STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

NORTH SHORE GAS COMPANY	:	
	:	
Proposed General Increase	:	No. 11-____
In Rates For Gas Service	:	

Direct Testimony of

PAUL R. MOUL

Managing Consultant
P. Moul & Associates

On behalf of
North Shore Gas Company

TABLE OF CONTENTS

GLOSSARY OF ACRONYMS AND DEFINED TERMS	
ACRONYM	**DEFINED TERM**
AFUDC	Allowance for Funds Used During Construction
β	Beta
b	represents the retention rate that consists of the fraction of earnings that are not paid out as dividends
b x r	Represents internal growth
CAPM	Capital Asset Pricing Model
CCR	Corporate Credit Rating
CE	Comparable Earnings
DCF	Discounted Cash Flow
g	Growth rate
IGF	Internally Generated Funds
ICC	Illinois Commerce Commission
LDC	Local Distribution Companies
Lev	Leverage modification
LT	Long Term
MM	Modigliani & Miller
M&A	Merger & Acquisition
P-E	Price-earnings
PUHCA	Public Utility Holding Company Act
r	represents the expected rate of return on common equity
Rf	Risk-free rate of return
Rm	Market risk premium
RP	Risk Premium
s	Represents the new common shares expected to be issued by a firm
s x v	Represents external growth
S&P	Standard & Poor's
v	Represents the value that accrues to existing shareholders from selling stock at a price different from book value

I. INTRODUCTION AND SUMMARY OF RECOMMENDATION

A. Identification of Witness

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

A. My name is Paul Ronald Moul. My business address is 251 Hopkins Road, Haddonfield, New Jersey 08033-3062. I am Managing Consultant at the firm P. Moul & Associates, an independent financial and regulatory consulting firm. My educational background, business experience and qualifications are provided in NS Exhibit ("Ex."). 3.1.

B. Purpose of Testimony and Itemized Attachments to Direct Testimony

Q. What is the purpose of your direct testimony?

A. My testimony presents evidence, analysis and a recommendation concerning the appropriate cost of equity that the Illinois Commerce Commission ("ICC" or the "Commission") should allow North Shore Gas Company ("North Shore" or the "Company" or "NS") an opportunity to earn as part of its weighted average cost of capital (i.e., overall rate of return) incorporated into rates based on a 2012 test year. My analysis and recommendation are supported by the detailed financial data contained in NS Ex. 3.2 through NS Ex. 3.12. Additional evidence is contained in NS Ex. 3.13, which is divided into seven (7) appendices and includes NS Ex. 3.13A through NS Ex. 3.13G. The items covered in these appendices provide additional detailed information concerning the explanation and application of the various financial models upon which I rely.

C. Summary of Conclusions and Overview

Q. Based upon your analysis, what is your conclusion concerning the appropriate cost of common equity for the Company for this case?

A. My conclusion is that the Company's rates should be based on a cost of common equity of 11.25%. My recommended cost of equity has been included in the weighted average cost of capital calculation discussed in the testimony of Company witness Lisa J. Gast. The weighted average cost of capital proposed by the Company would, if adopted by the Commission, establish a compensatory level of return for the use of capital and provide the Company with the ability to attract capital on reasonable terms.

Q. Have you also evaluated the reasonableness of the Company's capital structure ratios from an industry perspective?

A. Yes. I have reviewed the capital structure ratios proposed by Ms. Gast and confirmed that they are reasonable. A 56% common equity ratio is consistent with investor expectations. It is within two percentage points of the average common equity ratio forecast by Value Line for the other gas companies (see page 10) that comprise the proxy group of gas companies used in my cost of equity models. Accordingly, I recommend that the Commission accept the capital structure ratios proposed by Ms. Gast.

Q. How have you determined the cost of common equity in this case?

A. I have determined the cost of common equity for the Company using capital market and financial data routinely relied upon by investors to assess the relative investment risk, and hence the cost of equity, for a natural gas utility, such as North Shore. In this regard, I relied on three well-recognized "market" models to measure the cost of equity: Discounted Cash Flow ("DCF"), Risk Premium, and Capital Asset Pricing Model ("CAPM"). I also considered, as a check on my results using the three market models, the Comparable Earnings ("CE") method. In general, the use of more than one model provides a superior foundation to arrive at the cost of equity. As I discuss later in my

testimony, each model relies on different assumptions, and each has its own limitations. In addition, at any point in time, reliance on a single model can provide an incomplete measure of the cost of equity depending upon extraneous factors that may influence market sentiment. The specific application of these models will be described later in my testimony.

I populated these models with data from a proxy group of publicly traded gas companies. I followed this approach because stock market data is required to apply some of the cost of equity models and the stock of North Shore is not traded. The eight companies that comprise the proxy group, or "Gas Group," are identified on page 2 of NS Ex. 3.3. My approach is consistent with Section 9-230 of the Illinois Public Utilities Act (220 ILCS 5/9-230), which requires the Commission to determine a public utility's cost of equity without regard to its increased risk resulting from its affiliation with non-utility companies.

Q. How did you select the companies that you included in the Gas Group?

A. I began with the twelve gas utilities contained in The Value Line Investment Survey. Value Line is an investment advisory service that is widely used by investors, as well as analysts and commissions in public utility rate cases. Through the application of the criteria identified on page 2 of NS Ex. 3.3, I eliminated three companies – NiSource, Southwest Gas, and UGI Corporation – due to locational and operational differences, as well as diversification of these companies. In addition, I removed Nicor because it is the target of an acquisition by AGL Resources that is offering cash and stock in an amount that represents a 13% premium to the price of Nicor's stock prior to the announced acquisition. It would be inappropriate to include a company that is a target of a takeover

in a proxy group because the stock price of that company usually disconnects from its underlying fundamentals. That is to say, after the acquisition is announced, the stock trades principally on the prospect of the acquisition price that will be paid to gain control of the target company. The Gas Group that I have used in this case is the same group that I employed in the Company's last rate case, except for the exclusion of Nicor.

Q. Have you employed a supplemental group of utilities in your analysis?

A. Yes. I have used a supplemental group of combination utilities to assess the reasonableness of the results of the models that I used with the Gas Group data. This group consists of regulated companies that: (i) have publicly traded common stock, (ii) are included in The Value Line Investment Survey, (iii) are engaged in the natural gas and electric utility business, (iv) operate in the North Central Region of the U.S., (v) have not recently reduced or are expected to reduce their common dividend, (vi) do not have major interstate pipeline operations, and (vii) are not currently the target of a merger or acquisition. The companies in this group are identified on page 2 of NS Ex. 3.4. I will refer to these companies as the "Combination Group" throughout my testimony.

Q. How have you performed your cost of equity analysis with the market data for the Gas Group and Combination Group?

A. I have applied the models and methods identified above for estimating the cost of equity using the average data for both the Gas Group and the Combination Group. I have not measured the cost of equity for each of the individual companies within these groups, because the determination of the cost of equity for an individual company can be problematic. The use of group average data from a portfolio of gas utilities reduces the effect of anomalous results for any individual company.

Q. What are the results of your cost of equity analysis?

A. The following table provides the indicated costs of equity from each of the models that I employed.

	Gas Group	Combination Group
DCF	9.67%	11.22%
RP	11.25%	11.25%
CAPM	11.21%	11.45%

In reaching my rate of return recommendation of 11.25%, I placed primary emphasis on the results of the Risk Premium and CAPM results for the Gas Group because the DCF results for the Gas Group are today providing a misleading measure of the cost of equity for gas utilities. One of the key components of the DCF return is the growth rate. For the natural gas industry generally, and the Gas Group in particular, growth prospects have been negatively impacted by the recent economic conditions. In this regard, customer demand and revenue growth has declined, which makes it more difficult to absorb cost increases. Yet while costs continue to increase in the absence of significant revenue growth, the dividend yields for the Gas Group remain low in response to the low interest rate environment. Together, the low dividend yields and low growth rates produce a DCF result that is out of keeping with the other measures of the cost of equity for the Gas Group. Indeed, the DCF results for the Gas Group are inconsistent with the Risk Premium and CAPM results for the Gas Group and the results of each of the models, including DCF, for the Combination Group. In reaching this conclusion, I have used the results for the Combination Group to assess the Gas Group result. The way that I have used this data is to compare the results of each measure of the cost of equity for the

Combination Group to those of the Gas Group. Here, the Risk Premium and CAPM results for both groups are closely aligned. But when considering the DCF, with current market data, the result for the Gas Group is clearly an outlier. The results of the Combination Group thus substantiate that the DCF results for the Gas Group are too low to reliably measure the cost of equity. Even if I included the results of the DCF in my recommendation, I would recommend an 11.25% cost of equity to reflect the fact that the Gas Group collectively has lower overall investment risk than the Company.

