STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of **MICHIGAN GAS UTILITIES CORPORATION** for authority to increase retail natural gas rates.	))))	Case No. U-15990

DIRECT TESTIMONY OF

PAUL R. MOUL

FOR

MICHIGAN GAS UTILITIES CORPORATION

July 1, 2009

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
CPFF	Commercial Paper Funding Facility
DCF	Discounted Cash Flow
FFO	Funds from Operations
FOMC	Federal Open Market Committee
g	Growth rate
GSE	Government-sponsored enterprises
IGF	Internally Generated Funds
LDC	Local Distribution Companies
Lev	Leverage modification
LT	Long Term
MGUC	Michigan Gas Utilities Corporation
MPSC	Michigan Public Service Commission
MLPs	Master Limited Partnerships
P-E	Price-earnings
PUC	Public Utility Commission
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

GLOSSARY OF ACRONYMS AND DEFINED TERMS	
ACRONYM	**DEFINED TERM**
S&P	Standard & Poor's
TARP	Troubled Asset Relief Program
v	Represents the value that accrues to existing shareholders from selling stock at a price different from book value
WPSR	WPS Resources Corporation

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

* * * * *

In the matter of the application of **MICHIGAN GAS UTILITIES CORPORATION** for authority to increase retail natural gas rates.	))))	Case No. U-15990

QUALIFICATIONS
OF
PAUL R. MOUL
PART I

INTRODUCTION AND SUMMARY OF RECOMMENDATIONS

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 Appendix A, which follows my direct testimony.

PAUL R. MOUL
DIRECT TESTIMONY
PART II

Q. What is the purpose of your direct testimony?

A. My direct testimony presents evidence, analysis, and a recommendation concerning the appropriate rate of return on common equity that Michigan Public Service Commission ("MPSC" or "Commission") should recognize in the determination of the revenues that Michigan Gas Utilities Corporation ("MGUC" or "Company") should realize as a result of this proceeding. My analysis and recommendation are supported by the detailed financial data contained in Exhibit A-4 (PRM-1), which is divided into ten (10) schedules. Additional evidence, in the form of appendices, follows my direct testimony. The items covered in these appendices provide additional detailed information concerning the explanation and application of the various financial models upon which I rely.

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

A. My conclusion is that the Company's cost of common equity is 12.00% and that the Commission should adopt this cost rate as part of a reasonable rate of return. The resulting overall cost of capital, which is the product of weighting the individual capital costs by the proportion of each respective type of capital, should establish a just and reasonable level of return for the use of capital and provide MGUC with the ability to attract capital on reasonable terms. Details of MGUC's proposed cost of debt capital and weighted average cost of capital are contained in the testimony of Ms. Lisa Gast, Manager--Financial Planning and Analysis.

Q. What background information have you considered in reaching a conclusion concerning the Company's cost of capital?

A. The Company is a wholly-owned subsidiary of Integrys Energy Group, Inc. ("Integrys"). MGUC was acquired by Integrys on April 1, 2006 from Aquila, Inc. d/b/a Aquila Networks – MGU. Integrys was formerly named WPS Resources Corporation ("WPSR") prior to the merger of WPSR and Peoples Energy Corporation. The merger with Peoples Energy Corporation was completed on February 21, 2007. Integrys is a holding company and owns, in addition to MGUC, The Peoples Gas Light and Coke Company, North Shore Gas Company, Minnesota Energy Resources Corporation, Upper Peninsula Power Company, Wisconsin Public Service Corporation, and other energy investments.

MGUC distributes natural gas to approximately 166,000 customers in 147 communities in southern and western portions of Michigan, including Grand Haven, Otsego, Benton Harbor, Coldwater, and Monroe. Throughput to its customers in 2008 was represented by approximately 46% to residential customers, 20% to commercial customers, 2% to industrial customers, and 32% to transportation customers, based on 2008 Calendar Sales displayed on Exhibit A-15 (HWJ-2), Schedule E-1.1 Approximately 97% of MGUC's residential customers use natural gas for space heating purposes. This means that MGUC's throughput is sensitive to temperature conditions over which MGUC has absolutely no control. The Company's throughput is also significantly influenced by industrial and transportation customers, which represent 34% of total throughput, but comprise just 0.1% of total customers, based on 2008 year end customers from Exhibit A-15 (HWJ-2), Schedule E-2. As such, the energy needs of a few customers can have a significant impact on MGUC's operations.

