission
Maine Public Service Commission
Manitoba Board of Public Utilities
Michigan Public Service Commission
Minnesota Public Utilities Commission
Mississippi Public Service Commission
Missouri Public Service Commission
Montana Public Service Commission
National Energy Board of Canada
Nevada Public Service Commission
New Brunswick Board of Public Commissioners
New Hampshire Public Utility Commission
New Jersey Board of Public Utilities
New Mexico Public Regulatory Commission
New Orleans City Council
New York Public Service Commission
Newfoundland Board of Commissioners of Public Utilities
North Carolina Utilities Commission
Ohio Public Utilities Commission
Oklahoma State Board of Equalization
Ontario Telephone Service Commission
Ontario Energy Board
Pennsylvania Public Service Commission
Quebec Natural Gas Board

Quebec Regie de l'Energie
Quebec Telephone Service Commission
South Carolina Public Service Commission
Tennessee Regulatory Authority
Texas Public Utility Commission
Utah Public Service Commission
Virginia Public Service Commission
Washington Utilities & Transportation Commission
West Virginia Public Service Commission

SERVICE AS EXPERT WITNESS

Southern Bell, So. Carolina PSC, Docket #81-201C
Southern Bell, So. Carolina PSC, Docket #82-294C
Southern Bell, North Carolina PSC, Docket #P-55-816
Metropolitan Edison, Pennsylvania PUC, Docket #R-822249
Pennsylvania Electric, Pennsylvania PUC, Docket #R-822250
Georgia Power, Georgia PSC, Docket # 3270-U, 1981
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Northern Telephone, Ontario PSC
GTE-Quebec Telephone, Quebec PSC, Docket 84-052B
Newtel., Nfld. Brd of Public Commission PU 11-87
CN-CP Telecommunications, CRTC
Quebec Northern Telephone, Quebec PSC
Edmonton Power Company, Alberta Public Service Board
Kansas Power & Light, F.E.R.C., Docket # ER 83-418
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Bell South, FCC generic cost of capital Docket #84-800
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Burlington-Northern - Oklahoma State Board of Taxes
Georgia Power, Georgia PSC, Docket # 3549-U
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Citizens Utilities, Ariz. Corp. Comm., D # U2334-86020
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New Brunswick Telephone, N.B. PUC, 1988
Trans-Quebec Maritime, Nat'l Energy Brd. of Cda, '88-92

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Orange & Rockland, New York PSC, Case 89-E-175
Central Illinois Light Company, ICC, Case 90-0127
Peoples Natural Gas, Pennsylvania PSC, Case
Gulf Power, Florida PSC, Case # 891345-EI
ICG Utilities, Manitoba BPU, Case 1989
New Tel Enterprises, CRTC, Docket #90-15
Peoples Gas Systems, Florida PSC
Jersey Central Pwr & Light, N.J. PUB, Case ER 89110912J
Alabama Gas Co., Alabama PSC, Case 890001
Trans-Quebec Maritime Pipeline, Cdn. Nat'l Energy Board
Mountain Bell, Utah PSC,
Mountain Bell, Colorado PUB
South Central Bell, Louisiana PS
Hope Gas, West Virginia PSC
Vermont Gas Systems, Vermont PSC
Alberta Power Ltd., Alberta PUB
Ohio Utilities Company, Ohio PSC
Georgia Power Company, Georgia PSC
Sun City Water Company
Havasu Water Inc.
Centra Gas (Manitoba) Co.
Central Telephone Co. Nevada
AGT Ltd., CRTC 1992
BC GAS, BCPUB 1992
California Water Association, California PUC 1992
Maritime Telephone 1993
BCE Enterprises, Bell Canada, 1993
Citizens Utilities Arizona gas division 1993
PSI Resources 1993-5
CILCORP gas division 1994
GTE Northwest Oregon 1993
Stentor Group 1994-5
Bell Canada 1994-1995
PSI Energy 1993, 1994, 1995, 1999
Cincinnati Gas & Electric 1994, 1996, 1999, 2004
Southern States Utilities, 1995
CILCO 1995, 1999, 2001
Commonwealth Telephone 1996
Edison International 1996, 1998