Q. Does your cost of equity analysis and recommendation take into account the revenue decoupling that the Commission approved in the Company's last two rate cases?

A. Yes. In its last two rate cases, the Commission authorized the Company to implement a tariff provision that is designed to decouple forecast revenues from variations in sales related to usage due to weather, economic conditions, energy efficiency efforts and other factors. All but one of the companies in my Gas Group have some form of revenue stabilization mechanism. The sole exception is Laclede, which has a weather mitigated rate design that recovers its fixed costs more evenly during the heating season. Therefore, the market prices of these companies' common equity reflect the expectations of investors that the companies' revenues are stabilized to some extent by a decoupling mechanism. Therefore my analysis reflects the impacts of decoupling on investor expectations through the use of market-determined models.

II. PROXY GROUP ANALYSIS

Q. Is it necessary to conduct a fundamental risk analysis to provide a framework for a determination of a utility's cost of equity?

A. Yes, it is. It is necessary to establish a company's relative risk position within its

industry through an analysis of various factors that bear upon investors' assessment of overall risk. The items that influence investors' evaluation of risk and its required returns are described in NS Ex. 3.13A. For this purpose, I compared the Company to the S&P Public Utilities, an industry-wide proxy consisting of various regulated businesses, to both the Gas Group and the Combination Group.

Q. What are the components of the S&P Public Utilities?

A. The S&P Public Utilities is a widely recognized index that is comprised of electric power and natural gas companies. These companies are identified on page 3 of NS Ex. 3.5.

Q. Is knowledge of a utility's credit quality rating an important factor in assessing its risk and cost of capital?

A. Yes. Knowledge of a company's credit quality rating is important because the cost of each type of capital is directly related to the associated risk of the firm. So while a company's credit quality risk is shown directly by the rating and yield on its bonds, these relative risk assessments also bear upon the cost of equity. A firm's cost of equity must exceed its borrowing cost to recognize the higher risk of equity.

Q. How do the credit quality ratings compare for the Company, the Gas Group, Combination Group and the S&P Public Utilities?

A. The Long Term ("LT") issuer rating by Moody's Investors Service ("Moody's") is A3 for North Shore and the corporate credit rating ("CCR") by Standard and Poor's Corporation ("S&P") is BBB+ for North Shore. These ratings focus upon the credit quality of the issuer of the debt, rather than upon the debt obligation itself. As shown on page 2 of NS Ex. 3.3, the average Moody's LT issuer rating for the Gas Group is A3, and

the average S&P CCR rating is A. The average rating for the Combination Group is Baa1 from Moody's and BBB+ from S&P, as shown on page 2 of NS Ex. 3.4. For the S&P Public Utilities, the average Moody's composite rating is Baa1 and BBB+ by S&P, as displayed on page 3 of NS Ex. 3.5. Thus, the Moody's ratings for the Company and the Gas Group are similar, and are one notch higher than the Combination Group's rating. The S&P ratings for the Company, the Combination Group and the S&P Public Utilities are similar, but the rating for the Company is two notches weaker than the Gas Group. Many of the financial indicators that I will subsequently discuss are considered during the rating process.

Q. How do the financial data compare for the Company, the Gas Group, the Combination Group, and the S&P Public Utilities?

A. The broad categories of financial data that I will discuss are shown on NS Ex. 3.2, NS Ex. 3.3, NS Ex. 3.4, and NS Ex. 3.5. The data cover the five-year period 2005-2009. The important categories of relative risk may be summarized as follows:

Size. In terms of capitalization, the Company is much smaller than the average size of the Gas Group, and very much smaller than the average size of the Combination Group and the S&P Public Utilities. All other things being equal, a smaller company is riskier than a larger company because a given change in revenue or expense has a proportionately greater impact on a small firm.

Market Ratios. Market-based financial ratios, such as earnings/price ratios and dividend yields, provide a partial measure of the investor-required cost of equity. If all other factors are equal, investors will require a higher rate of return for companies that exhibit greater risk, in order to compensate for that risk. That is to say, a firm that

investors perceive to have higher risks will experience a lower price per share in relation to expected earnings.[1]

There are no market ratios available for the Company because its stock is not traded. The five-year average price-earnings multiple was somewhat higher for the Gas Group as compared to the Combination Group and the S&P Public Utilities. The five-year average dividend yields were higher for the Combination Group as compared to the Gas Group and the S&P Public Utilities. The average market-to-book ratios were highest for the S&P Public Utilities, followed by the Gas Group and finally the Combination Group.

Common Equity Ratio. The level of a company's financial risk is measured by the proportion of long-term debt and other senior capital that is contained in its capitalization. Financial risk is also analyzed by comparing common equity ratios (the complement of the ratio of debt and other senior capital). That is to say, a firm with a high common equity ratio has lower financial risk, while a firm with a low common equity ratio has higher financial risk. The five-year average common equity ratios based on permanent capital were 58.5% for North Shore, 54.2% for the Gas Group, 47.9% for the Combination Group and 45.8% for the S&P Public Utilities. I have verified the reasonableness of the Company's common equity ratio by considering analysts' forecasts, which influence investor expectations. I have compared the Company's proposed common equity ratio to that of the Gas Group based upon data widely available to investors from Value Line. In the case of the Value Line forecasts, and consistent with the Company's proposed common equity ratio, the common equity ratios are computed

[1] For example, two otherwise similarly situated firms each reporting $1.00 in earnings per share would have different market prices at varying levels of risk (i.e., the firm with a higher level of risk will have a lower share value, while the firm with a lower risk profile will have a higher share value).

without regard to short-term debt. Those ratios are:

Company	2010	2011	2013-15
AGL Resources, Inc.	56.0%	57.0%	62.0%
Atmos Energy Corporation	55.0%	53.0%	51.0%
Laclede Group	60.0%	60.0%	53.0%
New Jersey Resources Corp.	62.8%	63.0%	64.0%
Northwest Natural Gas Co.	54.0%	55.0%	62.0%
Piedmont Natural Gas Company	55.0%	55.5%	52.5%
South Jersey Industries, Inc.	65.5%	63.5%	60.0%
WGL Holdings, Inc.	65.0%	64.0%	65.0%
Average	59.2%	58.9%	58.7%

Source: The Value Line Investment Survey, December 10, 2010

These forecasts show that the 56% common equity ratio proposed by North Shore in this case reflect somewhat more financial risk than the Gas Group that is forecast to have an average common equity ratio of more than 58%.

Return on Book Equity. Greater variability (i.e., uncertainty) of a firm's earned returns signifies relatively greater levels of risk, as shown by the coefficient of variation (standard deviation ÷ mean) of the rate of return on book common equity. The higher the coefficients of variation, the greater degree of variability. For the five-year period, the coefficients of variation were 0.315 (2.3% ÷ 7.3%) for the Company, 0.067 (0.8% ÷ 11.9%) for the Gas Group, 0.119 (1.0% ÷ 8.4%) for the Combination Group, and 0.103 (1.2% ÷ 11.7%) for the S&P Public Utilities. The Company's historical rates of return were more variable than the Gas Group, the Combination Group, and the S&P Public Utilities.

Operating Ratios. I have also compared operating ratios (the percentage of

revenues consumed by operating expense, depreciation, and taxes other than income).[2] The five-year average operating ratios were 93.9% for the Company, 89.5% for the Gas Group, 87.4% for the Combination Group, and 84.4% for the S&P Public Utilities. The Company historically has had a high operating ratio in comparison to the other groups.

Coverage. The level of fixed charge coverage (i.e., the multiple by which available earnings cover fixed charges, such as interest expense) provides an indication of the earnings protection for creditors. Higher levels of coverage, and hence earnings protection for fixed charges, are usually associated with superior grades of creditworthiness. The five-year average interest coverage (excluding Allowance for Funds Used During Construction ("AFUDC")) was 3.95 times for the Company, 4.22 times for the Gas Group, 2.89 times for the Combination Group, and 3.42 times for the S&P Public Utilities.

Quality of Earnings. Measures of earnings quality usually are revealed by the percentage of AFUDC related to income available for common equity, the effective income tax rate, and other cost deferrals. These measures of earnings quality usually influence a firm's internally generated funds because poor quality of earnings would not generate high levels of cash flow. Quality of earnings has not been a significant concern for the Company, the Gas Group, the Combination Group, or the S&P Public Utilities.