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

A. The cost of common equity is established using capital market and financial data relied upon by investors to assess the relative risk, and hence the cost of equity, for a gas distribution utility, such as MGUC. In this regard, I have considered three (3) well-recognized measures of the cost of equity: the Discounted Cash Flow ("DCF") model, the Risk Premium ("RP") analysis, and the Capital Asset Pricing Model ("CAPM"). I also considered as a check on the results of these models the Comparable Earnings ("CE") approach.

Q. In your opinion, what factors should the Commission consider when determining the Company's cost of capital in this proceeding?

A. The Commission should consider the ratesetting principles that I have set forth in Appendix B. In this regard, the Commission's rate of return allowance must be set to cover MGUC's interest payments, provide a reasonable level of earnings retention, produce an adequate level of internally generated funds to meet capital requirements, be commensurate with the risk to which MGUC's capital is exposed, support reasonable credit quality, and allow MGUC to raise capital on reasonable terms.

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

A. The models that I used to measure the cost of common equity for the Company were applied with market and financial data developed from a gas group of nine (9) gas companies. The companies are identified on page 2 of Schedule D7. I will refer to these companies as the "Gas Group" throughout my testimony.

Q. Please explain the selection process used to assemble the Gas Group?

A. I began with the universe of gas utilities contained in the basic service of The Value Line Investment Survey, which consists of twelve companies. Value Line is an investment advisory service that is a widely used source in public utility rate cases. Through the application of my screening process, I eliminated three companies, which were NiSource due to its electric operations and its natural gas pipeline and storage operations, Southwest Gas due to its location where service is provided in an arid region of the U.S., and UGI Corporation because of its highly diversified businesses. The remaining nine companies are included in my Gas Group.

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

A. I have applied the models/methods for estimating the cost of equity using the average data for the Gas Group. I have not measured separately the cost of equity for the individual companies within the Gas Group, because the determination of the cost of equity for an individual company can be problematic. The use of group average data will reduce the effect of potentially anomalous results for an individual company if a company-by-company approach were utilized. This is to say, by employing group average data, rather than individual company analysis; I have helped to minimize the effect of extraneous influences on the market data for an individual company.

Q. Please summarize your cost of equity analysis.

A. My cost of equity determination was derived from the results of the methods/models identified above. In general, the use of more than one method provides a superior foundation to arrive at the cost of equity. At any point in time, any single method can provide an incomplete measure of the cost of equity. The specific application of these methods/models will be described later in my testimony. The following table provides

a summary of the indicated costs of equity using each of these approaches.

	Gas Group
DCF	11.17%
RP	12.25%
CAPM	11.84%
Measures of Central Tendency:	
Average	11.75%
Median	11.84%
Mid-point	11.71%

From these results, a reasonable return for the Company would be 12.00%. Indeed, the midpoint of the Risk Premium and CAPM results are 12.05% (12.25% + 11.84% = 24.09% ÷ 2). As I indicated previously, I have used the Comparable Earnings approach to confirm the results of the market-based models. Indeed, the result of Comparable Earnings, which is 13.70%, is higher than the results of the Risk Premium and CAPM and is well above the DCF results. My recommended rate of return on common equity of 12.00% makes no provision for the prospect that the rate of return may not be achieved due to unforeseen events, such as unexpected spikes in the cost of purchased products and other expenses. To obtain new capital and retain existing capital, the rate of return on common equity must be high enough to satisfy investors' requirements. Indeed, in a study dated December 9, 2008, prepared for the American Gas Foundation, it was noted that allowed equity returns below the level required by investors may lessen a utility's ability to maintain and develop systems that are necessary to provide natural gas service efficiently.

NATURAL GAS RISK FACTORS

Q. What factors currently affect the business risk of natural gas utilities?

A. Gas utilities face risks arising from competition, economic regulation, the business cycle, and customer usage patterns. Today, they operate in a more complex environment with time frames for decision-making considerably shortened. Their business profile is influenced by market-oriented pricing for the commodity distributed to customers and open access for the transportation of natural gas for large volume customers. Of concern for MGUC is the volatility in natural gas commodity prices, which has had a negative impact on its customers. Volatile commodity prices mean significant swings in customer bills, as the cost of gas is recovered through the Gas Cost Recovery ("GCR") mechanism. Volatile gas costs may result in declines in average use per existing customer and in fewer new customers selecting natural gas to meet their energy needs.

