UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Portland Natural Gas Transmission System **Docket No. RP08-____**

Prepared Direct Testimony
of
Paul Ronald Moul

Introduction and Summary of Recommendation

Q.1 Please state your name, occupation and business address.

A.1 My name is Paul Ronald Moul. My business address is 251 Hopkins Road, Haddonfield, New Jersey 08033-3062. I am Managing Consultant of the firm P. Moul & Associates, an independent, financial and regulatory consulting firm. My educational background, business experience and qualifications are provided in Appendix A that follows my direct testimony.

Q.2 What is the purpose of your testimony?

A.2 My testimony presents evidence, analysis, and a recommendation concerning the rate of return on equity that the Federal Energy Regulatory Commission ("FERC" or the "Commission") should allow Portland Natural Gas Transmission System ("PNGTS" or the "Company") an opportunity to earn. My analysis and recommendation are supported by the detailed financial data set forth in Exhibit No. PNG-12, which is a multi-page document divided into thirteen (13) schedules. Additional evidence, in the form of appendices, follows my direct testimony, and is incorporated herein by reference. Those appendices deal with the technical aspects of, and provide additional discussion of topics

addressed in, my testimony.

Q.3 Based upon your analysis, what is your conclusion concerning the appropriate rate of return on equity for the Company in this case?

A.3 Based upon my independent analysis, my conclusion is that PNGTS should be afforded an opportunity to earn a rate of return on equity in the range of 13.00% to 15.00%. The Company has used a 14.75% rate of return on equity in calculating the weighted average cost of capital in Statement F-2. I have reproduced the Company's overall rate of return on Schedule 1 of my exhibit. The weighted average cost of capital, when applied to PNGTS' rate base, will provide a compensatory level of return for the use of capital commensurate with the risks facing PNGTS.

The Company's determination of the specific equity return from my recommended range of returns will recognize the Company's above average risk as discussed in the testimony of Mr. Haag. It is important that the Commission seriously consider the Company's relative risk position when selecting the rate of return on equity from the range of returns. Too often, the choice of the return, whether measured as the midpoint, mean or median, relegates most of the pipelines to the average risk category. Indeed, a process that assigns an average return to most pipelines defeats the purpose of establishing a range which is designed to encompass varying degrees of risk. In this case, the Company has presented compelling evidence that warrants a return above the average, no matter how measured.

Q.4 What is your understanding of the Company's operations?

A.4 I have considered the general nature of PNGTS's operations in reaching my conclusions and recommendation. PNGTS is a general partnership organized in the State of Maine.

It owns a system consisting of approximately 290 miles of pipeline. The PNGTS mainline extends from the Canadian/U.S.A. border near Pittsburg, New Hampshire to Westbrook, Maine. At Westbrook, Maine, the Company's facilities connect to a 102-mile mainline system that is jointly-owned with another party that extends to Dracut Massachusetts where it connects with the Tennessee Gas system. PNGTS principally transports gas gathered and produced in the Western Canada Sedimentary Basin ("WCSB").

In 2007, nominated decatherms on the Company's system consisted of approximately 17% by electric power generators, approximately 2% by pulp and paper mills customers having direct connections to the Company's facilities, approximately 10% by local gas distribution utilities, and approximately 70% by natural gas marketers. Within the past several years, the Company has experienced the turn-back of the contracts with its two largest electric power generators due to bankruptcy proceedings.

Q.5 How have you determined the cost of equity for PNGTS?

A.5 Initially, I established a range of the cost of equity using publicly-available capital market and financial data to assess the relative risk, and hence the cost of equity, for a natural gas pipeline such as PNGTS. In this regard, I relied on four well-recognized measures: the Discounted Cash Flow ("DCF") model, the Risk Premium analysis, the Capital Asset Pricing Model ("CAPM"), and the Comparable Earnings approach. By considering the results of a variety of approaches, I determined that a reasonable range cost of equity is 13.00% to 15.00%.

The models that I used to measure the cost of equity for PNGTS were applied with market data developed from a proxy group of both corporate and master limited

partnerships ("MLP") that have significant interests in Commission regulated natural gas pipelines. For this group, the percentage of natural gas transmission assets range from approximately 33% to 100%, with a group average of 61% (see page 2 of Schedule 3). I will refer to this group of twelve entities as the "Pipeline Group" throughout the remainder of my testimony. As noted above, my Pipeline Group includes MLPs. Because many pipelines (including the Company) are now organized as partnerships, and the Commission has recently conducted an inquiry concerning the use of MLPs in the proxy group of pipeline companies -- see the Commission's proposed Policy Statement (Docket No. PL07-2-000) -- I included MLPs in my proxy group.

Q.6 Please summarize the basis for your recommended cost of equity in this proceeding.

A.6 My recommendation is derived from the results of the four methods/models identified above. In general, the use of more than one method will provide a superior foundation to arrive at the cost of equity. At any point in time, individual methods may be unduly influenced by extraneous factors and/or market sentiment that may produce anomalous results. The use of multiple methods will help to mitigate such occurrences. The following table provides a summary of the indicated costs of equity using each of these approaches. I have presented the results of my analysis by both including and excluding an allowance for flotation costs.