Citizens Utilities 1997
Stentor Companies 1997
Hydro-Quebec 1998
Entergy Gulf States Louisiana 1998, 1999, 2001, 2002, 2003
Detroit Edison, 1999, 2003
Entergy Gulf States, Texas, 2000, 2004
Hydro Quebec TransEnergie, 2001, 2004
Sierra Pacific Company, 2000, 2001, 2002, 207
Nevada Power Company, 2001
Mid American Energy, 2001, 2002
Entergy Louisiana Inc. 2001, 2002, 2004
Mississippi Power Company, 2001, 2002, 2007
Oklahoma Gas & Electric Company, 2002 -2003
Public Service Electric & Gas, 2001, 2002
NUI Corp (Elizabethtown Gas Company), 2002
Jersey Central Power & Light, 2002
San Diego Gas & Electric, 2002
New Brunswick Power, 2002
Entergy New Orleans, 2002
Hydro-Quebec Distribution 2002
PSI Energy 2003
Fortis – Newfoundland Power & Light 2002
Emera – Nova Scotia Power 2004
Hydro-Quebec TransEnergie 2004
Hawaiian Electric 2004
Missouri Gas Energy 2004
AGL Resources 2004
Arkansas Western Gas 2004
Public Service of New Hampshire 2005
Hawaiian Electric Company 2005
Delmarva Power & Light Company 2005
Union Heat Power & Light 2005
Puget Sound Electric Co 2006
Cascade Natural Gas 2006
Entergy Arkansas 2006-7
Bangor Hydro 2006-7
Delmarva 2006-7
Potomac Electric Power Co. 2006, 2007
Detroit Edison Co. 2007, 2008
Nevada Power Co. 2007
Hawaiian Electric Co. 2006-7
Hawaii Elec & Light Co. 2007
Maui Electric Co. 2007
Ameren Union Electric 2008
Consolidated Edison of New York 2007-2008
Orange & Rockland 2007

Niagara Mohawk Power Corp 2008
Allete (Minnesota Power) 2007-2008
Sierra Pacific Power 2007-2008

PROFESSIONAL AND LEARNED SOCIETIES

- Engineering Institute of Canada, 1967-1972
- Canada Council Award, recipient 1971 and 1972
- Canadian Association Administrative Sciences, 1973-80
- American Association of Decision Sciences, 1974-1978
- American Finance Association, 1975-2002
- Financial Management Association, 1978-2002

ACTIVITIES IN PROFESSIONAL ASSOCIATIONS AND MEETINGS

- Chairman of meeting on "New Developments in Utility Cost of Capital", Southern Finance Association, Atlanta, Nov. 1982

- Chairman of meeting on "Public Utility Rate of Return", Southeastern Public Utility Conference, Atlanta, Oct. 1982

- Chairman of meeting on "Current Issues in Regulatory Finance", Financial Management Association, Atlanta, Oct. 1983

- Chairman of meeting on "Utility Cost of Capital", Financial Management Association, Toronto, Canada, Oct. 1984.

- Committee on New Product Development, FMA, 1985

- Discussant, "Tobin's Q Ratio", paper presented at Financial Management Association, New York, N.Y., Oct. 1986

- Guest speaker, "Utility Capital Structure: New Developments", National Society of Rate of Return Analysts 18th Financial Forum, Wash., D.C. Oct. 1986

- Opening address, "Capital Expenditures Analysis: Methodology vs Mythology," Bellcore Economic Analysis Conference, Naples Fla., 1988.

- Guest speaker, "Mythodology in Regulatory Finance", Society of Utility Rate of Return Analysts (SURFA), Annual Conference, Wash., D.C. February 2007.

PAPERS PRESENTED:

"An Empirical Study of Multi-Period Asset Pricing," annual meeting of Financial Management Assoc., Las Vegas Nevada, 1987.

"Utility Capital Expenditures Analysis: Net Present Value vs Revenue Requirements", annual meeting of Financial Management Assoc., Denver, Colorado, October 1985.

"Intervention Analysis and the Dynamics of Market Efficiency", annual meeting of Financial Management Assoc., San Francisco, Oct. 1982

"Intertemporal Market-Line Theory: An Empirical Study," annual meeting of Eastern Finance Assoc., Newport, R.I. 1981

"Option Writing for Financial Institutions: A Cost-Benefit Analysis", 1979 annual meeting Financial Research Foundation

"Free-lunch on the Toronto Stock Exchange", annual meeting of Financial Research Foundation of Canada, l978.

"Simulation System Computer Software SIMFIN", HP International Business Computer Users Group, London, 1975.

"Inflation Accounting: Implications for Financial Analysis." Institute of Certified Public Accountants Symposium, 1979.

OFFICES IN PROFESSIONAL ASSOCIATIONS

- President, International Hewlett-Packard Business Computers Users Group, 1977

- Chairman Program Committee, International HP Business Computers Users Group, London, England, 1975

- Program Coordinator, Canadian Assoc. of Administrative Sciences, 1976

- Member, New Product Development Committee, Financial Management Association, 1985-1986

- Reviewer: Journal of Financial Research

  Financial Management
  Financial Review
  Journal of Finance

PUBLICATIONS

"Risk Aversion Revisited", Journal of Finance, Sept. 1983

"Hedging Regulatory Lag with Financial Futures," Journal of Finance, May 1983. (with G. Gay, R. Kolb)

"The Effect of CWIP on Cost of Capital," Public Utilities Fortnightly, July 1986.

"The Effect of CWIP on Revenue Requirements" Public Utilities Fortnightly, August 1986.

"Intervention Analysis and the Dynamics of Market Efficiency," Time-Series Applications, New York: North Holland, 1983. (with K. El-Sheshai)

"Market-Line Theory and the Canadian Equity Market," Journal of Business Administration, Jan. l982, M. Brennan, editor

"Efficiency of Canadian Equity Markets," International Management Review, Feb. 1978.

"Intertemporal Market-Line Theory: An Empirical Test," Financial Review, Proceedings of the Eastern Finance Association, 1981.