Internally Generated Funds. Internally generated funds ("IGF") provide an important source of new investment capital for a utility and represent a key measure of credit strength. Historically, the five-year average percentage of IGF to capital expenditures was 91.5% for the Company, 98.6% for the Gas Group, 82.9% for the

[2] The complement of the operating ratio is the operating margin which provides a measure of profitability. The higher the operating ratio, the lower the operating margin.

Combination Group, and 88.4% for the S&P Public Utilities.

Betas. The financial data that I have been discussing relate primarily to company-specific risks. Market risk for firms with publicly-traded stock is measured by beta coefficients. Beta coefficients attempt to identify systematic risk, i.e., the risk associated with changes in the overall market for common equities.[3] Value Line publishes such a statistical measure of a stock's relative historical volatility to the rest of the market. A comparison of market risk is shown by the Value Line beta of 0.65 as the average for the Gas Group (see page 2 of NS Ex. 3.3), 0.71 as the average for the Combination Group (see page 2 of NS Ex. 3.4) and 0.77 as the average for the S&P Public Utilities (see page 3 of NS Ex. 3.5).

Q. Please summarize your risk evaluation.

A. The overall investment risk of North Shore is higher than the Gas Group and the Combination Group. The Company's size is very much smaller, its earnings variability has been higher than that of the Gas Group and Combination Group, its operating ratios were somewhat higher than these groups, and its IGF to construction has been somewhat weaker than the Gas Group. The fixed charge coverages and earnings quality has been fairly similar for the Company and the Gas Group. While the historical common equity ratios have been higher for North Shore, the forecasts by Value Line show the reverse and indicate that the Company's financial risk will be slightly higher. The Company's credit rating by S&P is weaker than the Gas Group, while the Moody's rating is similar. Based on my overall evaluation I conclude that the Gas Group has lower overall

[3] The procedure used to calculate the beta coefficient published by Value Line is described in NS Ex. 3.13F. A common stock that has a beta less than 1.0 is considered to have less systematic risk than the market as a whole and would be expected to rise and fall more slowly than the rest of the market. A stock with a beta above 1.0 would have more systematic risk.

investment risk than the Company. Ideally, it would be desirable to assemble a proxy group of gas utilities that reflected the higher risk of North Shore, but it is not practical to do so because of the very limited number (i.e., twelve companies) of gas utilities that have traded stock that are candidates for any potential proxy group. The rate of return on common equity set for North Shore in this proceeding should therefore recognize its higher risk characteristics.

III. COST OF EQUITY – GENERAL APPROACH

Q. Please describe the process you employed to determine the cost of equity for the Company.

A. Although my fundamental financial analysis provides the required framework to establish the risk relationships between the Company, the Gas Group, the Combination Group and the S&P Public Utilities, the cost of equity must be measured by standard financial models that I describe in NS Ex. 3.13B. Differences in risk traits, such as size, business diversification, geographical diversity, regulatory policy, financial leverage, and bond ratings must be considered when analyzing the cost of equity indicated by the models. In this case, the model results are lower than the Company's cost of equity because the Gas Group has lower risk than the Company.

It also is important to reiterate that no one method or model of the cost of equity can be applied in an isolated manner. As noted in NS Ex. 3.13B, and elsewhere in my direct testimony, each of the methods used to measure the cost of equity contains certain incomplete and/or overly restrictive assumptions and constraints that are not optimal. Therefore, I favor considering the results from a variety of methods.

IV. DISCOUNTED CASH FLOW ANALYSIS

Q. Please describe your use of the Discounted Cash Flow approach to determine the cost of equity.

A. The details of my use of the DCF approach and the calculations and evidence in support of my conclusions are set forth in NS Ex. 3.13C. I will summarize them here. The DCF model seeks to explain the value of an asset as the present value of future expected cash flows discounted at the appropriate risk-adjusted rate of return. In its simplest form, the DCF return on common stock consists of a current cash (dividend) yield and future price appreciation (growth) of the investment.

Among other limitations of the model, there is a certain element of circularity in the DCF method when applied in rate cases. This is because investors' expectations for the future depend in part upon regulatory decisions. In turn, when regulators depend upon the DCF model to set the cost of equity, they rely upon investor expectations that already include an assessment of how they will decide rate cases. Due to this circularity, the DCF model may not fully reflect the true risk of a utility.

As I describe in NS Ex. 3.13C, the DCF approach has other limitations that diminish its usefulness in the ratesetting process where, as in this case, the firm's market capitalization diverges significantly from the book value capitalization. When this situation exists, the market cost of equity generated by the DCF model will be mis-specified if it is applied to a book value capital structure.

Q. Please explain the dividend yield component of a DCF analysis.

A. The DCF methodology requires the use of an expected dividend yield to establish the investor-required cost of equity. The monthly dividend yields of the Gas Group and

Combination Group for the twelve months ended November 2010 are shown graphically on NS Ex. 3.6. Those monthly dividend yields reflect an adjustment to the month-end prices to reflect the build up of the dividend in the price that has occurred since the last ex-dividend date (i.e., the date by which a shareholder must own the shares to be entitled to the dividend payment – usually about two to three weeks prior to the actual payment). An explanation of this adjustment is provided in NS Ex. 3.13C.

For the twelve months ending November 2010, the average dividend yield was 4.13% for the Gas Group and 4.70% for the Combination Group based upon a calculation using annualized dividend payments and adjusted month-end stock prices. The dividend yields for the more recent six- and three- month periods were 4.05% and 3.95%, respectively, for the Gas Group and 4.58% and 4.48%, respectively, for the Combination Group. In my analysis, I used the six-month average yields of 4.05% for the Gas Group and 4.58% for the Combination Group. The use of this dividend yield reflects current capital costs, while avoiding spot yields.

For the purpose of a DCF calculation, the average dividend yield must be adjusted to reflect the prospective nature of the dividend payments i.e., the higher expected dividends for the future. Recall that the DCF is an expectational model that must reflect investor anticipated cash flows for the Gas Group and Combination Group. I have adjusted the six-month average dividend yield in three different, but generally accepted manners, and used the average of the three adjusted values as calculated in NS Ex. 3.13C. That adjusted dividend yield is 4.16% for the Gas Group and 4.73% for the Combination Group.

Q. Please explain the underlying factors that influence investor's growth expectations.

A. As noted previously, investors are interested principally in the future growth of its investment (i.e., the price per share of the stock). As I explain in NS Ex. 3.13C, future earnings per share growth represent the DCF model's primary focus. This is because the model assumes a constant price-earnings multiple, which in turn assumes that the price per share of stock will grow at the same rate as earnings per share. In conducting a growth rate analysis, a wide variety of variables can be considered when reaching a consensus of prospective growth. The variables that can be considered include: earnings, dividends, book value, and cash flow stated on a per share basis. Historical values for these variables can be considered, as well as analysts' forecasts that are widely available to investors. A fundamental growth rate analysis also can be formulated, which consists of internal growth ("b x r"), where "r" represents the expected rate of return on common equity and "b" is the retention rate that consists of the fraction of earnings that are not paid out as dividends. The internal growth rate can be modified to account for sales of new common stock – this is called external growth ("s x v"), where "s" represents the new common shares expected to be issued by a firm and "v" represents the value that accrues to existing shareholders from selling stock at a price different from book value. Fundamental growth, which combines internal and external growth, provides an explanation of the factors that cause book value per share to grow over time. Hence, a fundamental growth rate analysis is duplicative of expected book value per share growth.

Growth also can be expressed in multiple stages. This expression of growth consists of an initial "growth" stage where a firm enjoys rapidly expanding markets, high profit margins, and abnormally high growth in earnings per share. Thereafter, a firm enters a "transition" stage where fewer technological advances and increased product saturation begin to reduce the growth rate and profit margins come under pressure.

During the "transition" phase, investment opportunities begin to mature, capital requirements decline, and a firm begins to pay out a larger percentage of earnings to shareholders. Finally, the mature or "steady-state" stage is reached when a firm's earnings growth, payout ratio, and return on equity stabilizes at levels where they remain for the life of a firm. The three stages of growth assume a step-down of high initial growth to lower sustainable growth. Even if these three stages of growth can be envisioned for a firm, the third "steady-state" growth stage, which is assumed to remain fixed in perpetuity, represents an unrealistic expectation because the three stages of growth can be repeated. That is to say, the stages can be repeated where growth for a firm ramps-up and ramps-down in cycles over time.