	Pipeline Group	
	Excl. Flot.	Incl. Flot. [(1)]
DCF:		
Single growth	16.99%	17.33%
Two-stage	17.29%	17.63%
Risk Premium	12.50%	12.84%
CAPM	14.79%	15.13%
Comparable Earnings	14.35%	14.35%
Range:		
High	17.29%	17.63%
Low	12.50%	12.84%
Mid-point	14.90%	15.24%
Average	15.18%	15.46%
Median	14.79%	15.13%

It is noteworthy that in determining an appropriate cost of equity, I considered directly the results of a two-stage DCF model. The Commission has frequently insisted upon a DCF analysis that uses more than a single growth rate in setting the cost of equity in rate cases. While the Commission's DCF model is known as the "two-stage" DCF model, in reality, it is actually the familiar constant growth DCF model that contains a blended growth rate. The growth rate is a blend of the analysts' forecast growth taken from IBES/First Call service and a generic long term growth rate taken from the forecast of the growth in the gross domestic product ("GDP"). The GDP growth rate can be viewed as a generic, non-company specific rate of growth. My testimony will explain the results of my two-stage DCF analysis, using the familiar components of yield and short term as

[1]Flotation costs are defined as the out-of-pocket costs associated with the issuance of common stock. Those costs typically consist of the underwriters' discount and company issuance expenses.

well as long term growth.

Without any of the necessary adjustments for financial leverage and flotation costs, my DCF analysis of the Pipeline Group provides a median return of 13.90%. From the overall results of the various measures of the cost of equity provided in the table shown above, including the DCF model, I recommend a range of 13.00% to 15.00% for a rate of return on equity. From this range, the Company has used a 14.75% rate of return on common equity for PNGTS in recognition of its higher than average risk profile.

Q.7 Setting aside the specific mechanics of computing a reasonable return, could you describe your overall perspective on the process?

A.7 My procedure for establishing the rate of return on equity is robust because it employs a variety of different tools thereby broadening the scope of my analysis beyond a single measure of the cost of equity. There are risks in relying upon an approach limited to a single method that may contain a variety of limitations and/or unrealistic assumptions. Moreover, it is necessary to exercise care in using individually-computed costs of equity that, due to aberrations in the data, may cause individual company calculations to produce anomalous and/or counter-intuitive results. This situation was recently addressed by the Commission in its Opinion and Order in the rate case for Kern River, which is the most recently decided gas pipeline rate case. As the Commission noted in paragraph 140 of its Order, abnormally low DCF results cannot be relied upon when those estimates do not provide sufficient recognition of the higher risk of stocks over the yield on long-term corporate debt. Indeed, when viewing the results of the Commission's so-called two-stage DCF, where individual results are developed for each company within a proxy group, those anomalies become apparent. Hence, use of a variety of

methods to establish the cost of equity minimizes the inevitable limitations found in all models/methods.

Q.8 In your opinion, what factors should the Commission consider when setting PNGTS' rate of return in this proceeding?

A.8 The Commission should consider the principles that I have set forth in Appendix B. In this regard, the end result of the rate of return finding by the Commission must provide for the payment of interest, compensate PNGTS equity investors for the use of capital, produce an adequate level of internally generated funds to meet capital requirements, support reasonable credit quality, be adequate to attract capital on reasonable terms, and compensate for the risk to which PNGTS' equity capital is exposed.

Interstate Natural Gas Company Risk Factors

Q.9 Please describe the business environment facing interstate natural gas companies.

A.9 Competitive, regulatory and economic risks facing the natural gas transmission business are different today than formerly. The Commission's general policy fosters competition in the natural gas business through regulatory and commercial practices (e.g., alteration of certification authorization procedures, greater ease in obtaining authorization to build capacity, and the discounting and negotiation of rates). For the future, the business environment facing the natural gas business will be influenced by changing regulation, revenues being pressured by competition, shorter contract durations with customers, and counter party risk.

Q.10 What is the competitive position of the natural gas business environment?

A.10 The competitiveness of the natural gas business has increased significantly at all levels. Even beyond the federal level, unbundling initiatives at the state level for both gas and

electric service will have an impact on the position of many pipelines. Gas producers, marketers, distributors, and other end users now have a broad array of choices that may reduce the need for traditional long-term contracts for transportation service. Shippers can more readily obtain short term contracts, shifting risks to the pipelines. Indeed, shippers can compete directly with pipelines by releasing their firm capacity to other shippers. Unbundling of retail sales by LDCs means that gas marketers holding interstate pipeline capacity may not have substantial physical assets to serve as a source of financial assurance to backstop service agreements with pipelines.

Moreover, heightened competition will undoubtedly continue to develop from consolidation within and between the utility and pipeline industries because the surviving companies can bring to bear the economies of scope and scale in dealing with suppliers/vendors in order to obtain the most attractive prices for purchased goods and services. Also, as natural gas prices increase, the competitive position of natural gas diminishes, particularly as a fuel in electric generation and for general industrial applications.

Q.11 Are there additional features of the pipeline business that bear on risk?