Natural gas utilities have focused increased attention on safety and reliability issues and on conservation. In order to address these issues and to comply with new and pending pipeline safety regulations, natural gas companies are now allocating more of their resources to addressing aging infrastructure issues.

Q. How does MGUC's throughput to large volume users affect its risk profile?

A. The Company's risk profile is influenced by natural gas sold/delivered to large volume customers, which represent approximately 34% of throughput, based on volumes displayed on Exhibit A-15 (HWJ-2), Schedule E1.1. Large volume users, which have traditionally used transportation service, have the ability to bypass the Local Distribution Company (LDC) system. To date, MGUC has been proactive in its effort to avoid bypass. Success in this aspect of MGUC's market is subject to the business

cycle, the price of alternative energy sources, and pressures from competitors. Moreover, external factors can also influence MGUC's throughput to these customers because cost factors can impact their operations relative to alternative facilities located outside MGUC's service territory.

Q. Please indicate how its construction program affects the Company's risk profile.

A. The Company is required to undertake investments to maintain and upgrade existing facilities in its service territories. To maintain safe and reliable service to existing customers and to promote growth, MGUC must invest in its infrastructure. The Company projects its construction expenditures will be $47.9 million during the period 2009-2013. Over this period, these capital expenditures will represent approximately 34% ($47.9 million ÷ $140.1 million) of its net utility plant at December 31, 2008. As previously noted, a fair rate of return represents a key to a financial profile that will provide the Company with the ability to raise the capital necessary to meet its needs on reasonable terms.

Q. Does your cost of equity analysis and recommendation take into account the proposal for a revenue decoupling mechanism or straight fixed-variable rate design?

A. Yes, it does. As part of this case, the Company is proposing to implement rate design changes. My cost of equity analysis takes these measures into account. Many of the LDCs included in the Gas Group already have tariff mechanisms similar to decoupling, and therefore my analysis reflects the impact, if any, of decoupling on investor expectations through the use of market-determined models. These regulatory mechanisms are designed to assure recovery of the fixed costs for the gas distribution companies. Eight of the companies in the Gas Group have various forms of revenue

stabilization, some of which are related to temperature variations and others to margin reconciliation. The remaining company (i.e., Laclede) has a tariff design that is intended to deal with variations in usage attributed to temperate conditions. As such, the market prices of these companies' common stocks reflect the expectations of investors related to a regulatory mechanism that adjusts revenues for conservation, abnormal weather, and other items. The trend in the industry is to stabilize the recovery of fixed costs, which are unaffected by usage. Indeed, there has been a proliferation of tracking mechanisms in the LDC business.

Q. How should the Commission respond to the issues facing the natural gas utilities and, in particular, the Company?

A. The Commission should recognize and take into account the heightened competitive environment and the risk it poses in the natural gas business in determining the cost of capital for the Company, and provide a reasonable opportunity for the Company to actually achieve its cost of capital.

FUNDAMENTAL RISK 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 a fundamental analysis of various quantitative and qualitative factors that bear upon investors' assessment of overall risk. The qualitative factors that bear upon Company risk have already been discussed. The quantitative risk analysis follows. The items that influence investors' evaluation of risk and its required returns are described in Appendix C. For this purpose, I compared the Company to the S&P Public Utilities, an industry-wide proxy consisting of various regulated businesses, and

to the Gas 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 Schedule D8.

Q. What companies comprise the gas group?

A. My Gas Group consists of the following companies: AGL Resources, Inc., Atmos Energy Corp., Laclede Group, New Jersey Resources Corp., Nicor, Inc., Northwest Natural Gas, Piedmont Natural Gas Co., South Jersey Industries, Inc., and WGL Holdings, Inc.

Q. Is knowledge of a utility's bond 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. This is because a firm's cost of equity is represented by its borrowing cost plus compensation to recognize the higher risk of an equity investment compared to debt.