My use of the constant growth DCF model to measure North Shore' cost of equity is consistent with the theoretical underpinnings of the model. Brealey, Myers and Allen recommend multi-stage growth versions of the model for "firms having high current rates of growth."[4] The example they give is the railroad industry in 2005 and 2006, a period in which the railroads "were expanding rapidly … as they recovered from a period of low profitability. Security analysts were forecasting continued recovery and earnings growth at 12% to 15% for the next few years." *Id.* By contrast, as I show below, the historical and forecasted growth rates for the Gas Group are around 5%, indicating that the industry is currently in the steady state growth phase and is likely to remain there for the period relevant to the determination of the Company's cost of equity in this rate case.

For similar reasons, the Federal Energy Regulatory Commission ("FERC") employs the constant growth DCF model for determining cost of equity for electric utility wholesale rates. FERC reaffirmed its methodology in *Southern California Edison Co.*,

[4] R. Brealey, S. Myers and F. Allen, Principles of Corporate Finance (9th Ed. 2008): p.95.

92 FERC ¶ 61,070 (2000). In that case, FERC decided that the two-stage growth DCF model that it has historically applied to natural gas pipeline companies was not appropriate for electric utilities due to significant differences between them. In particular, FERC noted that unlike gas pipelines, the then-current growth rate estimates for electric utilities were not "two or three times greater than GDP." Moreover, electric utilities typically have much higher dividend payout ratios resulting in "significantly lower expected dividend growth rates than most other industrial companies." Thus, FERC applies the constant growth DCF model to determine ROEs for electric utilities and relies on company-specific long-term growth rates in applying that model. FERC has since extended its application of the constant growth DCF model to regional transmission organizations. *Bangor Hydro-Electric Co.*, 117 FERC ¶ 61,129 (2006).

FERC's reasoning for using the constant growth DCF model for electric utilities applies equally to gas distribution utilities. The Gas Group's historical and forecast growth rates are nowhere near "two to three times greater than GDP," but are rather within one or two percentage points of GDP. Like electric utilities, gas utilities, including those in the Gas Group, have relatively high dividend payout ratios in comparison to pipelines and non-regulated companies and hence reinvest a relatively low portion of their earnings. This distinction between energy utilities and other industries "is critical, because retained earnings are a key source of dividend growth. The higher payout ratio attributable to [energy] utilities cause these companies to have significantly lower expected dividend growth rates than most other industrial companies (including most gas pipeline companies)."

Q. What investor-expected growth rate is appropriate in a DCF calculation?

A. Investors consider both company-specific variables and overall market sentiment (i.e., level of inflation rates, interest rates, economic conditions, etc.) when balancing a company's capital gains expectations with its dividend yield requirements. I follow an approach that is not rigidly formatted because investors are not influenced by a single set of company-specific variables weighted in a formulaic manner. Therefore, in my opinion, all relevant growth rate indicators using a variety of techniques must be evaluated when formulating a judgment of investor expected growth.

Q. What company-specific data have you considered in your growth rate analysis?

A. I have considered the growth in the financial variables shown on NS Ex. 3.7 and NS Ex. 3.8. The bar graph provided on NS Ex. 3.7 shows the historical growth rates in earnings per share, dividends per share, book value per share, and cash flow per share for the Gas Group and Combination Group. The historical growth rates were taken from the Value Line publication that provides these data. As shown on NS Ex. 3.7, the historical growth of earnings per share was in the range of 6.50% to 7.88% for the Gas Group and 0.63% to 3.63% for the Combination Group.

NS Ex. 3.8 provides projected earnings per share growth rates taken from analysts' forecasts compiled by IBES/First Call, Zacks, Morningstar, and from the Value Line publication. IBES/First Call, Zacks, and Morningstar represent reliable authorities of projected growth upon which investors rely. The IBES/First Call, Zacks, and Morningstar forecasts are limited to earnings per share growth, while Value Line makes projections of other financial variables. The Value Line forecasts of dividends per share, book value per share, and cash flow per share have also been included on NS Ex. 3.8 for

the Gas Group and Combination Group.

Although five-year forecasts usually receive the most attention in the growth analysis for DCF purposes, present market performance has been strongly influenced by short-term earnings forecasts. Each of the major publications provides earnings forecasts for the current and subsequent year. These short-term earnings forecasts receive prominent coverage, and indeed they dominate these publications.

Q. Is a five-year investment horizon associated with the analysts' forecasts consistent with the traditional DCF model?

A. No, but the fact that investors rely on growth forecasts no more than five years out illustrates that the infinite form of the model contains an unrealistic assumption. Rather than viewing the DCF in the context of an endless stream of growing dividends (e.g., a century of cash flows), the growth in the share value (i.e., capital appreciation, or capital gains yield) is most relevant to investors' total return expectations. Hence, the sale price of a stock can be viewed as a liquidating dividend that can be discounted along with the annual dividend receipts during the investment-holding period to arrive at the investor expected return. The growth in the price per share will equal the growth in earnings per share absent any change in price-earnings ("P-E") multiple – a necessary assumption of the DCF. As such, my company-specific growth analysis, which focuses principally upon five-year forecasts of earnings per share growth, conforms with the type of analysis that influences the actual total return expectation of investors. Moreover, academic research focuses on five-year growth rates as they influence stock prices. Indeed, if investors really required forecasts which extended beyond five years in order to properly value common stocks, then I am sure that some investment advisory service would begin

publishing that information for individual stocks in order to meet the demands of investors. The absence of such a publication is proof that investors do not require infinite forecasts in order to purchase and sell stocks in the marketplace.

Q. What specific evidence have you considered in the DCF growth analysis?

A. Ideally, historical and projected earnings per share and dividends per share growth indicators would be used to provide an assessment of investor growth expectations for a firm; however, projections of future earnings growth provide the principal focus of investor expectations. In this regard, it is worthwhile to note that Professor Myron Gordon, the foremost proponent of the DCF model in rate cases, concluded that the best measure of growth in the DCF model is a forecast of earnings per share growth.[5] Hence, to follow Professor Gordon's findings, projections of earnings per share growth, such as those published by IBES/First Call, Zacks, Morningstar, and Value Line, represent a reasonable assessment of investor expectations.

As to the five-year forecast growth rates, NS Ex. 3.8 indicates that the projected earnings per share growth rates for the Gas Group are 4.14% by IBES/First Call, 4.41% by Zacks, 5.60% for Morningstar, and 4.06% by Value Line. The Value Line projections indicate that earnings per share for the Gas Group will grow prospectively at a higher rate (i.e., 4.06%) than the dividends per share (i.e., 3.94%), which indicates a declining dividend payout ratio for the future. For the Combination Group, the forecast growth rates are 6.57% by IBES/First Call, 5.99% by Zacks, 5.65% by Morningstar and 6.56% by Value Line. As indicated earlier, and in NS Ex. 3.13C, with the constant price-earnings multiple assumption of the DCF model, growth for these companies will occur

[5] Gordon, Gordon & Gould ,"Choice Among Methods of Estimating Share Yield," The Journal of Portfolio Management (Spring 1989).

at the higher earnings per share growth rate, thus producing the capital gains yield expected by investors.

Q. What conclusion have you drawn from these data regarding the applicable growth rate to be used in the DCF model?

A. It is appropriate to consider all forecasts of earnings growth rates that are available to investors. In this regard, I have considered the forecasts from IBES/First Call, Zacks, Morningstar, and Value Line. The IBES/First Call, Zacks, and Morningstar growth rates are consensus forecasts taken from a survey of analysts that make projections of growth for these companies. The IBES/First Call, Zacks, and Morningstar estimates are obtained from the Internet and are widely available to investors free-of-charge. First Call is probably quoted most frequently in the financial press when reporting on earnings forecasts. The Value Line forecasts are also widely available to investors and can be obtained by subscription or free-of-charge at most public and collegiate libraries.

The forecasts of earnings per share growth, as shown on NS Ex. 3.8 provide a range of growth rates of 4.14% to 5.60% for the Gas Group and 5.65% to 6.57% for the Combination Group. Although the DCF growth rates cannot be established solely with a mathematical formulation, it is my opinion that investor-expected growth rates of 5.00% for the Gas Group and 6.00% for the Combination Group are reasonable point estimates for earnings per share growth rates for the DCF analyses in this case. The Value Line forecast of dividend per share growth is inadequate in this regard due to the forecast decline in the dividend payout that I previously described.

Q. Are the dividend yield and growth components of the DCF adequate to explain the rate of return on common equity when it is used in the calculation of the weighted average cost

of capital?

A. Only if the capital structure ratios are measured with the market value of debt and equity. If book values are used to compute the capital structure ratios, then an adjustment is required.