A.11 There is a certain amount of asymmetry that presently elevates the pipeline's risk profile. The regulatory process establishes maximum transportation rates that the Company can charge its customers. However, in periods of slack demand, the Company's pipeline capacity can be underutilized or capacity may be sold at discounted rates. This structure results in rates being capped at a maximum level, while allowing lower rates that can be collected from shippers. That is to say, there is downside risk provided by flexible rates in periods of weak demand, but upside potential is capped at a maximum rate. In

contrast, the Commission has announced its intention to implement rules that would eliminate any cap (set by regulation) on the rate shippers could charge for short term releases of capacity in the secondary market. Thus, the potentially skewed distribution of charges results in an asymmetrical profile further elevating risk.

In fact, the situation facing PNGTS is even more challenging. As explained by PNGTS witness Haag, the pipeline's long term firm service customers have the use of capacity for free during the non-winter months, and thus have an opportunity to sell that service, in competition with PNGTS.

Q.12 What is the overall business risk facing PNGTS?

A.12 PNGTS witness Haag discusses the general business risk faced by the Company. For example, PNGTS has deferred the recovery of its invested capital because of its deferral of the recovery of depreciation expense into future periods when its primary competitor will have substantially expanded its capacity into PNGTS' market, as well as other factors discussed in the evidence filed in this case.

Fundamental Risk Analysis

Q.13 Is it necessary to conduct a fundamental risk analysis prior to a determination of a pipeline's cost of equity?

A.13 Yes. In addition to qualitative factors, it is necessary to establish a company's relative risk position within its industry through an analysis of various quantitative factors that bear upon investors' assessment of overall risk. Items that influence investors' evaluation of risk and their required returns are described in Appendix C.

Q.14 What comparison groups have you employed to assess the Company's position vis-à-vis other regulated companies?

A.14 I have compared PNGTS to two groups of companies for my analysis. Those groups are the S&P Public Utilities and the Pipeline Group. The S&P Public Utilities is a widely recognized index comprised of electric power companies and natural gas companies. The companies that comprise the group are identified on page 3 of Schedule 4. I used this group as a broad-based measure of all types of regulated companies. The Pipeline Group includes: Boardwalk Pipeline Partners, L.P., El Paso Corporation, Enbridge Energy Partners LP, Energy Transfer Partners, L.P., Enterprise Products Partners, LP, Kinder Morgan Energy Partners LP, ONEOK Partners, L.P., Southern Union Company, Spectra Energy Corporation, TC PipeLines, LP, The Williams Companies, Inc., and Williams Partners L.P. As I previously explained, I have included MLPs in the Pipeline Group. I have done this because the number of MLPs is growing substantially. Indeed, there are two additional companies (i.e., Spectra Energy Partners and El Paso Pipeline Partners) that could be added to the group after adequate trading histories for their units are available.

Q.15 How do the bond ratings compare for PNGTS, the Pipeline Group, and the S&P Public Utilities?

A.15 PNGTS has a private credit quality rating of BBB- from S&P, which is the lowest of the investment grades. A private letter rating was obtained because the Company has only one series of debt outstanding that was privately placed with thirty-five (35) institutional investors. The average LT Issuer Rating (for long term instruments) is Baa3 from Moody's and the corporate credit rating ("CCR") is BBB- from S&P for the Pipeline Group. 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 S&P Public Utilities, the average rating is Baa1 by Moody's and BBB+ by S&P. Many of the financial indicators that I will subsequently discuss are considered during the rating process.

Q.16 What specific financial data have you considered in your analysis?

A.16 I have compared financial data from PNGTS to financial data related to the Pipeline Group, and the S&P Public Utilities. The broad categories of financial data that I will discuss are shown on Schedule 2, Schedule 3, and Schedule 4. The source of the financial data that I used for the Company on Schedule 2 was taken from the audited financial statements prepared by KPMG LLP. These financial statements do not reflect the regulatory deferrals associated with its cost of service, as the GAAP statements do not reflect the phase-in ratesetting mechanisms. The data cover the five-year period 2002-2006. These schedules include data concerning the following factors that affect investors' perception of the market required return.

Size. In terms of capitalization, the size of PNGTS is much smaller than the average size of entities in either the Pipeline Group, or the S&P Public Utilities. All other things being equal, a smaller company, such as PNGTS, is riskier than a larger company because a given change in nominal revenues and/or expenses has a proportionately greater impact on a smaller company.

Market Ratios. Market-based financial ratios provide a partial measure of the investor-required cost of equity. If all other factors are equal, investors will require a higher return on equity for companies which 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.[2]

The five-year average price-earnings multiple was higher for the Pipeline Group than for the S&P Public Utilities. The five-year average market-to-book ratio was also higher for the Pipeline Group than for the S&P Public Utilities. There are no market-based financial ratios for PNGTS. And hence, no conclusions can be drawn from these factors in the fundamental risk analysis of PNGTS.

Common Equity Ratio. The level of financial risk is measured by the ratio of long-term debt and other senior capital to permanent capital. 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 ratio comparisons, based on permanent capital, were 42.3% for PNGTS, 45.3% for the Pipeline Group, and 41.2% for the S&P Public Utilities. The common equity ratio for PNGTS is between the S&P Public Utilities and the Pipeline Group. For this case, the capital structure ratios of PNGTS reflect slightly more debt than equity.