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

A. Presently, the corporate credit rating ("CCR") for Integrys is "BBB+" from Standard and Poor's Corporation ("S&P"), and the Long Term ("LT") issuer rating is "Baa1" from

Moody's Investors Services ("Moody's"). The credit quality ratings of Integrys are cited here because the Company does not have a credit rating and it obtains its long-term debt from Integrys. The LT issuer rating by Moody's and the CCR designation by S&P focuses upon the credit quality of the issuer of the debt, rather than upon the debt obligation itself. For the Gas Group, the average Long Term ("LT") issuer rating is A3 by Moody's and the average corporate credit rating ("CCR") is A by S&P, as displayed on page 2 of Schedule D7. For the S&P Public Utilities, the average composite rating is Baa1 by Moody's and BBB+ by S&P, as displayed on page 3 of Schedule D8. 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, and the S&P Public Utilities?

A. The broad categories of financial data that I will discuss are shown on Schedule D6, D7, and D8. The data cover the five-year period 2003-2007. The 2003 to 2007 time period was employed for the Gas Group because 2008 annual data is presently unavailable from S&P Compustat. The important categories of relative risk may be summarized as follows:

Size. In terms of capitalization, the Company is very much smaller than the average size of the Gas Group, and smaller still than the average size of 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 and expense has a proportionately greater impact on a small firm. As I will demonstrate later, the size of a firm can impact its cost of equity. This is the case for MGUC and the Gas Group.

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 Integrys owns its stock. The five-year average price-earnings multiple was fairly similar for the Gas Group and the S&P Public Utilities. The five-year average dividend yields were somewhat higher for the Gas Group as compared to the S&P Public Utilities. The average market-to-book ratios were fairly similar for the Gas Group and the S&P Public Utilities.

Common Equity Ratio. The level of financial risk is measured by the proportion of long-term debt and other senior capital that is contained in a company's 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 total capital were 42.9% for MGUC, 46.2% for the Gas Group and 41.7% for the S&P Public Utilities.

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

[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).

(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 0.661 (3.7% ÷ 5.6%) for MGUC, 0.040 (0.5% ÷ 12.4%) for the Gas Group, and 0.112 (1.3% ÷ 11.6%) for the S&P Public Utilities. The Company's rates of return were much more variable than the Gas Group.

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 91.8% for MGUC, 89.5% for the Gas Group, and 84.4% for the S&P Public Utilities.

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 2.58 times for MGUC, 4.22 times for the Gas Group and 3.11 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

[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.

concern for the Company, the Gas Group and 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 146.6% for the Company, 98.9% for the Gas Group and 106.5% 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 0.66 as the average for the Gas Group (see page 2 of Schedule D7) and 0.80 as the average for the S&P Public Utilities (see page 3 of Schedule D8).

Q. Please summarize your risk evaluation.

A. The risk of MGUC parallels that of the Gas Group in certain respects. On some counts MGUC's risk is higher, such as its smaller size, its much higher earnings variability, its somewhat higher operating ratio, and its lower interest coverage. On the other hand, MGUC's risk is lower as indicated by its higher IGF to construction. Other measures are approximately equal, i.e., its common equity ratio and quality of earnings. On balance, the Gas Group provides a reasonable basis for measuring MGUC's cost of

[3]The procedure used to calculate the beta coefficient published by Value Line is described in Appendix H. 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.

equity for this case, albeit a conservative measure due to MGUC's more numerous high risk factors.

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 and the S&P Public Utilities, the cost of equity must be measured by standard financial models that I describe in Appendix D. 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.

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 Appendix D, 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. In this regard, I applied each of the methods with data taken from the Gas Group and have arrived at a cost of equity of 12.00% for the Company.

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 Appendix E. 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 upon regulatory decisions. In turn, when regulators depend upon the DCF model to set the cost of equity, they rely upon investor expectations that include an assessment of how regulators 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 Appendix E, 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 DCF method will lead to a misspecified cost of equity when 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. For the twelve months ended April 2009, the monthly dividend yields of the Gas Group are shown graphically on Schedule D9. The monthly dividend yields shown on Schedule D9 reflect an adjustment to the month-end prices to reflect the buildup 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 Appendix E.

For the twelve months ending April 2009, the average dividend yield was 4.13% for the Gas 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 4.36% and 4.62%, respectively. I have used, for the purpose of my direct testimony, a dividend yield of 4.36% for the Gas Group, which represents the six-month average yield. The use of this dividend yield will reflect 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. 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 Appendix E. That adjusted dividend yield is 4.50% for the Gas 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 their investment (i.e., the price per share of the stock). As I explain in Appendix E, future earnings per share growth represents the DCF models primary focus because under the constant price-earnings multiple assumption of the model, 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.