Q. Please explain why.

A. If regulators use the results of the DCF (which are based on the market price of the stock of the companies analyzed) to compute the weighted average cost of capital with a book value capital structure used for ratesetting purposes, those results will not reflect the higher level of financial risk associated with the book value capital structure. Where, as here, a stock's market price diverges from a utility's book value, the potential exists for a financial risk difference, because the capitalization of a utility measured at its market value contains more equity, less debt and therefore less risk than the capitalization measured at its book value.

This shortcoming of the DCF has persuaded one regulatory agency to adjust the cost of equity upward to make the return consistent with the book value capital structure. Provisions for this risk difference were made by the Pennsylvania Public Utility Commission in the following cases:

- January 10, 2002 for Pennsylvania-American Water Company in Docket No. R-00016339 -- 60 basis points adjustment.

- August 1, 2002 for Philadelphia Suburban Water Company in Docket No. R-00016750 -- 80 basis points adjustment.

- January 29, 2004 for Pennsylvania-American Water Company in Docket No. R-00038304 (affirmed by the Commonwealth Court on November 8, 2004) -- 60 basis points adjustment.

- August 5, 2004 for Aqua Pennsylvania, Inc. in Docket No. R-00038805 -- 60 basis points adjustment.

- December 22, 2004 for PPL Electric Utilities Corporation in Docket No. R-00049255 -- 45 basis points.

- February 8, 2007 for PPL Gas Utilities Corporation in Docket No. R-00061398 -- 70 basis points adjustment.

It must be recognized that in order to make the DCF results relevant to the capitalization measured at book value (as is done for rate setting purposes); the market-derived cost rate cannot be used without modification. As I will explain later in my testimony, the results of the DCF model can be modified to account for differences in risk when the book value capital structure contains more financial leverage than the market value capital structure.

Q. But, the Commission has previously declined to adopt your leverage adjustment. Do you agree with the Commission's reasoning in this regard?

A. No. Although accurately describing the financial leverage adjustment that I proposed, the Commission was mistaken in linking it to another adjustment to the DCF that was rejected in the Ameren rate case, Docket Nos. 06-0070/06-0071/06-0072 (cons.) that the Commission cited. Perhaps a better explanation on my part would clarify the distinction between these approaches.

The adjustment that I label as a "leverage adjustment" is merely a convenient way of relating the result of the simple DCF model (i.e., D/P + g), which is premised on a market-value capital structure, to results appropriate for the capital structure used in ratemaking, which is computed with book value weights rather than market value weights. The capital structure ratios measured at the utility's book value show more financial leverage, and higher risk, than the capitalization measured at its market value. Please refer to NS Ex. 3.13C for the comparison. In pioneering work, Nobel laureates

Modigliani and Miller developed several theories about the role of leverage in a firm's capital structure.[6] As part of that work, Modigliani and Miller established that, as the borrowing of a firm increases, the expected return on stockholders' equity also increases. This principle is the basis for my leverage adjustment which recognizes that the expected return on equity increases with the increased risk associated with the higher financial leverage shown by the book value capital structure, as compared to the market value capital structure that contains lower financial risk. If I expressed my return solely in the context of the book value weights that we use to set the weighted average cost of capital, and ignore the familiar D/P + g expression entirely, then there would be no separate element to reflect the financial leverage change. This is because the equity return applicable to the book value common equity ratio is equal to 8.16%, which is the return for the Gas Group applicable to its equity with no debt in its capital structure (i.e., the cost of capital is equal to the cost of equity with a 100% equity ratio) plus 1.50% compensation for having a 43.70% debt ratio, plus 0.01% for having a 0.21% preferred stock ratio (see pages 13 and 14 of NS Ex. 3.13C). The sum of the parts is 9.67% (8.16% + 1.50% + 0.01%) and there is no need to even address the cost of equity in terms of D/P + g.[7] To be completely transparent, I identify a separate leverage "adjustment" in the traditional DCF formula, but there is no need to do so other than providing separate identification for this factor. To express this same return in the context of the familiar DCF model, I summed the 4.16% dividend yield, the 5.00% growth rate, and the 0.51% for the leverage adjustment in order to arrive at the same 9.67% (4.16% + 5.00% +

[6] F. Modigliani and M.H. Miller "The Cost of Capital, Corporation Finance, and the Theory of Investments," American Economic Review, (June 1958): p. 261-297. F. Modigliani and M.H. Miller "Taxes and the Cost of Capital: A Correction." American Economic Review, (June 1963): p. 433-443.

[7] The leverage adjusted cost of equity for the Combination Group is 11.22% (8.64% + 2.53% + 0.05%) beginning with the unlevered cost of equity/capital of 8.64%.

0.51%) return. I know of no means to mathematically solve for the 0.51% leverage adjustment by expressing it in the terms of any particular relationship of market price to book value. The 0.51% adjustment is merely a convenient way to compare the 9.67% return computed directly with the Modigliani & Miller formulas to the 9.16% return generated by the DCF model based on a market value capital structure. My point is that when we use a market-determined cost of equity developed from the DCF model, it reflects a level of financial risk that is different (in this case, lower) from the Company's capital structure stated at book value. My point has nothing to do with targeting any particular market-to-book ratio.

Q. Is your leverage adjustment dependent upon the market valuation or book valuation from an investor's perspective?

A. The only perspective that is important to investors is the return that they can realize on the market value of their investment. As I have measured the DCF, the simple yield (D/P) plus growth (g) provides a return applicable strictly to the price (P) that an investor is willing to pay for a share of stock. The DCF formula is derived from the standard valuation model: P = D/(k-g), where P = price, D = dividend, k = the cost of equity, and g = growth in cash flows. By rearranging the terms, we obtain the familiar DCF equation: k= D/P + g. All of the terms in the DCF equation represent investors' assessment of expected future cash flows that they will receive in relation to the value that they set for a share of stock (P). The need for the leverage adjustment arises when the results of the DCF model (k) are to be applied to a capital structure that is different than indicated by the market price (P). From the market perspective, the financial risk of the Gas Group is accurately measured by the capital structure ratios calculated from the

market capitalization of a firm. If the ratesetting process utilized the market capitalization ratios, then no additional analysis or adjustment would be required, and the simple yield (D/P) plus growth (g) components of the DCF would satisfy the financial risk associated with the market value of the equity capitalization. Since the ratesetting process uses a different set of ratios calculated from the book value capitalization, then further analysis is required to synchronize the financial risk of the book capitalization with the required return on the book value of the equity. This adjustment is developed through precise mathematical calculations, using well recognized analytical procedures that are widely accepted in the financial literature. To arrive at that return, the rate of return on common equity is the unleveraged cost of capital (or equity return at 100% equity) plus one or more terms reflecting the increase in financial risk resulting from the use of leverage in the capital structure. Multiple terms are used in the case of debt and preferred stock. The resulting return is the one that is necessary for the utility to earn on its book value capital structure in order to earn the return that is based on the market value capital structure.

Q. Are there specific factors that influence market-to-book ratios that determine whether the leverage adjustment should be made?

A. No. The leverage adjustment is not intended, nor was it designed, to address the reasons that stock prices vary from book value. Hence, any observations concerning market prices relative to book are not on point. The leverage adjustment deals with the issue of financial risk and does not transform the DCF result to a book value return through a market-to-book adjustment. Again, the leverage adjustment that I propose is based on the fundamental financial precept that the cost of equity is equal to the rate of return for an

unleveraged firm (i.e., where the overall rate of return equates to the cost of equity with a capital structure that contains 100% equity) plus the additional return required for introducing debt and/or preferred stock leverage into the capital structure.

Further, as noted previously, the relatively high market prices of utility stocks cannot be attributed solely to the notion that these companies are expected to earn a return on equity that differs from their cost of equity. Stock prices above book value are common for utility stocks, and indeed the stock prices of non-regulated companies exceed book values by even greater margins. In this regard, according to the Barron's issue of December 13, 2010, the major market indices' market-to-book ratios are well above unity. The Dow Jones Utility index traded at a multiple of 1.54 times book value, which is below the market multiple of other indices. For example, the S&P Industrial index was at 2.98 times book value, and the Dow Jones Industrial index was at 2.75 times book value. It is difficult to accept that the vast majority of all firms operating in our economy are generating returns far in excess of their cost of capital. Certainly, in our free-market economy, competition should contain such "excesses" if they indeed exist.

Finally, the leverage adjustment adds stability to the final DCF cost rate. That is to say, as the market capitalization increases relative to its book value, the leverage adjustment increases while the simple yield (D/P) plus growth (g) result declines. The reverse is also true that when the market capitalization declines, the leverage adjustment also declines as the simple yield (D/P) plus growth (g) result increases.