Return on Book Equity. Greater variability (i.e., uncertainty) of a firm's earned returns signifies relative 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 coefficient of variation, the greater degree of variability. For the five year period, the coefficients of variation were 0.244 (3.0% ÷ 12.3%) for PNGTS, 0.457 (4.3% ÷ 9.4%)

[2]For example, two otherwise similarly situated firms each reporting $1.00 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).

for the Pipeline Group, and 0.159 (1.7% ÷ 10.7%) for the S&P Public Utilities. The coefficient of variation for PNGTS was between the Pipeline 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).[3] The five-year average operating ratios were 41.9% for PNGTS, 84.1% for the Pipeline Group, and 84.0% for the S&P Public Utilities. It is difficult to make a comparison of the operating ratios for PNGTS to the other groups because no provision is made for the cost of purchased products in the Company's cost of service. For the other groups, the cost of purchased products and/or fuel expense acts to elevate their operating ratios. With an absence of any cost of purchased products, a lower operating ratio would be expected for PNGTS, which makes any comparison with the other groups not meaningful.

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 increased grades of creditworthiness. The five-year average interest coverage (excluding AFUDC) was 2.42 times for PNGTS, 2.59 times for the Pipeline Group and 2.89 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,

[3]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.

and other cost deferrals. These measures of earnings quality usually influence a firm's internally generated funds. Typically, quality of earnings has not been a significant concern for the Pipeline Group and the S&P Public Utilities. However, the deferral of the recovery of depreciation expense due to the levelization approach to ratesetting diminishes the quality of the Company's earnings.

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. An analysis of IGF to construction is not meaningful for PNGTS because the Company's facilities are fairly new and additional capital expenditures are minimal for a system that is complete. The IGF percentage of capital expenditures was 88.1% for the Pipeline Group, and 110.1% for the S&P Public Utilities. In spite of the relatively high distribution payouts of the MLPs in the Pipeline Group, they are still able to internally generate a relatively high percentage of their construction expenditures with IGF.

Betas. The financial data that I have been discussing relate primarily to company-specific risks. Market risk for firms with 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). 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 betas which are .86 as the average for the Pipeline Group (see page 2 of Schedule 3), and .95 as the average for the S&P Public Utilities (see page 3 of Schedule 4).

Q.17 Please summarize your risk evaluation of PNGTS, the Pipeline Group, and the S&P Public Utilities.

A.17 The risk of PNGTS is clearly greater than the S&P Public Utilities. PNGTS has some of the same risk characteristics as the Pipeline Group, although on balance PNGTS has greater risk attributed to characteristics referenced above, including its much smaller than average size relative to the Pipeline Group. From these comparisons, and the other risk indicators discussed by Messrs. Haag, Sullivan and Reed, a higher than average rate of return on equity is required for the Company.

Cost of Equity – General Approach

Q.18 Please describe the process you employed to determine the cost of equity for the Company.

A.18 Although my fundamental financial analysis provides the required framework to establish the risk relationships among the Company, the Pipeline 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, regulatory policy, financial leverage, and bond ratings must be considered when analyzing the cost of equity.

Discounted Cash Flow Analysis

Q.19 Please describe your use of the Discounted Cash Flow approach to determine the cost of equity.

A.19 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 and relevant pages of my Financial Exhibit. I will summarize them here. The Discounted Cash Flow ("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 stocks consists of a current cash yield (e.g., dividend yields in the case of corporations) and future price appreciation (growth) of the investment. The DCF model is premised on the total return that can be realized from a combination of these two components.

As I describe in Appendix E, the DCF approach has other limitations that diminish its usefulness in the ratesetting process when the 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.20 Please explain the cash yield component of a DCF analysis.

A.20 The DCF methodology requires the use of an expected cash yield to establish the investor-required cost of equity. For the twelve months ended January 2008, the monthly cash yields for the Pipeline Group are shown graphically on Schedule 5. The monthly cash yields shown on page 1 of Schedule 5 reflect recognition of the build up of the cash payment in the price that has occurred since the last ex-dividend date (i.e., the date by which a shareholder must have owned the shares to be entitled to the cash payment – usually about two to three weeks prior to the actual payment). An explanation of this element is provided in Appendix E.

For the twelve months ending January 2008, the average cash yield was 4.68% for the Pipeline Group entities, based upon a calculation using annualized cash payments and adjusted month-end stock prices. The cash yields for the more recent six- and three-month periods were 4.96% and 5.05%, respectively. I have used, for the purpose of my direct testimony, a cash yield of 4.96% for the Pipeline Group, which represents the six-

month average yield. The use of this yield will reflect current capital costs while avoiding spot yields.

For the purpose of a DCF calculation, the average cash yields must be adjusted to reflect the prospective nature of the payments i.e., the higher expected payments for the future. Recall that the DCF is an expectational model that must reflect investor anticipated cash flows. I have adjusted the six-month average cash yield in three different but generally accepted manners, and used the average of the three adjusted values as calculated in Appendix E. That adjusted cash yield is 5.18% for the Pipeline Group.