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.

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 their capital gains expectations with their 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 Schedules D10 and Schedule D11. The bar graph provided on Schedule D10 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. The historical growth rates were taken from the Value Line publication that provides these data. As shown on Schedule D10, the historical growth of earnings per share was in the range of 4.56% to 7.11% for the Gas Group.

Schedule D11 provides projected earnings per share growth rates taken from analysts' forecasts compiled by IBES/First Call and Zacks and from the Value Line publication. IBES/First Call and Zacks represent reliable authorities of projected growth upon which investors rely. The IBES/First Call and Zacks 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 Schedule D11 for the Gas 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 DCF model?

A. Yes. 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, is consistent with the type of analysis that influences the 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 signals 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. As to the five-year forecast growth rates; Schedule D11 indicates that the projected earnings per share growth rates for the Gas Group are 5.42% by IBES/First Call, 7.19% by Zacks, and 4.72% by Value Line. The Value Line projections indicate that earnings per share for the Gas Group will grow prospectively at a more rapid rate (i.e., 4.72%) than the dividends per share (i.e., 3.81%), which indicates a declining dividend payout ratio for the future. As indicated earlier, and in Appendix E, with the constant price-earnings multiple assumption of the DCF model, growth for these companies will occur 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. A variety of factors should be examined to reach a conclusion on the DCF growth rate. However, certain growth rate variables should be emphasized when reaching a conclusion on an appropriate growth rate. First, historical and projected earnings per share, dividends per share, book value per share, cash flow per share, and retention growth represent indicators that could be used to provide an assessment of investor growth expectations for a firm. However, while history cannot be ignored, it cannot receive primary emphasis. This is attributed to the fact that when developing a forecast of future earnings growth, a securities' analyst would first apprise himself/herself of the historical performance of a company. Hence, there is no need to count historical growth rates separately, because historical performance is already

reflected in analysts' forecasts, which reflect an assessment of how the future will diverge from historical performance. Second, from the various alternative measures of growth identified above, earnings per share should receive greatest emphasis. Earnings per share growth are the primary determinant of investor expectations concerning their total returns in the stock market. This is because the capital gains yield (i.e., price appreciation) will track earnings growth with a constant price earnings multiple (a key assumption of the DCF model). Moreover, earnings per share (derived from net income) are the source of dividend payments, and are the primary driver of retention growth and its surrogate book value per share growth. As such, under these circumstances, greater emphasis must be placed upon projected earnings per share growth. 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.[4] Hence, to follow Professor Gordon's findings, projections of earnings per share growth, such as those published by IBES/First Call, Zacks, and Value Line, represent a reasonable assessment of investor expectations.

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, and Value Line. The IBES/First Call and Zacks growth rates are consensus forecasts taken from a survey of analysts that make projections of growth for these companies. The IBES/First Call and Zacks 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-

[4]"Choice Among Methods of Estimating Share Yield," The Journal of Portfolio Management, spring 1989 by Gordon, Gordon & Gould.

charge at most public and collegiate libraries.

The forecasts of earnings per share growth, as shown on Schedule D11 provide a range of growth rates of 4.72% to 7.19%. Although the DCF growth rates cannot be established solely with a mathematical formulation, it is my opinion that an investor-expected growth rate of 6.00% is within the array of earnings per share growth rates shown by the analysts' forecasts. 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. As I previously indicated, the restructuring and consolidation now taking place in the utility industry will provide additional risks and opportunities as the utility industry successfully adapts to the new business environment. These changes in growth fundamentals will undoubtedly develop beyond the next five years typically considered in the analysts' forecasts and will enhance the growth prospects for the future. As such, a 6.00% growth rate will accommodate all these factors.

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 the Pennsylvania Public Utility Commission to adjust the cost of equity upward to make the return consistent with the book value capital structure 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. 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 utilizes 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.

Q. Is your leverage adjustment in any way related to a transformation of the return designed to address the market-to-book ratio?