Q. Please provide the DCF return based upon your preceding discussion of dividend yield, growth, and leverage.

A. As explained previously, I have utilized a six-month average dividend yield ("D_1 / P_0")

adjusted in a forward-looking manner for my DCF calculation. This dividend yield is used in conjunction with the growth rate ("g ") previously developed. The DCF also includes the leverage modification ("lev.") required when the book value equity ratio is used in determining the weighted average cost of capital in the ratesetting process rather than the market value equity ratio related to the price of stock. The resulting DCF cost rate is:

	D_1/P_0	+	g	+	$lev.$	=	k
Gas Group	4.16%	+	5.00%	+	0.51%	=	9.67%
Combination Group	4.73%	+	6.00%	+	0.49%	=	11.22%

The DCF result shown above represents the simplified (i.e., Gordon) form of the model that contains a constant growth assumption. I should reiterate, however, that the DCF indicated cost rate provides an explanation of the rate of return on common stock market prices without regard to the prospect of a change in the price-earnings multiple. An assumption that there will be no change in the price-earnings multiple is not supported by the realities of the equity market, because price-earnings multiples do not remain constant. This is one of the constraints of this model that makes it important to consider other model results when determining a company's cost of equity. As I noted previously in my testimony, the Company's risk is higher than that of the Gas Group. Hence, the DCF results from the Gas Group provides an inadequate measure of the Company cost of equity.

V. RISK PREMIUM ANALYSIS

Q. Please describe your use of the risk premium approach to determine the cost of equity.

A. The details of my use of the Risk Premium approach and the evidence in support of my

conclusions are set forth in NS Ex. 3.13E. I will summarize them here. With this method, the cost of equity capital is determined by corporate bond yields plus a premium to account for the fact that common equity is exposed to greater investment risk than debt capital. As with other models used to determine the cost of equity, the Risk Premium approach has its limitations, including potential imprecision in the assessment of the future cost of corporate debt and the measurement of the risk-adjusted common equity premium.

Q. What long-term public utility debt cost rate did you use in your risk premium analysis?

A. In my opinion, a 5.75% yield represents a reasonable estimate of the prospective yield on long-term A-rated public utility bonds. The Moody's index provides historical data for the yields on A-rated public utility bonds and Blue Chip provides data that will support forecasts of those yields.

Q. What historical data is shown by the Moody's data?

A. The historical yields for long-term public utility debt are shown graphically on page 1 of NS Ex. 3.9. For the twelve months ended November 2010, the average monthly yield on Moody's A-rated index of public utility bonds was 5.48%. For the six and three-month periods ended November 2010, the yields were 5.20% and 5.16%, respectively. During the twelve-months ended November 2010, the range of the yields on A-rated public utility bonds was 5.01% to 5.87%.

Q. What forecasts of interest rates have you considered in your analysis?

A. I have determined the prospective yield on A-rated public utility debt by using the Blue Chip Financial Forecasts ("Blue Chip") along with the spread in the yields that I describe

in Appendix F. Blue Chip is a reliable authority and contains consensus forecasts of a variety of interest rates compiled from a panel of banking, brokerage, and investment advisory services. In early 1999, Blue Chip stopped publishing forecasts of yields on A-rated public utility bonds because the Federal Reserve deleted these yields from its Statistical Release H.15. To independently project a forecast of the yields on A-rated public utility bonds, I have combined the forecast yields on long-term Treasury bonds published on December 1, 2010, and a yield spread of 1.50%. As shown on page 5 of NS Ex. 3.9, the yields on A-rated public utility bonds have exceeded those on Treasury bonds by 1.43% on a twelve-month average basis, 1.52% on a six-month average basis, and 1.56% on a the three-month average basis. From these averages, 1.50% represents a reasonable spread for the yield on A-rated public utility bonds over Treasury bonds. For comparative purposes, I also have shown the Blue Chip forecasts of Aaa-rated and Baa-rated corporate bonds. These forecasts are:

		Blue Chip Financial Forecasts				
		Corporate		30-Year	A-rated Public Utility	
Year	Quarter	Aaa-rated	Baa-rated	Treasury	Spread	Yield
2010	Fourth	4.7%	5.8%	4.0%	1.50%	5.50%
2011	First	4.7%	5.8%	4.1%	1.50%	5.60%
2011	Second	4.8%	5.8%	4.2%	1.50%	5.70%
2011	Third	5.0%	6.0%	4.3%	1.50%	5.80%
2011	Fourth	5.1%	6.1%	4.5%	1.50%	6.00%
2012	First	5.3%	6.2%	4.6%	1.50%	6.10%

Q. Are there additional forecasts of interest rates that extend beyond those shown above?

A. Yes. Twice yearly, Blue Chip provides long-term forecasts of interest rates. In its December 1, 2010 publication, Blue Chip published longer-term forecasts of interest rates, which were reported to be:

	Blue Chip Financial Forecasts		
	Corporate		30-Year
Averages	Aaa-rated	Baa-rated	Treasury
2012-16	6.0%	7.0%	5.3%
2017-21	6.3%	7.2%	5.6%

Given these forecasted interest rates, a 5.75% yield on A-rated public utility bonds represents a reasonable expectation.

Q. What equity risk premium have you determined for public utilities?

A. NS Ex. 3.13E provides a discussion of the financial returns that I relied upon to develop the appropriate equity risk premium for the S&P Public Utilities. I have calculated the equity risk premium by comparing the market returns on utility stocks and the market returns on utility bonds. I chose the S&P Public Utility index for the purpose of measuring the market returns for utility stocks. The S&P Public Utility index is reflective of the risk associated with regulated utilities, rather than some broader market indexes, such as the S&P 500 Composite index. The S&P Public Utility index is a subset of the overall S&P 500 Composite index. Use of the S&P Public Utility index reduces the role of judgment in establishing the risk premium for public utilities. With the equity risk premiums developed for the S&P Public Utilities as a base, I derived the equity risk premium for the Gas Group.

Q. What equity risk premium for the S&P Public Utilities have you determined for this case?

A. To develop an appropriate risk premium, I analyzed the results for the S&P Public Utilities by averaging (i) the midpoint of the range shown by the geometric mean and median and (ii) the arithmetic mean. This procedure has been employed to provide a comprehensive way of measuring the central tendency of the historical returns. As

shown by the values set forth on page 2 of NS Ex. 3.10, the indicated risk premiums for the various time periods analyzed are 5.51% (1928-2007), 6.58% (1952-2007), 6.08% (1974-2007), and 6.37% (1979-2007). The selection of the shorter periods taken from the entire historical series is designed to provide a risk premium that conforms more nearly to present investment fundamentals, and removes some of the more distant data from the analysis.

Q. Do you have further support for the selection of the time periods used in your equity risk premium determination?

A. Yes. First, the terminal year of my analysis presented in NS Ex. 3.10 represents the returns realized through 2007. An update to 2008 has not been prepared because of the difficulty in obtaining the return on public utility bonds from Lehman Brothers, which is in bankruptcy. Second, the selection of the initial year of each period was based upon the financial market defining events that I note here and describe in NS Ex. 3.13E. These events were fixed in history and cannot be manipulated as later financial data becomes available. That is to say, using the Treasury-Federal Reserve Accord as a defining event, the year 1952 is fixed as the beginning point for the measurement period regardless of the financial results that subsequently occurred. Likewise, 1974 represented a benchmark year because it followed the 1973 Arab Oil embargo. Also, the year 1979 was chosen because it began the deregulation of the financial markets. I consistently use these periods in my work, and additional data are merely added to the earlier results when they become available. The periods chosen are, therefore, not driven by the desired results of the study.

Q. What conclusions have you drawn from these data?

A. Using the summary values provided on page 2 of NS Ex. 3.10, the 1928-2007 period provides the lowest indicated risk premium, while the 1952-2007 period provides the highest risk premium for the S&P Public Utilities. Within these bounds, a common equity risk premium of 6.23% (6.08% + 6.37% = 12.45% ÷ 2) is derived by averaging data covering the periods 1974-2007 and 1979-2007. Therefore, 6.23% represents a reasonable risk premium for the S&P Public Utilities in this case.