BOOKS

Utilities' Cost of Capital, Public Utilities Reports Inc., Arlington, Va., 1984.

Regulatory Finance, Public Utilities Reports Inc., Arlington, Va., 2004

Driving Shareholder Value, McGraw-Hill, January 2001.

The New Regulatory Finance, Public Utilities Reports Inc., Arlington, Va., 2006.

MONOGRAPHS

Determining Cost of Capital for Regulated Industries, Public Utilities Reports, Inc., and The Management Exchange Inc., 1982 - 1993. (with V.L. Andrews)

Alternative Regulatory Frameworks, Public Utilities Reports, Inc., and The Management Exchange Inc., 1993. (with V.L. Andrews)

Risk and Return in Capital Projects, The Management Exchange Inc., 1980. (with B. Deschamps)

Utility Capital Expenditure Analysis, The Management Exchange Inc., 1983.

Regulation of Cable Television: An Econometric Planning Model, Quebec Department of Communications, 1978.

“An Economic & Financial Profile of the Canadian Cablevision Industry,” Canadian Radio-Television & Telecommunication Commission (CRTC), 1978.

Computer Users' Manual: Finance and Investment Programs, University of Montreal Press, 1974, revised 1978.

Fiber Optics Communications: Economic Characteristics, Quebec Department of Communications, 1978.

"Canadian Equity Market Inefficiencies", Capital Market Research Memorandum, Garmaise & Thomson Investment Consultants, 1979.

MISCELLANEOUS CONSULTING REPORTS

"Operational Risk Analysis: California Water Utilities," Calif. Water Association, 1993.

"Cost of Capital Methodologies for Independent Telephone Systems", Ontario Telephone Service Commission, March 1989.

"The Effect of CWIP on Cost of Capital and Revenue Requirements", Georgia Power Company, 1985.

"Costing Methodology and the Effect of Alternate Depreciation and Costing Methods on Revenue Requirements and Utility Finances", Gaz Metropolitan Inc., 1985.

"Simulated Capital Structure of CN-CP Telecommunications: A Critique", CRTC, 1977.

"Telecommunications Cost Inquiry: Critique," CRTC,1977.

"Social Rate of Discount in the Public Sector", CRTC Policy Statement, 1974.

"Technical Problems in Capital Projects Analysis", CRTC Policy Statement, 1974.

RESEARCH GRANTS

"Econometric Planning Model of the Cablevision Industry", International Institute of Quantitative Economics, CRTC.

"Application of the Averch-Johnson Model to Telecommunications Utilities", Canadian Radio-Television Commission. (CRTC)

"Economics of the Fiber Optics Industry", Quebec Dept. of Communications.

"Intervention Analysis and the Dynamics of Market Efficiency", Georgia State Univ. College of Business, 1981.

"Firm Size and Beta Stability", Georgia State University College of Business, 1982.

"Risk Aversion and the Demand for Risky Assets", Georgia State University College of Business, 1981.

Chase Econometrics, Interactive Data Corp., Research Grant, $50,000 per annum, 1986-1989.

NATURAL GAS DISTRIBUTION UTILITIES
BETA ESTIMATES

	Company Name	Beta	% Reg Gas Rev
1	AGL Resources	0.85	65
2	Atmos Energy	0.80	51
3	Laclede Group	0.80	51
4	New Jersey Resources	0.80	28
5	Nicor Inc.	0.90	84
6	Northwest Nat. Gas	0.75	98
7	Piedmont Natural Gas	0.80	82
8	South Jersey Inds.	0.80	59
9	Southwest Gas	0.80	83
10	UGI Corp.	0.85	17
11	WGL Holdings Inc.	0.85	58
	AVERAGE	**0.82**	

Source: VLIA 01/2009

COMBINATION GAS & ELECTRIC UTILITIES
BETA ESTIMATES

	Company Name	Beta
1	ALLETE	0.85
2	Alliant Energy	0.80
3	Ameren Corp.	0.80
4	Avista Corp.	0.85
5	CMS Energy Corp.	0.95
6	Consol. Edison	0.75
7	DTE Energy	0.75
8	Duke Energy	
9	Empire Dist. Elec.	0.80
10	Entergy Corp.	0.80
11	Exelon Corp.	0.85
12	MGE Energy	0.85
13	Northeast Utilities	0.75
14	NorthWestern Corp	
15	NSTAR	0.80
16	Pepco Holdings	0.90
17	PG&E Corp.	0.85
18	PPL Corp.	0.85
19	Public Serv. Enterprise	0.85
20	Puget Energy Inc.	0.80
21	Sierra Pacific Res.	0.95
22	TECO Energy	0.85
23	UniSource Energy	0.70
24	Wisconsin Energy	0.75
	Xcel Energy Inc.	0.75
	AVERAGE	**0.82**