Q.21 Do your calculations of the cash yield for the Pipeline Group reflect the full value of the distributions of the MLPs?

A.21 Yes. My analysis reveals that higher distributions for MLPs tend to be accompanied by lower expected growth rates for these firms. Due to this situation, it would be incorrect to alter the yield component of the DCF model by imposing adjustments that are contrary to the market-based decisions of investors when they price the units of the MLPs. Remember, the price per unit of an MLP is a reflection of the actual distributions that are paid, and to maintain consistency in the DCF model, adjustments to the distributions would also require an adjustment to the price per unit. To make such adjustments would be entirely arbitrary, and would not conform with investor growth expectations for the MLPs, except by chance. To properly apply the DCF formula in an unbiased way, it is necessary to utilize the actual cash yield, which includes all cash distributions, together with the growth rates that investors expect. To do otherwise, would result in a misspecified DCF return, or one that requires further adjustment to the unit price and/or growth rate component of the DCF. This would add needless controversy to the

application of the model, invite gamesmanship, and provide the potential for an erroneous result. Rather than engage in multiple subjective adjustments, the actual cash yields and growth rates should be used directly in the DCF model for the MLPs.

Q.22 Have you reduced the cash flows represented by the actual distributions of an MLP's payout by some portion attributed to depreciation?

A.22 No, that would be a mistake. The actual distributions of the MLPs do not alter the recovery of a pipeline's depreciation expense in their cost of service nor in the return component of the pipeline's rates. The calculation of the rate of return on equity under the DCF analysis is not solely a function of a MLP's cash distribution. If the MLP's distribution exceeds its earnings, the MLP's cash distributions may be higher in a particular year, while the growth rate component of the DCF formula may be lower. Those growth rates will show up in the analysts' forecasts compiled by IBES/First Call. So while depreciation may have an influence on a particular year's cash distribution, other elements of the DCF formula adjust accordingly. Recall, the cumulative effect of the annual depreciation expenses is reflected in the reserve that is deducted from rate base. This rate base deduction acts to reduce the available return that can be realized in succeeding years when rates are reset. Moreover, as DCF is applied to both corporations and MLPs, it is the present value of a firm's long-term future cash flows that investors assess. As such, distributions and dividends in a specific year, whether from a return of capital or depreciation, will be the basis for investors' DCF calculations. Adjustments to any one component of the DCF mandate offsetting adjustments elsewhere in the model because if the future cash flows are altered, so too would be the price established by investors through the discounting process. Investors are concerned with all cash

distributions that they will receive over their entire investment horizon including the return of capital, which will be similarly discounted.

Q.23 Please explain the underlying factors that influence investors' growth expectations.

A.23 As noted previously, investors are interested principally in the future growth of their investment (i.e., the cash and stock appreciation realized). Future earnings per share growth represent their primary focus because under the constant price-earnings multiple assumption of the DCF 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 can also 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. Neither the b x r plus s x v formulation of growth nor the book value per share growth rate accurately computes the returns for the gas pipelines under a

DCF analysis because the value of a firm is determined with market prices that reflect additional factors that are not considered in these formulations of growth.

Growth can also be expressed in multiple stages. This expression of growth includes a "growth" stage where a firm enjoys rapidly expanding markets, high profit margins, and robust growth in earnings per share. Thereafter, a firm enters a "transition" stage where fewer technological advances and increased product saturation begins 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. Subsequently, 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 much of the life of a firm. The three stages of growth assume a step-down of high 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.24 What investor-expected growth rate is appropriate in a DCF calculation?

A.24 Although some DCF devotees would advocate that mathematical precision should be followed when selecting a growth rate (i.e., precise input variables often considered within the confines of retention growth described above), the fact is that investors, when establishing the market prices for a firm, do not behave in the same manner assumed by the constant growth rate model using accounting values. Rather, 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. Investors are not influenced by a single set of company-specific variables weighted in a formulaic manner. Therefore, in my opinion, an array of relevant growth rate indicators using a variety of techniques must be evaluated when formulating a judgment of investor expected growth.

Q.25 What company-specific data have you considered in your growth rate analysis?

A.25 I have considered the growth in the financial variables shown on Schedule 6 and Schedule 7. The bar graphs provided on Schedule 6 show the historical growth rates in earnings per unit/share, payouts per unit/share, book value per unit/share, and cash flow per unit/share for the Pipeline Group. The historical growth rates were taken from the Value Line publication that provides these data. As shown on Schedule 6, the historical growth rates were virtually non-existent for the Pipeline Group. The historical growth rates contain many instances of negative values for individual companies within the group and therefore those data are not meaningful. Obviously, negative growth rates provide no reliable guide to gauge investor expected growth for these companies. Investor expectations encompass long-term positive growth rates and, as such, could not be represented by sustainable negative rates of change. Therefore, statistics that include negative growth rates should not be given any weight when formulating a composite growth rate expectation.

Schedule 7 provides projected growth rates taken from analysts' forecasts compiled by IBES/First Call, Zacks, and Reuters/Market Guide and from the Value Line publication. IBES/First Call, Zacks, and Reuters/Market Guide represent reliable authorities of projected growth upon which investors rely. Value Line provides forecasts of other

financial variables shown on Schedule 7.