As noted earlier in my fundamental risk analysis, differences in risk characteristics must be taken into account when applying the results for the S&P Public Utilities to the Gas Group. I recognized these differences in the development of the equity risk premium in this case. I previously enumerated various differences in fundamentals between the Gas Group and the S&P Public Utilities, including size, market ratios, common equity ratio, return on book equity, operating ratios, coverage, quality of earnings, internally generated funds, and betas. Based on these factors, the Company's overall risk is higher than that of the Gas Group. In my opinion, these differences indicate that 5.50% represents a reasonable common equity risk premium in this case. This represents approximately 88% (5.50% ÷ 6.23% = 0.88) of the risk premium of the S&P Public Utilities, and is reflective of the risk of the Gas Group compared to the S&P Public Utilities. For the Combination Group, the Proxy Group Analysis conducted earlier suggests that the group's overall risk is similar to that of the Gas Group, i.e., less risky than the S&P Public Utilities, supporting a risk premium of 5.50% for this group. In this regard, while the average size of the Combination Group is larger than the size of the Gas Group, thereby suggesting lower risk and a lower risk premium, there are other factors that elevate the risk of the Combination Group. Those risk factors include the higher financial risk of the Combination Group as revealed by its lower common equity ratio,

the higher variability of its earned returns, weaker interest coverage, and lower IGF to capital expenditures. Each of these factors adds to the risk of the Combination Group. On balance, a 5.50% risk premium for the Combination Group is reasonable when considering all of these factors.

Q. What common equity cost rate did you determine based on your risk premium analysis?

A. The cost of equity (i.e., "k") is represented by the sum of the prospective yield for long-term public utility debt (i.e., "i"), and the equity risk premium (i.e., "RP"). The Risk Premium approach provides a cost of equity of:

	i	+	RP	=	k
Gas Group	5.75%	+	5.50%	=	11.25%
Combination Group	5.75%	+	5.50%	=	11.25%

VI. CAPITAL ASSET PRICING MODEL

Q. Have you used the Capital Asset Pricing Model to measure the cost of equity in this case?

A. Yes. As with other models of the cost of equity, the CAPM contains a variety of assumptions and shortcomings that I discuss in NS Ex. 3.13F. Therefore, this method should be used with other methods to measure the cost of equity, as each will complement the other and will provide a result that will help reduce the unavoidable defects found in each method.

Q. What are the features of the CAPM as you have used it?

A. The CAPM uses the yield on a risk-free interest bearing obligation plus a rate of return premium that is proportional to the systematic risk of an investment. The details of my use of the CAPM and evidence in support of my conclusions are set forth in NS Ex. 3.13F. To compute the cost of equity with the CAPM, three components are necessary: a

risk-free rate of return ("Rf"), the beta measure of systematic risk ("β"), and the market risk premium ("Rm-Rf") derived from the total return on the market of equities reduced by the risk-free rate of return. The CAPM specifically accounts for differences in systematic risk (i.e., market risk as measured by the beta) between an individual firm or group of firms and the entire market of equities. As such, to calculate the CAPM, it is necessary to employ firms with traded stocks. In this regard, I performed a CAPM calculation for both the Gas Group and the Combination Group.

By contrast, my Risk Premium approach also considers industry- and company-specific factors, because it is not limited to measuring just systematic risk. As a consequence, the Risk Premium approach is more comprehensive than the CAPM. In addition, the Risk Premium approach provides a better measure of the cost of equity, because it is founded upon the yields on corporate bonds rather than Treasury bonds.

Q. What betas have you considered in the CAPM?

A. For my CAPM analysis, I initially considered the Value Line betas. As shown on page 1 of NS Ex. 3.11, the average beta is 0.65 for the Gas Group and 0.71 for the Combination Group.

Q. What betas have you used in the CAPM determined cost of equity?

A. The betas must be reflective of the financial risk associated with the ratesetting capital structure that is measured at book value. Therefore, Value Line betas cannot be used directly in the CAPM, unless those betas are applied to a capital structure measured with market values. To develop a CAPM cost rate applicable to a book-value capital structure, the Value Line (market value) betas have been unleveraged and releveraged for the book value common equity ratios using the Hamada formula, as follows:

$$\beta l = \beta u\,[1 + (1 - t)\,D/E + P/E]$$

where ßl = the leveraged beta, ßu = the unleveraged beta, t = income tax rate, D = debt ratio, P = preferred stock ratio, and E = common equity ratio. The betas published by Value Line have been calculated with the market price of stock and, therefore, are related to the market value capitalization. By using the formula shown above and the capital structure ratios measured at market value, the beta would become 0.49 for the Gas Group if it employed no leverage and was 100% equity financed. With the unleveraged beta as a base, I calculated the leveraged beta of 0.76 for the book value capital structure of the Gas Group. The betas and corresponding common equity ratios are:

	Market Values		Book Values	
	Beta	Common Equity Ratio	Beta	Common Equity Ratio
Gas Group	0.65	65.74%	0.74	56.09%
Combination Group	0.71	51.76%	0.77	46.52%

The book value leveraged beta that I employed in the CAPM cost of equity is 0.74 for the Gas Group and 0.77 for the Combination Group.

Q. What risk-free rate have you used in the CAPM?

A. For the reasons explained in NS Ex. 3.13D, I have employed the yields on 20-year Treasury bonds using historical data. For forecasts, I have used the yields on 30-year Treasury bonds that are published by Blue Chip. The reason that I used the 20-year Treasury yield in my historical analysis relates to the interruption in the 30-year series, which had no data reported for the months of March 2002 to January 2006. That is to say, 48-months of data were missing from the 60-months that I used for my five-year historical analysis shown on page 2 of NS Ex. 3.11. As shown on pages 2 and 3 of NS Ex. 3.11, I provided the historical yields on Treasury notes and bonds. For the twelve

months ended November 2010, the average yield on 20-year Treasury bonds was 4.05%, as shown on page 3 of that schedule. For the six- and three-months ended November 2010, the yields on 20-year Treasury bonds were 3.68% and 3.60%, respectively. During the twelve-months ended November 2010, the range of the yields on 20-year Treasury bonds was 3.47% to 4.53%. In recent months, there has been a significant decline in the yields on Treasury obligations, which can be traced to a number of factors, including: a purported bubble that may be developing in the market for Treasury obligations, the sovereign debt crisis, concern over a possible double dip recession, the potential for deflation, and the Fed's maintenance of its large balance sheet through the reinvestment of the proceeds from maturing mortgage-backed securities with the purchase of Treasury obligations. While Treasury yields have declined for a variety of reasons, the decline in corporate (i.e., public utility) bond yields has not been so pronounced or revealed by the increased spreads, that I discussed previously. As shown on page 4 of NS Ex. 3.11, forecasts published by Blue Chip December 1, 2010 indicate that the yields on long-term Treasury bonds are expected to be in the range of 4.0% to 4.6% during the next six quarters. The longer term forecasts described previously (see Blue Chip Financial Forecast presented earlier) show that the yields on 30-year Treasury bonds will average 5.3% from 2012 through 2016 and 5.6% from 2017 to 2021. For the reasons explained previously, forecasts of interest rates should be emphasized at this time in selecting the risk-free rate of return in CAPM. Hence, I have used a 4.25% risk-free rate of return for CAPM purposes, which considers not only the Blue Chip forecasts, but also the recent trend in the yields on long-term Treasury bonds.

Q. What market premium have you used in the CAPM?

A. The market premium is developed by averaging historical market performance and the forecasts. With regard to the forecast data, I have relied upon the Value Line forecasts of capital appreciation and the dividend yield on the 1,700 stocks in the Value Line Survey. According to the November 26, 2010, edition of The Value Line Investment Survey Summary and Index, (see page 5 of NS Ex. 3.11) the total return on the universe of Value Line equities is:

	Dividend Yield		Median Appreciation Potential		Median Total Return
As of November 16, 2010	2.0%	+	12.47% [6]	=	14.47%

The tabulation shown above provides the dividend yield and capital gains yield of the companies followed by Value Line. Another measure of the total market return is provided by the DCF return on the S&P 500 Composite index:

DCF Result for the S&P 500 Composite

D/P	(1+.5g)	+	g	=	k
1.92%	(1.05545)	+	11.09%	=	13.12%

where:	Price (P)	at	30-Nov-2010	=	1180.55
	Dividend (D)	for	3rd Qtr. '10	=	5.66
	Dividend (D)		annualized	=	22.64
	Growth (g)		First Call EPS	=	11.09%

Using these indicators, the total market return is 13.80% (14.47% + 13.12% = 27.59% ÷ 2) using both the Value Line and S&P derived returns. With the 13.80% forecast market return and the 4.25% risk-free rate of return, a 9.55% (13.80% - 4.25%) market premium is indicated using forecast market data.