Source: VLIA 01/2009

Electric Industry Historical Risk Premium

Line No.	Year	(1) Long-Term Government Bond Yield	(2) 20 year Maturity Bond Value	(3) Gain/Loss	(4) Interest	(5) Bond Total Return	(6) S&P Utility Index Return	(7) Utility Equity Risk Premium Over Bond Returns	(8) Utility Equity Risk Premium Over Bond Yields
1	1931	4.07%	1,000.00						
2	1932	3.15%	1,135.75	135.75	40.70	17.64%	-0.54%	-18.18%	-3.69%
3	1933	3.36%	969.60	-30.40	31.50	0.11%	-21.87%	-21.98%	-25.23%
4	1934	2.93%	1,064.73	64.73	33.60	9.83%	-20.41%	-30.24%	-23.34%
5	1935	2.76%	1,025.99	25.99	29.30	5.53%	76.63%	71.10%	73.87%
6	1936	2.55%	1,032.74	32.74	27.60	6.03%	20.69%	14.66%	18.14%
7	1937	2.73%	972.40	-27.60	25.50	-0.21%	-37.04%	-36.83%	-39.77%
8	1938	2.52%	1,032.83	32.83	27.30	6.01%	22.45%	16.44%	19.93%
9	1939	2.26%	1,041.65	41.65	25.20	6.68%	11.26%	4.58%	9.00%
10	1940	1.94%	1,052.84	52.84	22.60	7.54%	-17.15%	-24.69%	-19.09%
11	1941	2.04%	983.64	-16.36	19.40	0.30%	-31.57%	-31.87%	-33.61%
12	1942	2.46%	933.97	-66.03	20.40	-4.56%	15.39%	19.95%	12.93%
13	1943	2.48%	996.86	-3.14	24.60	2.15%	46.07%	43.92%	43.59%
14	1944	2.46%	1,003.14	3.14	24.80	2.79%	18.03%	15.24%	15.57%
15	1945	1.99%	1,077.23	77.23	24.60	10.18%	53.33%	43.15%	51.34%
16	1946	2.12%	978.90	-21.10	19.90	-0.12%	1.26%	1.38%	-0.86%
17	1947	2.43%	951.13	-48.87	21.20	-2.77%	-13.16%	-10.39%	-15.59%
18	1948	2.37%	1,009.51	9.51	24.30	3.38%	4.01%	0.63%	1.64%
19	1949	2.09%	1,045.58	45.58	23.70	6.93%	31.39%	24.46%	29.30%
20	1950	2.24%	975.93	-24.07	20.90	-0.32%	3.25%	3.57%	1.01%
21	1951	2.69%	930.75	-69.25	22.40	-4.69%	18.63%	23.32%	15.94%
22	1952	2.79%	984.75	-15.25	26.90	1.17%	19.25%	18.08%	16.46%
23	1953	2.74%	1,007.66	7.66	27.90	3.56%	7.85%	4.29%	5.11%
24	1954	2.72%	1,003.07	3.07	27.40	3.05%	24.72%	21.67%	22.00%
25	1955	2.95%	965.44	-34.56	27.20	-0.74%	11.26%	12.00%	8.31%
26	1956	3.45%	928.19	-71.81	29.50	-4.23%	5.06%	9.29%	1.61%
27	1957	3.23%	1,032.23	32.23	34.50	6.67%	6.36%	-0.31%	3.13%
28	1958	3.82%	918.01	-81.99	32.30	-4.97%	40.70%	45.67%	36.88%
29	1959	4.47%	914.65	-85.35	38.20	-4.71%	7.49%	12.20%	3.02%
30	1960	3.80%	1,093.27	93.27	44.70	13.80%	20.26%	6.46%	16.46%
31	1961	4.15%	952.75	-47.25	38.00	-0.92%	29.33%	30.25%	25.18%
32	1962	3.95%	1,027.48	27.48	41.50	6.90%	-2.44%	-9.34%	-6.39%
33	1963	4.17%	970.35	-29.65	39.50	0.99%	12.36%	11.37%	8.19%