Although five-year forecasts usually receive the most attention in the growth analysis for DCF purposes, present market performance has been strongly influenced by near-term forecasts. Each of the major publications provides forecasts for the current and subsequent fiscal year. These forecasts receive prominent coverage, and indeed they dominate these publications. While the DCF model typically focuses upon five-year analysts estimates, stock prices are clearly influenced by current and next-year forecasts.

Q.26 Is a five-year investment horizon associated with the analysts' forecasts consistent with the DCF model?

A.26 Yes. In fact, it 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 cash flows to the investor (e.g., a century of cash flows), the growth in the value of equity investment (i.e., capital appreciation, or capital gains yield) is most relevant to investors' total return expectations. Hence, the sale price of a unit/stock can be viewed as a liquidating payout that can be discounted along with the annual cash receipts during the investment-holding period to arrive at the investor expected return. The growth in the price per unit/share will equal the growth in cash flow per unit/share to investors 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, conforms 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 that extended beyond five years in their valuation process, some investment advisory service would begin

publishing that information in order to meet the market created by 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.27 What specific evidence have you considered in the DCF growth analysis?

A.27 As to the five-year forecast growth rates, Schedule 7 indicates that the projected growth rates for the Pipeline Group are 8.46% by IBES/First Call, 6.90% by Zacks, 8.22% by Reuters/Market Guide, and 13.64% by Value Line. The analysts' forecasts consider all factors that cause a firm to grow. Such factors include growth from internal sources, such as earnings that are retained and not paid out as distributions/dividends; external sources, such as the use of borrowed capital or sale of new units/shares to finance new projects; and acquisitions through business combinations, or in the case of MLPs, the drop down of projects from sponsoring partners. As such, no adjustment is necessary to the analysts' forecasts because all factors including new capital obtained through the issuance of debt and equity have been incorporated into the forecasts.

For the MLPs, there are important reasons why growth will continue to be robust. This can be traced to the incentives provided to the general partners through the incentive distribution rights ("IDRs"), which also impact the growth for the units of the publicly-traded limited partners. General partners have significant incentives to grow distributions in order to realize the IDRs. Any claims that MLPs' distributions will decline ignore not just historical performance of MLPs, but also the fundamentals that continue to be available to pipelines generally (e.g., economies of scale, the use of financial leverage, repositioning of assets, and investing in projects that earn returns in excess of the cost of capital), and MLPs in particular (e.g., IDRs). For these reasons, it is not surprising that

the IBES/First Call growth rates have understated the actual market performance of the pipeline companies as shown in Appendix E.

Q.28 What conclusion have you drawn from these data?

A.28 As indicated earlier, with the constant price-earnings multiple assumption of the DCF model, growth for these companies will occur at the higher projected growth rates, thus producing the capital gains yield expected by investors. Although ideally historical and projected data regarding growth in cash flows for the firm would be used to provide an assessment of investor growth expectations, the circumstances of the Pipeline Group mandate that the greater emphasis be placed upon projected growth data. Historical evidence alone does not represent a complete measure of growth for these companies. Rather, projections of future 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, established that the best measure of growth in the DCF model is forecasts of earnings per share growth.[4] Hence, to follow Professor Gordon's findings, projections of growth, such as those published by IBES/First Call, Zacks, Reuters/Market Guide, and Value Line, represents a reasonable assessment of investor expectations.

It is appropriate to consider all forecasts of growth rates that are available to investors. In this regard, I have considered the forecasts from IBES/First Call, Zacks, Reuters/Market Guide and Value Line. The IBES/First Call, Zacks, and Reuters/Market Guide growth rates are consensus forecasts taken from a survey of analysts that make projections of

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

growth for these companies. The IBES/First Call, Zacks, and Reuters/Market Guide 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 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 growth as shown on Schedule 7 provide a range of growth rates of 6.90% to 13.64% for the Pipeline Group. While the DCF growth rates cannot be established solely with a mathematical formulation, it is my opinion that an investor-expected growth rate of 8.50% for the Pipeline Group is within the array of per unit growth rates shown by the analysts' forecasts and the forecast growth in overall enterprise profits.

Q.29 Are the 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.29 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.30 Please explain why.

A.30 As noted previously and as demonstrated in Appendix E, the divergence of stock prices from book values creates a conflict when the results of a market-derived cost of equity are used in calculating the weighted average cost of capital using the book value capital structure. This is the situation today where the market price of stock exceeds its book value for most utilities. This divergence of price and book value creates a financial risk

difference, whereby the capitalization of a utility measured at its market value contains relatively less debt and more equity than the capitalization measured at its book value. If regulators rely upon the results of the DCF (which are based on the market price of the stock of the companies analyzed) and apply those results to book value, the resulting earnings will not produce the level of required return specified by the model when market prices vary from book value. This is to say, such distortions tend to produce DCF results that understate the cost of equity to the regulated firm when using book values. This shortcoming of the DCF has persuaded the Pennsylvania Public Utility Commission to adjust the cost of equity upward by 45 to 80 basis points to make the return consistent with the book value capital structure.

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.31 Have you presented this modification to the Commission in prior rate case proceedings?