A. No. The adjustment that I label as a "leverage adjustment" is merely a convenient way to identify the adjustment in terms of the simplified DCF model (i.e., D/P + g), when applied to the capital structure used in ratemaking, which is computed with book value weights rather than market value weights. I specify a separate factor, which I call the leverage adjustment, but there is no need to do so other than providing identification for this factor. If I expressed my return solely in the context of the book value weights that we use to calculate 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 from market value to book value capitalization. This is because the equity return applicable to the book value common equity ratio is equal to 9.67%, 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 1.49% compensation for having a 42.78% debt ratio, plus 0.01% for having a 0.20% preferred stock ratio. The sum of the parts is 11.17% (9.67% + 1.49% + 0.01%) and there is no need to even address the cost of equity in terms of D/P + g. To express this same return in the context of the familiar DCF model, I summed the 4.50% dividend yield, the 6.00% growth rate, and the 0.67% for the leverage adjustment in order to arrive at the same 11.17% (4.50% + 6.00% + 0.67%) return. I know of no means to mathematically solve for the 0.67% leverage adjustment by expressing it in the terms of any particular relationship of market price to book value. The 0.67% adjustment is merely a convenient way to compare the 10.50% return

computed directly with the Modigliani & Miller formulas to the 11.17% 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 capital structure stated at book value. This process has nothing to do with targeting any particular market-to-book ratio.

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 is not intended to 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 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 its 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 May 4, 2009, the major market indices' market-to-book ratios are well above unity. The

Dow Jones Utility index traded at a multiple of 1.63 times book value, which is below the market multiple of other indices. For example, the S&P Industrial index was at 2.21 times book value, and the Dow Jones Industrial index was at 2.64 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. What are the implications of a DCF derived return that is related to market value when the results are applied to the book value of a utility's capitalization?

A. 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 Appendix E for the comparison. This means that a market-derived cost of equity, using models such as DCF and CAPM, reflects a level of financial risk that is different -- in this instance, much lower -- from that shown by the book value capitalization. Hence, it is necessary to develop a cost of equity that reflects the higher financial risk related to the book value capitalization used for ratesetting purposes. Failure to make this modification would result in a mismatch of the lower financial risk related to market value used to measure the cost of equity and the higher financial risk of the book value capital structure used in the ratesetting process. That is to say, the cost of equity for the Gas Group that is related to the 57.02% common

equity ratio using book value has higher financial risk than the 70.79% common equity ratio using market values. Because the ratesetting process utilizes the book value capitalization, it is necessary to adjust the market-determined cost of equity for the higher financial risk related to the book value of the capitalization.

Q. How is the DCF-determined cost of equity adjusted for the financial risk associated with the book value of the capitalization?

A. In pioneering work, Nobel laureates Modigliani and Miller developed several theories about the role of leverage in a firm's capital structure. 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[5]. This principle is incorporated into my leverage adjustment which recognizes that the expected return on equity increases to reflect 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. Modigliani and Miller proposed several approaches to quantify the equity return associated with various degrees of debt leverage in a firm's capital structure. These formulas point toward an increase in the equity return associated with the higher financial risk of the book value capital structure. Simply stated, the leverage adjustment contains no factor for a particular market-to-book ratio. It merely expresses the cost of equity as the unleveraged return plus compensation for the additional risk of introducing debt and/or preferred stock into the capital structure. There can be no dispute that a firm's financial risk varies with the relative amount of leverage contained in its capital structure. As detailed in Appendix E, the Modigliani

[5] Modigliani, F. and Miller, M.H. "The Cost of Capital, Corporation Finance, and the Theory of Investments." American Economic Review, June 1958, 261-297.

Modigliani, F. and Miller, M. H. "Taxes and the Cost of Capital: A Correction." American Economic Review, June 1963, 433-443.

and Miller theory when applied to the Gas Group shows that the cost of equity increases by 0.67% (11.17% - 10.50%) when the book value of equity, rather than the market value of equity, is used for ratesetting purposes.

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.

	D_1/P_0	+	g	+	$kv.$	=	k
Gas Group	4.50%	+	6.00%	+	0.67%	=	11.17%

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.

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 Appendix G. 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 of 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 6.75% yield represents a reasonable estimate of the prospective yield on long-term A-rated public utility bonds. The Moody's index and the Blue Chip forecasts support this figure.