34	1964	4.23%	991.96	-8.04	41.70	3.37%	15.91%	12.54%	11.68%
35	1965	4.50%	964.64	-35.36	42.30	0.69%	4.67%	3.98%	0.17%
36	1966	4.55%	993.48	-6.52	45.00	3.85%	-4.48%	-8.33%	-9.03%
37	1967	5.56%	879.01	-120.99	45.50	-7.55%	-0.63%	6.92%	-6.19%
38	1968	5.98%	951.38	-48.62	55.60	0.70%	10.32%	9.62%	4.34%
39	1969	6.87%	904.00	-96.00	59.80	-3.62%	-15.42%	-11.80%	-22.29%
40	1970	6.48%	1,043.38	43.38	68.70	11.21%	16.56%	5.35%	10.08%
41	1971	5.97%	1,059.09	59.09	64.80	12.39%	2.41%	-9.98%	-3.56%
42	1972	5.99%	997.69	-2.31	59.70	5.74%	8.15%	2.41%	2.16%
43	1973	7.26%	867.09	-132.91	59.90	-7.30%	-18.07%	-10.77%	-25.33%
44	1974	7.60%	965.33	-34.67	72.60	3.79%	-21.55%	-25.34%	-29.15%
45	1975	8.05%	955.63	-44.37	76.00	3.16%	44.49%	41.33%	36.44%
46	1976	7.21%	1,088.25	88.25	80.50	16.87%	31.81%	14.94%	24.60%
47	1977	8.03%	919.03	-80.97	72.10	-0.89%	8.64%	9.53%	0.61%
48	1978	8.98%	912.47	-87.53	80.30	-0.72%	-3.71%	-2.99%	-12.69%
49	1979	10.12%	902.99	-97.01	89.80	-0.72%	13.58%	14.30%	3.46%
50	1980	11.99%	859.23	-140.77	101.20	-3.96%	15.08%	19.04%	3.09%
51	1981	13.34%	906.45	-93.55	119.90	2.63%	11.74%	9.11%	-1.60%
52	1982	10.95%	1,192.38	192.38	133.40	32.58%	26.52%	-6.06%	15.57%
53	1983	11.97%	923.12	-76.88	109.50	3.26%	20.01%	16.75%	8.04%
54	1984	11.70%	1,020.70	20.70	119.70	14.04%	26.04%	12.00%	14.34%
55	1985	9.56%	1,189.27	189.27	117.00	30.63%	33.05%	2.42%	23.49%
56	1986	7.89%	1,166.63	166.63	95.60	26.22%	28.53%	2.31%	20.64%
57	1987	9.20%	881.17	-118.83	78.90	-3.99%	-2.92%	1.07%	-12.12%
58	1988	9.18%	1,001.82	1.82	92.00	9.38%	18.27%	8.89%	9.09%
59	1989	8.16%	1,099.75	99.75	91.80	19.16%	47.80%	28.64%	39.64%
60	1990	8.44%	973.17	-26.83	81.60	5.48%	-2.57%	-8.05%	-11.01%
61	1991	7.30%	1,118.94	118.94	84.40	20.33%	14.61%	-5.72%	7.31%
62	1992	7.26%	1,004.19	4.19	73.00	7.72%	8.10%	0.38%	0.84%
63	1993	6.54%	1,079.70	79.70	72.60	15.23%	14.41%	-0.82%	7.87%
64	1994	7.99%	856.40	-143.60	65.40	-7.82%	-7.94%	-0.12%	-15.93%
65	1995	6.03%	1,225.98	225.98	79.90	30.59%	42.15%	11.56%	36.12%
66	1996	6.73%	923.67	-76.33	60.30	-1.60%	3.14%	4.74%	-3.59%
67	1997	6.02%	1,081.92	81.92	67.30	14.92%	24.69%	9.77%	18.67%
68	1998	5.42%	1,072.71	72.71	60.20	13.29%	14.82%	1.53%	9.40%
69	1999	6.82%	848.41	-151.59	54.20	-9.74%	-8.85%	0.89%	-15.67%
70	2000	5.58%	1,148.30	148.30	68.20	21.65%	59.70%	38.05%	54.12%
71	2001	5.75%	979.95	-20.05	55.80	3.57%	-30.41%	-33.98%	-36.16%
72	2002	4.84%	1,115.77	115.77	57.50	17.33%	-30.04%	-47.37%	-34.88%
73	2003	5.11%	966.42	-33.58	48.40	1.48%	26.11%	24.63%	21.00%
74	2004	4.84%	1,034.35	34.35	51.10	8.54%	24.22%	15.68%	19.38%
75	2005	4.61%	1,029.84	29.84	48.40	7.82%	16.79%	8.97%	12.18%
76	2006	4.91%	962.06	-37.94	46.10	0.82%	20.95%	20.13%	16.04%
77	2007	4.50%	1,053.70	53.70	49.10	10.28%	19.36%	9.08%	14.86%

78			
79	**Mean**	**6.1%**	**6.3%**

Source: Bloomberg Web site: Standard & Poors Utility Stock Index % Annual Change, Dec. to Dec.

Dec. Bond yields from Ibbotson Associates 2008 Valuation Yearbook Table B-9 Long-Term Government Bonds Yields