A.31 Yes. The leverage adjustment presented below was discussed by the Commission in its Order at Docket No. RP00-107-000 (104 FERC ¶ 61,036 (2003)). There the Commission found that the leverage adjustment was unnecessary, based on the mistaken belief that it was a market-to-book adjustment, which it is not. Perhaps, with an improved explanation of my adjustment in this case, the Commission will realize the necessity of this adjustment.

Q.32 Has the Commission been inflexible in its application of the DCF model?

A.32 No. The Commission has modified the results of the DCF model when the situation warrants. For example, the Commission has periodically changed the DCF model by including a second-stage growth rate and has changed the weighting assigned to the first- and second-stage growth rates. The Commission has also altered its analysis of the results of the DCF model when it considered those to be unreliable.

Q.33 Does the DCF derived return that is related to market value require modification to account for the common equity ratio indicated by the book value capitalization?

A.33 Yes. The capital structure ratios measured at the utility's book value show more financial leverage, and hence higher risk, than the capitalization measured at their market values. Please refer to Appendix E for the comparison. In other words these data reflect market-derived costs of equity, using models such as DCF and thus a level of financial risk that is different from that shown by the book value capitalization. Hence, it is necessary to adjust the market-determined cost of equity upward to reflect 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. 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.34 How is the DCF-determined cost of equity adjusted for the financial risk associated with the book value capitalization?

A.34 In pioneering work, Nobel laureates Modigliani and Miller developed several theories

about the role of leverage in a firm's capital structure. Modigliani and Miller established that as the borrowing of a firm increases, the expected return on stockholders' equity also increases. 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. As detailed in Appendix E, the Modigliani and Miller theory shows that the cost of equity increases by 3.31% (16.99% - 13.68%) for the Pipeline Group when the book value of equity, rather than the market value of equity, is used for ratesetting purposes.

Q.35 Please provide the DCF return based upon your preceding discussion of dividend yield, growth, and leverage.

A.35 As explained previously, I have utilized a six-month average cash 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 cost of equity must also include an adjustment to cover flotation costs ("*flot*."). Therefore, a flotation costs adjustment must be applied to the DCF result (i.e., "*k*") that provides an additional

increment to the rate of return on equity (i.e., "*K*"). The factor used to develop the modification that would account for the flotation costs adjustment is provided in Schedule 8 and Appendix F.

Q.36 What are your DCF results?

A.36 The resulting DCF cost rate is:

$$D_1/P_0 + g + lev. = k \times flot. = K$$

Pipeline Group 5.18% + 8.50% + 3.31% = 16.99% x 1.02 = 17.33%

In developing the DCF return shown above, the growth rate is derived at least in part from external capital because analysts incorporate the accretive benefit of issuing new shares in their forecasts. This includes the earnings potential arising from additional equity capital, as well as the impact of additional shares outstanding, and the value that accrues to existing shareholders from issuing new shares at above book value. Growth attributed to borrowed capital is likewise reflected in the analysts' forecasts. Therefore there is no distortion in the DCF analysis.

As indicated by the DCF result shown above, the flotation cost adjustment adds 0.34% (17.33% - 16.99%) to the rate of return on common equity for the Pipeline Group. 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.

Two-Stage DCF Model

Q.37 In previous rate case decisions for natural gas pipelines, the Commission has employed a two-stage DCF model to set the rate of return on common equity. Have you considered this form of the DCF formula in this case?

A.37 Yes. I have considered the Commission's general approach that includes GDP as the second stage growth rate. As I noted previously, the Commission's so-called two-stage DCF model is in reality the traditional constant growth form of the model that contains a blended growth rate. What the Commission has done is to blend a company-specific growth rate taken from the IBES/First Call analysts' forecast and weighted it with a generic growth rate using a forecast of GDP growth.

Potential investors make their decision to purchase publicly-traded units of an MLP based on the value of the actual cash distributions. This fact is recognized by independent investment advisory organizations. For example, Wachovia Capital Markets, LLC's Equity Research Department has stated that "[u]nlike traditional corporations, earnings for MLPs are less relevant in considering valuation [than cash flow] . . . . Thus, . . . the focus for MLPs should be on cash flow rather than earnings."

The basic theory of the DCF approach is that the market price an investor pays for a share of stock or unit represents the present value of his/her expected future cash flows discounted at the risk-adjusted rate of return. If the actual cash paid to investors by MLPs is disregarded, that situation ignores the factors that investors consider in valuing MLPs, i.e., the cash flow that the unit holder actually receives. Instead, the DCF approach must reflect the present value of the entity's actual cash flows. An artificial "cap" based on earnings is entirely inconsistent with investors' determination of a unit's

value that is established by the future cash flows from ownership of that unit. While the forecast of growth in the GDP may represent a plausible measure of the growth in revenues for a pipeline, which the Commission has acknowledged, it is not the same as growth in earnings. It is well known that revenue growth does not necessarily equal earnings growth, namely that the same growth rate would apply to revenues and all components of the cost of service. The growth rates for regulated companies (i.e., the supply components of the GDP) will be substantially affected by changes in operating expenses and capital costs. Given the demonstrable understatement of first stage growth by IBES, any reduction in the second stage growth for MLPs below the level of GDP is wholly unwarranted. Use of GDP as the basis for second stage growth reflects the fact that it is virtually impossible to predict with any reasonable level of confidence the rate of growth for a particular enterprise 25 or 50 years in the future.