The historical yields for long-term public utility debt are shown graphically on page 1 of Schedule D12. For the twelve months ended April 2009, the average monthly yield on Moody's A-rated index of public utility bonds was 6.60%. For the six and three-month periods ended April 2009, the yields were 6.62% and 6.40%, respectively. During the twelve-months ended April 2009, the range of the yields on A-rated public utility bonds was 6.28% to 7.60%. During 2008, many critical events have occurred that influence the yields on long-term corporate debt. They include: (i) the collapse of The Bear Stearns Company and its acquisition by JPMorgan Chase & Co. with the aid of the Federal Reserve Bank of New York announced on March 16, 2008; (ii) the failure of

IndyMac on July 11, 2008, which was at the time the third-largest banking failure in U.S. history, after a "run on the bank" by depositors; (iii) the placement of the government-sponsored enterprises ("GSE") Federal National Mortgage Association (Fannie Mae) and Freddie Mac into conservatorship on September 7, 2008 by the Federal Housing Finance Agency; (iv) the largest bankruptcy filing in history by Lehman Brothers Holding, Inc. on September 15, 2008; (v) the acquisition of the banking operations of Washington Mutual, then the largest U.S. savings bank, by JPMorgan Chase on September 24, 2008, (Washington Mutual's holding company subsequently filed for bankruptcy protection); (vi) the rescue of Merrill Lynch & Co., Inc. by Bank of America on September 15, 2008, with assistance of the Federal government; (vii) the effective nationalization on September 23, 2008, of American International Group, then the world's largest insurance company, through the acquisition of 79.9% of its equity by the U.S. Treasury and (viii) other significant events affecting financial markets globally. In response to these events, on October 3, 2008, Congress passed and the President signed the Emergency Economic Stabilization Act of 2008, which, among other provisions, provides the mechanism to deploy up to $700 billion through the Troubled Asset Relief Program ("TARP") to address urgent needs created by the credit crisis the country has experienced. Then, the Federal Reserve Board instituted its Commercial Paper Funding Facility ("CPFF"), which was authorized on October 7, 2008, and it participated in coordinated efforts by major central banks to support financial stability and to maintain flows of credit in the banking system. These programs included a $75 billion Term Auction Facility ("TAF"), a future TAF auction totaling $150 billion, and an increase to $620 billion of swap authorizations with central banks in Canada, England, Japan, Denmark, the European Union, Norway, Australia, Sweden, and Switzerland. Further, on February 17, 2009, the President signed the American Recovery and Reinvestment Act that committed $789 billion by the Federal

government in an effort to create jobs, jumpstart growth and to transform the economy in reaction to the recession that began in December 2007.

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

A. As described above, the credit markets and capital markets generally were jolted by a financial crisis that evolved from the credit crunch that began in the third quarter of 2007. This situation represents the worst financial crisis since the Great Depression.

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 above and in Appendix F. The 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 May 1 2009, and a yield spread of 2.50%. As shown on page 5 of Schedule D12, A-rated public utility bonds have yielded more than Treasury bonds by 2.46% as the twelve-month average, 2.89% as the six-month average, and 2.58% as the three-month average. From these averages, 2.50% 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
2009	2nd	5.3%	8.2%	3.6%	2.50%	6.10%
2009	3rd	5.3%	8.1%	3.7%	2.50%	6.20%
2009	4th	5.3%	7.9%	3.8%	2.50%	6.30%
2010	1st	5.4%	7.9%	4.0%	2.50%	6.50%
2010	2nd	5.5%	7.9%	4.2%	2.50%	6.70%
2010	3rd	5.6%	7.9%	4.3%	2.50%	6.80%

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, 2008 publication, Blue Chip published forecasts of interest rates are reported to be:

	Blue Chip Financial Forecasts		
	Corporate		30-Year
Averages	Aaa-rated	Baa-rated	Treasury
2010-14	6.4%	7.6%	5.2%
2015-19	6.6%	7.7%	5.6%

Given these forecasted interest rates, a 6.75% yield on A-rated public utility bonds represents a reasonable expectation.

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

A. Appendix G 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 Schedule D13, 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 Schedule D13 represents the returns realized through 2007. Second, the selection of the initial year of each period was based upon the financial market defining events that I note here and described in Appendix G. 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 Schedule D13, 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 shown from 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. 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.