Utility Industry Historical Risk Premium

Line No.	Year	(1) Utlity A-Rated Bond Yield	(2) 20 year Maturity Bond Value	(3) Gain/Loss	(4) Interest	(5) Bond Total Return	(6) S&P Utility Index Return	(7) Utility Equity Risk Premium Over Bond Returns	(8) Utility Equity Risk Premium Over Bond Yields
1	1931	5.12%	1,000.00						
2	1932	6.46%	850.73	-149.27	51.20	-9.81%	-0.54%	9.27%	-7.00%
3	1933	6.32%	1,015.77	15.77	64.60	8.04%	-21.87%	-29.91%	-28.19%
4	1934	5.50%	1,098.72	98.72	63.20	16.19%	-20.41%	-36.60%	-25.91%
5	1935	4.61%	1,115.47	115.47	55.00	17.05%	76.63%	59.58%	72.02%
6	1936	4.08%	1,071.99	71.99	46.10	11.81%	20.69%	8.88%	16.61%
7	1937	3.98%	1,013.70	13.70	40.80	5.45%	-37.04%	-42.49%	-41.02%
8	1938	3.90%	1,011.04	11.04	39.80	5.08%	22.45%	17.37%	18.55%
9	1939	3.52%	1,054.23	54.23	39.00	9.32%	11.26%	1.94%	7.74%
10	1940	3.24%	1,040.98	40.98	35.20	7.62%	-17.15%	-24.77%	-20.39%
11	1941	3.07%	1,025.27	25.27	32.40	5.77%	-31.57%	-37.34%	-34.64%
12	1942	3.09%	997.03	-2.97	30.70	2.77%	15.39%	12.62%	12.30%
13	1943	2.99%	1,014.97	14.97	30.90	4.59%	46.07%	41.48%	43.08%
14	1944	2.97%	1,003.00	3.00	29.90	3.29%	18.03%	14.74%	15.06%
15	1945	2.87%	1,015.14	15.14	29.70	4.48%	53.33%	48.85%	50.46%
16	1946	2.71%	1,024.58	24.58	28.70	5.33%	1.26%	-4.07%	-1.45%
17	1947	2.78%	989.32	-10.68	27.10	1.64%	-13.16%	-14.80%	-15.94%
18	1948	3.02%	964.17	-35.83	27.80	-0.80%	4.01%	4.81%	0.99%
19	1949	2.90%	1,018.11	18.11	30.20	4.83%	31.39%	26.56%	28.49%
20	1950	2.79%	1,016.77	16.77	29.00	4.58%	3.25%	-1.33%	0.46%
21	1951	3.11%	952.61	-47.39	27.90	-1.95%	18.63%	20.58%	15.52%
22	1952	3.24%	980.97	-19.03	31.10	1.21%	19.25%	18.04%	16.01%
23	1953	3.49%	964.23	-35.77	32.40	-0.34%	7.85%	8.19%	4.36%
24	1954	3.16%	1,048.65	48.65	34.90	8.35%	24.72%	16.37%	21.56%
25	1955	3.22%	991.20	-8.80	31.60	2.28%	11.26%	8.98%	8.04%
26	1956	3.56%	951.65	-48.35	32.20	-1.62%	5.06%	6.68%	1.50%
27	1957	4.24%	908.92	-91.08	35.60	-5.55%	6.36%	11.91%	2.12%
28	1958	4.20%	1,005.38	5.38	42.40	4.78%	40.70%	35.92%	36.50%
29	1959	4.78%	925.83	-74.17	42.00	-3.22%	7.49%	10.71%	2.71%
30	1960	4.78%	1,000.00	0.00	47.80	4.78%	20.26%	15.48%	15.48%
31	1961	4.62%	1,020.74	20.74	47.80	6.85%	29.33%	22.48%	24.71%
32	1962	4.54%	1,010.44	10.44	46.20	5.66%	-2.44%	-8.10%	-6.98%
33	1963	4.39%	1,019.83	19.83	45.40	6.52%	12.36%	5.84%	7.97%
34	1964	4.52%	983.00	-17.00	43.90	2.69%	15.91%	13.22%	11.39%
35	1965	4.58%	992.20	-7.80	45.20	3.74%	4.67%	0.93%	0.09%
36	1966	5.39%	901.59	-98.41	45.80	-5.26%	-4.48%	0.78%	-9.87%
37	1967	5.87%	943.94	-56.06	53.90	-0.22%	-0.63%	-0.41%	-6.50%
38	1968	6.51%	928.99	-71.01	58.70	-1.23%	10.32%	11.55%	3.81%