I have also provided market premiums that have been widely circulated among

[8] The estimated median appreciation potential is forecast to be 60% for 3 to 5 years hence. The annual capital gains yield at the midpoint of the forecast period is 12.47% (i.e., $1.60^{.25}$ - 1).

the investment and academic community, which today is published by Morningstar, Inc. These data are contained in the 2010 Ibbotson® Stocks, Bonds, Bills and Inflation ("SBBI") Classic Yearbook. From the data provided on page 6 of NS Ex. 3.11, I calculate a market premium using the historical common stock arithmetic mean returns of 11.8% less government bond arithmetic mean returns of 5.8%. For the period 1926-2009, the market premium was 6.0% (11.8% - 5.8%). Also shown on page 6 of NS Ex. 3.11 is the long-horizon expected market premiums of 6.7% also published in the SBBI Classic Yearbook. An average of the historical and expected SBBI market premium is 6.35% (6.0% + 6.7% = 12.7% ÷ 2).

For the CAPM, a market premium of 7.95% (6.35% + 9.55% = 15.90% ÷ 2) would be reasonable which is the average of the 6.35% SBBI data and the 9.55% Value Line and S&P 500 data.

Q. Are there adjustments to the CAPM results that are necessary to fully reflect the rate of return on common equity?

A. Yes. The finance literature supports an adjustment relating to the size of the company or portfolio for which the calculation is performed. As the size of a firm decreases, its risk and, hence, its required return increases. Moreover, in his discussion of the cost of capital, Professor Brigham has indicated that smaller firms have higher capital costs than otherwise similar larger firms (see Fundamentals of Financial Management, 5th Edition, page 623). Also, the Fama/French study (see "The Cross-Section of Expected Stock Returns," The Journal of Finance, June 1992) established that size of a firm helps explain stock returns. In an October 15, 1995 article in Public Utility Fortnightly, entitled "Equity and the Small-Stock Effect," it was demonstrated that the CAPM could

understate the cost of equity significantly according to a utility's size. Indeed, it was demonstrated in the SBBI Yearbook that the returns for stocks in lower deciles (i.e., smaller stocks) had returns in excess of those shown by the simple CAPM. The Ibbotson data confirm this phenomenon for electric and gas companies, where small-cap companies have outperformed large-cap companies by over 300 basis points over the last 80 years.[9]

In this regard, the Gas Group has an average market capitalization of its equity of $1,670 million, which would make it a midcap portfolio. The Combination Group has an average market capitalization of $3,804 million, which also makes it a midcap portfolio. The midcap market capitalization would indicate a size premium of 1.08%[10]. Absent such an adjustment, the CAPM would understate the required return.

Q. What CAPM result have you determined using the CAPM?

A. Using the 4.25% risk-free rate of return, the leverage adjusted beta of 0.74 for the Gas Group and 0.77 for the Combination Group, the 7.95% market premium, and the size adjustment, the following result is indicated.

	Rf	+	*ß*	x	(	*Rm-Rf*	)	+	*size*	=	*k*
Gas Group	4.25%	+	0.74	x	(	7.95%	)	+	1.08%	=	11.21%
Combination Group	4.25%	+	0.77	x	(	7.95%	)	+	1.08%	=	11.45%

As compared to the DCF model, the results of the CAPM are more broadly based and consider specific risk factors, such as those related to small size.

[9] R. Morin, New Regulatory Finance (2006): p. 181-182.
[10] BBI 2010 Classic Yearbook: p. 95.

VII. COMPARABLE EARNINGS APPROACH

Q. How have you applied the Comparable Earnings approach in this case?

A. The technical aspects of the Comparable Earnings approach are set forth in NS Ex. 3.13G. Because regulation is a substitute for competitively-determined prices, the returns realized by non-regulated firms with comparable risks to a public utility provide useful insight into a fair rate of return. In order to identify the appropriate return, it is necessary to analyze returns earned (or realized) by other firms within the context of the Comparable Earnings standard. The firms selected for the Comparable Earnings approach should be companies whose prices are not subject to cost-based price ceilings (i.e., non-regulated firms) so that circularity is avoided. There are two avenues available to implement the Comparable Earnings approach. One method would involve the selection of another industry (or industries) with comparable risks to the public utility in question, and the results for all companies within that industry would serve as a benchmark. The second approach requires the selection of parameters that represent similar risk traits for the public utility and the comparable risk companies. Using this approach, the business lines of the comparable companies become unimportant. The latter approach is preferable with the further qualification that the comparable risk companies exclude regulated firms in order to avoid the circular reasoning implicit in the use of the achieved earnings/book ratios of other regulated firms. The United States Supreme Court has held that:

> 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 reasonably 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 the money necessary for the proper discharge of its public duties. *Bluefield Water Works vs. Public Service Commission*, 262 U.S. 668 (1923).

Therefore, it is important to identify the returns earned by firms that compete for capital with a public utility. This can be accomplished by analyzing the returns of non-regulated firms that are subject to the competitive forces of the marketplace.

Q. How have you implemented the Comparable Earnings approach?

A. In order to implement the Comparable Earnings approach, non-regulated companies were selected from the Value Line Investment Survey for Windows that have six categories (see NS Ex. 3.13G for definitions) of comparability designed to reflect the risk of the Gas Group. These screening criteria were based upon the range as defined by the rankings of the companies in the Gas Group. The items considered were: Timeliness Rank, Safety Rank, Financial Strength, Price Stability, Value Line betas, and Technical Rank. The identities of the companies comprising the Comparable Earnings group and its associated rankings within the ranges are identified on page 1 of NS Ex. 3.12.

I relied on Value Line data because they provide a comprehensive basis for evaluating the risks of the comparable firms. As to the returns calculated by Value Line for these companies, there is some downward bias in the figures shown on page 2 of NS Ex. 3.12 because Value Line computes the returns on year-end rather than average book value. If average book values had been employed, the rates of return would have been slightly higher. Nevertheless, these are the returns considered by investors when taking positions in these stocks. Because many of the comparability factors, as well as the published returns, are used by investors for selecting stocks, and to the extent that

investors rely on the Value Line service to gauge its returns, it is, therefore, an appropriate database for measuring comparable return opportunities.

Q. What data have you used in your Comparable Earnings analysis?

A. I have used both historical realized returns and forecasted returns for non-utility companies. As noted previously, I have not used returns for utility companies in order to avoid the circularity that arises from using regulatory-influenced returns to determine a regulated return. It is appropriate to consider a relatively long measurement period in the Comparable Earnings approach in order to cover conditions over an entire business cycle. A ten-year period (5 historical years and 5 projected years) is sufficient to cover an average business cycle. Unlike the DCF and CAPM, the results of the Comparable Earnings method can be applied directly to the book value capitalization because, the nature of the analysis relates to book value. Hence, Comparable Earnings does not present, as the other models do, the potential misapplication of results when the market capitalization and book value capitalization diverge significantly. The average historical rate of return on book common equity was 14.1% using only the returns that were less than 20% as shown on page 2 of NS Ex. 3.12. The average forecast rate of return as published by Value Line is 14.3% also using values less than 20%, as provided on page 2 of NS Ex. 3.12.

Q. What rate of return on common equity have you determined in this case using the Comparable Earnings approach?

A. The average of the historical and forecast median rates of return is:

	Historical	*Forecast*	*Average*
Comparable Earnings Group	14.1%	14.3%	14.20%

As noted previously, I have used the results from the Comparable Earnings method to confirm the results of the market based models.

VIII. CONCLUSION ON COST OF EQUITY

Q. What is your conclusion concerning Company cost of common equity?

A. The indicated costs of equity from each of the models that I employed are shown in the following table:

	Gas Group	Combination Group
DCF	9.67%	11.22%
RP	11.25%	11.25%
CAPM	11.21%	11.45%

In reaching my conclusion, I disregarded the result of the DCF model for the Gas Group because it is far too low to represent a reasonable cost of equity for the Company. A DCF return for the Gas Group of 9.67% is only 362 basis points higher than the Company's 6.05% effective cost of new debt for the test year, where current equity premiums for utilities are at the 550 basis points level. This shows that the DCF return for the Gas Group is understating the Company's return by 150 basis points. Moreover, the DCF result is highly inconsistent with the Risk Premium and CAPM results, and therefore represents an outlier. This is confirmed when the model results for the Gas Group are compared to those of the Combination Group, which shows that the DCF result for the Gas Group is much lower than all of the results for the Combination Group, including the DCF result.

For these reasons, I placed primary emphasis on my Risk Premium and CAPM

results for the Gas Group. Based on these results and the fact that the Gas Group has lower risk than the Company, I concluded that 11.25% is a reasonable cost of equity for the Company under current market conditions.

Q. Does this conclude your direct testimony at this time?

A. Yes, it does.