Q. What common equity cost rate did you determine using this 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	6.75%	+	5.50%	=	12.25%

CAPITAL ASSET PRICING MODEL

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

A. Yes, I have used the Capital Asset Pricing Model ("CAPM") in addition to my other methods. As with other models of the cost of equity, the CAPM contains a variety of assumptions and shortcomings that I discuss in Appendix H. 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 effects 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 Appendix I. 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 the Gas Group. In 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 Schedule D14, the average beta is 0.66 for the Gas 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.[6] This adjustment has been made with the formula:

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

[6] Robert S. Hamada, "The Effects of the Firm's Capital Structure on the Systematic Risk of Common Stocks" *The Journal of Finance* Vol. 27, No. 2, Papers and Proceedings of the Thirtieth Annual Meeting of the American Finance Association, New Orleans, Louisiana, December 27-29, 1971. (May 1972), pp.435-452

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 0.52 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 0.78 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
0.66	70.79%	0.78	57.02%

The book value leveraged beta that I will employ in the CAPM cost of equity is 0.78 for the Gas Group.

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

A. For reasons explained in Appendix F, 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 used for my five-year historical analysis shown on page 2 of Schedule D14. As shown on pages 2 and 3 of Schedule D14, I provided the historical yields on Treasury notes and bonds. For the twelve months ended April 2009, the average yield was 4.14%, as shown on page 3 of that schedule. For the six- and three-months ended April 2009, the yields on 20-year

Treasury bonds were 3.73% and 3.82%, respectively. During the twelve-months ended April 2009, the range of the yields on 20-year Treasury bonds was 3.18% to 4.74%. As shown on page 4 of Schedule D14, forecasts published by Blue Chip on May 1, 2009 indicate that the yields on long-term Treasury bonds are expected to be in the range of 3.6% to 4.3% during the next six quarters. The longer term forecasts described previously (see Blue Chip Financial Forecast shown on page 34) show that the yields on Treasury bonds will average 5.2% from 2010 through 2014 and 5.6% for 2015 to 2019. For reasons explained previously, forecasts of interest rates should be emphasized at this time. 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. As shown in Appendix H, the market premium is derived from the SBBI Classic Yearbook (i.e., 6.05%) and the Value Line and S&P 500 returns (i.e., 11.01%). For the historically based market premium, I have used the arithmetic mean. The market premium as taken from these sources provides 8.53% (6.05% + 11.01% = 17.06% ÷ 2).

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

A. Yes. The technical 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, fifth 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 Utilities Fortnightly, entitled “Equity and the Small-Stock Effect,” it was demonstrated that the CAPM could understate the cost of equity significantly according to a company’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. In this regard, the Gas Group has an average market capitalization of its equity of $1,707 million, which would make them a small-cap portfolio. The small-cap market capitalization would indicate a size premium of 1.74%. However, for my CAPM analysis, I have adopted a mid-cap adjustment of 0.94%, which provides a more conservative representation of the size adjustment because it provides a smaller premium than the small-cap adjustment. 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 0.78 for the Gas Group, the 8.53% market premium, and the 0.94% size adjustment, the following result is indicated.

	Rf	+	ß	x	(	*Rm-Rf*	)	+	*size*	=	*k*
Gas Group	4.25%	+	0.78	x	(	8.53%	)	+	0.94%	=	11.84%

<u>COMPARABLE EARNINGS APPROACH</u>

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 Appendix I. 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 Appendix I 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 their associated rankings within the ranges are identified on page 1 of Schedule D15.

Value Line data was relied upon because it provides 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 Schedule D15, 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 contain the potential misspecification contained in market models when the market capitalization and book value capitalization diverge significantly. The historical rate of return on book common equity was 14.6% using the median value as shown on page 2 of Schedule D15. The forecast rates of return, as published by Value Line are shown by the 12.8% median values also provided on page 2 of Schedule D15.

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	14.60%	12.8%	13.70%

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

CONCLUSION ON COST OF EQUITY

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

A. Based upon the application of a variety of methods and models described previously, it is my opinion that the reasonable cost of common equity is 12.00% for the Company.

My cost of equity recommendation should be considered in the context of the Company's risk characteristics, as well as the general condition of the capital markets. It is essential that the Commission employ a variety of techniques to measure the Company's cost of equity because of the limitations/infirmities that are inherent in each method.

Q. Does this conclude your pre-filed direct testimony?

A. Yes, it does.