39	1969	7.54%	894.48	-105.52	65.10	-4.04%	-15.42%	-11.38%	-22.96%
40	1970	8.69%	891.81	-108.19	75.40	-3.28%	16.56%	19.84%	7.87%
41	1971	8.16%	1,051.83	51.83	86.90	13.87%	2.41%	-11.46%	-5.75%
42	1972	7.72%	1,044.47	44.47	81.60	12.61%	8.15%	-4.46%	0.43%
43	1973	7.84%	987.98	-12.02	77.20	6.52%	-18.07%	-24.59%	-25.91%
44	1974	9.50%	852.57	-147.43	78.40	-6.90%	-21.55%	-14.65%	-31.05%
45	1975	10.09%	949.69	-50.31	95.00	4.47%	44.49%	40.02%	34.40%
46	1976	9.29%	1,072.11	72.11	100.90	17.30%	31.81%	14.51%	22.52%
47	1977	8.61%	1,064.35	64.35	92.90	15.72%	8.64%	-7.08%	0.03%
48	1978	9.29%	938.71	-61.29	86.10	2.48%	-3.71%	-6.19%	-13.00%
49	1979	10.49%	900.41	-99.59	92.90	-0.67%	13.58%	14.25%	3.09%
50	1980	13.34%	802.50	-197.50	104.90	-9.26%	15.08%	24.34%	1.74%
51	1981	15.95%	843.97	-156.03	133.40	-2.26%	11.74%	14.00%	-4.21%
52	1982	15.86%	1,005.41	5.41	159.50	16.49%	26.52%	10.03%	10.66%
53	1983	13.66%	1,149.59	149.59	158.60	30.82%	20.01%	-10.81%	6.35%
54	1984	14.03%	975.38	-24.62	136.60	11.20%	26.04%	14.84%	12.01%
55	1985	12.47%	1,113.97	113.97	140.30	25.43%	33.05%	7.62%	20.58%
56	1986	9.58%	1,255.25	255.25	124.70	37.99%	28.53%	-9.46%	18.95%
57	1987	10.10%	955.69	-44.31	95.80	5.15%	-2.92%	-8.07%	-13.02%
58	1988	10.49%	967.63	-32.37	101.00	6.86%	18.27%	11.41%	7.78%
59	1989	9.77%	1,062.76	62.76	104.90	16.77%	47.80%	31.03%	38.03%
60	1990	9.86%	992.20	-7.80	97.70	8.99%	-2.57%	-11.56%	-12.43%
61	1991	9.36%	1,044.85	44.85	98.60	14.34%	14.61%	0.27%	5.25%
62	1992	8.69%	1,063.03	63.03	93.60	15.66%	8.10%	-7.56%	-0.59%
63	1993	7.59%	1,112.26	112.26	86.90	19.92%	14.41%	-5.51%	6.82%
64	1994	8.31%	930.36	-69.64	75.90	0.63%	-7.94%	-8.57%	-16.25%
65	1995	7.89%	1,041.91	41.91	83.10	12.50%	42.15%	29.65%	34.26%
66	1996	7.75%	1,014.12	14.12	78.90	9.30%	3.14%	-6.16%	-4.61%
67	1997	7.60%	1,015.30	15.30	77.50	9.28%	24.69%	15.41%	17.09%
68	1998	7.04%	1,059.61	59.61	76.00	13.56%	14.82%	1.26%	7.78%
69	1999	7.62%	940.94	-59.06	70.40	1.13%	-8.85%	-9.98%	-16.47%
70	2000	8.24%	939.72	-60.28	76.20	1.59%	59.70%	58.11%	51.46%
71	2001	7.78%	1,046.28	46.28	82.40	12.87%	-30.41%	-43.28%	-38.19%
72	2002	7.37%	1,042.55	42.55	77.80	12.03%	-30.04%	-42.07%	-37.41%
73	2003	6.58%	1,087.17	87.17	73.70	16.09%	26.11%	10.02%	19.53%
74	2004	6.16%	1,047.92	47.92	65.80	11.37%	24.22%	12.85%	18.06%
75	2005	5.65%	1,060.65	60.65	61.60	12.22%	16.79%	4.57%	11.14%
76	2006	6.07%	951.73	-48.27	56.50	0.82%	20.95%	20.13%	14.88%
77	2007	6.07%	1,000.00	0.00	60.70	6.07%	19.36%	13.29%	13.29%
78									
79	**Mean**							**5.0%**	**5.0%**

Source: Bloomberg Web site: Standard & Poors Utility Stock Index % Annual Change, Dec. to Dec.
Bond yields from Bloomberg

DCF ANALYSIS: ANALYSTS' GROWTH FORECASTS
DCF Analysis

	Company	% Current Divid Yield (1)	Analysts' Growth Forecast (2)	% Expected Divid Yield (3)	Cost of Equity (4)	ROE (5)
1	AGL Resources	5.80	4.80	6.08	10.88	11.20
2	Atmos Energy	5.51	5.50	5.81	11.31	11.62
3	Laclede Group	2.90	10.00	3.19	13.19	13.36
4	Nicor Inc.	4.06	6.50	4.32	10.82	11.05
5	Northwest Nat. Gas	3.15	6.75	3.36	10.11	10.29
6	Piedmont Natural Gas	3.20	7.57	3.44	11.01	11.19
7	South Jersey Inds.	3.38	8.00	3.65	11.65	11.84
8	Southwest Gas	3.57	8.00	3.86	11.86	12.06
9	WGL Holdings Inc.	4.59	7.50	4.93	12.43	12.69
	AVERAGE	**4.02**	**7.18**	**4.29**	**11.47**	**11.70**

Notes:
Column 1: Value Line Investment Analyzer Jan 2009
Column 2: Zacks long-term earnings growth forecast, 01/2009
Column 3 = Column 1 times (1 + Column 2/100)

NATURAL GAS UTILITIES
DCF ANALYSIS: VALUE LINE GROWTH FORECASTS

	Company	% Current Divid Yield (1)	Value Line Proj Growth (2)	Expected Divid Yield (3)	Cost of Equity (4)	ROE (5)
1	AGL Resources	5.80	3.00	5.97	8.97	9.29
2	Atmos Energy	5.51	4.50	5.76	10.26	10.56
3	Laclede Group	2.90	4.50	3.03	7.53	7.69
4	Nicor Inc.	4.06	5.00	4.26	9.26	9.49
5	Northwest Nat. Gas	3.15	5.50	3.32	8.82	9.00
6	Piedmont Natural Gas	3.20	6.50	3.41	9.91	10.09
7	South Jersey Inds.	3.38	6.00	3.58	9.58	9.77
8	Southwest Gas	3.57	7.50	3.84	11.34	11.54
9	WGL Holdings Inc.	4.59	3.50	4.75	8.25	8.50
	AVERAGE	**4.02**	**5.11**	**4.21**	**9.33**	**9.55**

Notes:
Column 1, 2: Value Line Investment Analyzer, 01/2009
Column 3 = Column 1 times (1 + Column 2/100)
Column 4 = Column 2 + Column 3

COMBINATION GAS & ELEC UTILITIES
DCF ANALYSIS: VALUE LINE GROWTH PROJECTIONS

	Company	% Current Divid Yield (1)	Proj EPS Growth (2)	% Expected Divid Yield (3)	Cost of Equity (4)	ROE (5)
1	ALLETE	4.75	2.50	4.87	7.37	7.63
2	Alliant Energy	4.51	6.00	4.78	10.78	11.03
3	Ameren Corp.	7.79	2.50	7.98	10.48	10.91
4	Avista Corp.	3.65	9.00	3.98	12.98	13.19
5	CMS Energy Corp.	4.55	11.00	5.05	16.05	16.32
6	Consol. Edison	5.37	1.00	5.42	6.42	6.71
7	DTE Energy	5.79	5.00	6.08	11.08	11.40
8	Duke Energy	5.52	4.00	5.74	9.74	10.04
9	Empire Dist. Elec.	6.79	10.00	7.47	17.47	17.86
10	Entergy Corp.	3.60	10.00	3.96	13.96	14.17
11	Exelon Corp.	3.77	9.00	4.11	13.11	13.33
12	MGE Energy	4.14	5.50	4.37	9.87	10.10
13	Northeast Utilities	3.79	11.50	4.23	15.73	15.95
14	NorthWestern Corp	6.00	10.00	6.60	16.60	16.95
15	NSTAR	4.36	7.50	4.69	12.19	12.43
16	Pepco Holdings	5.08	13.00	5.74	18.74	19.04
17	PG&E Corp.	4.20	5.00	4.41	9.41	9.64
18	PPL Corp.	4.33	14.00	4.94	18.94	19.20
19	Public Serv. Enterprise	4.52	10.00	4.97	14.97	15.23
20	Puget Energy Inc.	4.42	5.00	4.64	9.64	9.89
21	Sierra Pacific Res.	4.90	7.00	5.24	12.24	12.52
22	TECO Energy	6.28	7.50	6.75	14.25	14.61
23	Wisconsin Energy	2.67	8.00	2.88	10.88	11.04
24	Xcel Energy Inc.	5.52	7.50	5.93	13.43	13.75

COMBINATION GAS & ELECTRIC UTILITIES
DCF ANALYSIS: ANALYSTS' GROWTH FORECASTS

	Company	% Current Divid Yield (1)	Proj EPS Growth (2)	% Expected Divid Yield (3)	Cost of Equity (4)	ROE (5)
1	ALLETE	4.75	5.00	4.99	9.99	10.25
2	Alliant Energy	4.51	5.00	4.74	9.74	9.98
3	Ameren Corp.	7.79	5.50	8.22	13.72	14.15
4	Avista Corp.	3.65	8.67	3.97	12.64	12.85
5	CMS Energy Corp.	4.55	7.00	4.87	11.87	12.12
6	Consol. Edison	5.37	3.33	5.55	8.88	9.17
7	DTE Energy	5.79	6.00	6.14	12.14	12.46
8	Duke Energy	5.52	5.00	5.80	10.80	11.10
9	Entergy Corp.	3.60	9.75	3.95	13.70	13.91
10	Exelon Corp.	3.77	9.00	4.11	13.11	13.33
11	Northeast Utilities	3.79	9.75	4.16	13.91	14.13
12	NorthWestern Corp	6.00	10.00	6.60	16.60	16.95
13	NSTAR	4.36	7.17	4.67	11.84	12.09
14	Pepco Holdings	5.08	8.00	5.49	13.49	13.78
15	PG&E Corp.	4.20	7.13	4.50	11.63	11.87
16	PPL Corp.	4.33	15.00	4.98	19.98	20.24
17	Public Serv. Enterprise	4.52	8.00	4.88	12.88	13.14
18	Puget Energy Inc.	4.42	8.00	4.77	12.77	13.02
19	Sierra Pacific Res.	4.90	10.00	5.39	15.39	15.67
20	TECO Energy	6.28	8.25	6.80	15.05	15.41
21	Wisconsin Energy	2.67	9.00	2.91	11.91	12.06
22	Xcel Energy Inc.	5.52	6.50	5.88	12.38	12.69
	AVERAGE	**4.79**	**7.78**	**5.15**	**12.93**	**13.20**

Natural Gas Utilities
Common Equity Ratios

	Company Name	% Com Eq
1	AGL Resources	49.8
2	Atmos Energy	48.0
3	Laclede Group	54.6
4	Nicor Inc.	69.0
5	Northwest Nat. Gas	53.7
6	Piedmont Natural Gas	51.6
7	South Jersey Inds.	57.3
8	Southwest Gas	41.9
9	WGL Holdings Inc.	60.3
	AVERAGE	**54.0**

Source: VLIA Jan 2009