Q.38 What sources of second-stage growth have you used in this case?

A.38 Historical data concerning IBES projections show that IBES data understate actual growth performance for the MLPs. Since IBES data understate growth, the use of GDP as a second-stage growth rate that is less than first-stage growth invites even further understatement relative to the actual performance of MLPs. Consequently, the IBES results should receive primary emphasis as the growth component of the DCF. Nevertheless, page 1 of Schedule 9 shows the long-term growth in GDP was taken from the Annual Energy Outlook published by the Energy Information Administration ("EIA"), Global Insight ("GI") (the successor to the WEFA and DRI forecasts previously used by the Commission), and the Annual Report of the Trustees of the Federal Old-Age and Survivors Insurance and Disability Issuance Trust Funds administered by the Social

Security Administration ("SSA"). Giving SSA the same weight as previously assigned to it by the Commission (i.e., 25% weight), would have produced a higher long-term average GDP growth level. However, the simple average of the growth rates is 4.58%, which is lower than the result produced by the Commission's past practice.

Q.39 How have you used these data in the two-stage DCF model?

A.39 I have followed generally the Commission's past practice of computing the two-stage DCF, but with two important refinements.

I have developed a blended growth rate by giving 90% weight to the IBES/First Call analysts' forecast and 10% to the generic growth represented by the GDP. With enhancements to regulations by the Securities and Exchange Commission, a higher level of reliability can now be placed on analysts forecasts such as those completed by IBES/First Call. That is to say, the objectivity of analysts' forecasts has been enhanced through the separation of the research and investment banking functions at the securities firms. Moreover, especially for the MLPs, the relatively close proximity of the IBES/First Call and GDP growth rates, support more emphasis on the company-specific rather than the generic growth rate.

Increasing the weight assigned to the IBES data is intended to recognize how investors value a stock, i.e., placing less weight on guesstimates of the distant future that are not substantiated by any market evidence. Therefore, the two-stage DCF should give greater weight, i.e., at least 90%, to the IBES/First Call data, rather than the EIA/SSA/GI projections, which are entitled to at most 10% weighting. Assigning a reduced weight to EIA/SSA/GI projections of long-term growth recognizes the inherent unreliability of long-term projections, and the fundamental understatement of growth rates inherent in

IBES data.

Q.40 Has the Commission also indicated that some adjustment is warranted to the DCF model?

A.40 Yes. In its Kern River order, the Commission made a 50 basis points upward adjustment to the median result of the proxy group to recognize that the cost of equity for pipeline operations is higher than the simple median of the DCF results. The Commission has also previously changed its application of the two-stage DCF.

Q.41 How should the results of the individual DCF analysis be employed in this case?

A.41 After computing individually the DCF cost rates for each company in the Pipeline Group, I then computed the weighted median return. The Commission has preferred the median as the measure of central tendency for the natural gas pipeline industry DCF analysis. My analysis of DCF results recognizes the relative amount of payouts that these companies provide. To recognize the relative amount of distributions/dividends Schedule 9 calculates the corresponding weights given to each company when selecting the representative number from individually computed costs of equity. Based upon my analysis of the distributions/dividends of each company in the Pipeline Group, I have computed both a resulting average and median as shown of page 1 of Schedule 9. While my preference would be the use of the weighted average because it considers all values included in the distribution of the returns, I have included the weighted median in my recommendation so that the skewness of the distribution is not an issue in the final return.

Q.42 How does your analysis address the Commission's reliance on the median in the DCF analyses?

A.42 In prior cases, beginning with its decision in Opinion No. 414-A (84 FERC ¶ 61,084), the

Commission has used the median as a measure of central tendency. The Commission's reasoning was that the median gives consideration to more of the proxy company members, as opposed to the midpoint of the range that was previously used by the Commission. While it is true that the median addresses the issue of skewness in the distribution of the returns, the median represents a single number at the middle of the distribution if the number of values is odd, or the average of the two middle values if the number of values is even. Regardless of whether the midpoint or the median is used, each value in the distribution receives the same emphasis (or weight), as would the average (or mean) whose computation truly considers all the values in the distribution.

Q.43 What are the results of your analysis?

A.43 I have combined the dividend yields and the blended growth rate consisting of the IBES/First Call growth and the generic GDP growth rate. To the weighted median, I have recognized leverage adjustment, and the flotation cost adjustment I previously described to provide the following DCF cost rate:

	D_1/P_0	+ g +	*lev.*	=	k	+	*flot.*	=	K
Pipeline Group	13.90%	+ 3.39%		=	17.29%	+	0.34%	=	17.63%

The two-stage DCF result would be 14.24% (13.90% + 0.34%) by considering only the computed value from the Commission's model and the flotation cost adjustment. The foregoing represents a calculation of the DCF returns using a blended growth rate.

Risk Premium Analysis

Q.44 Please describe your use of the Risk Premium approach to determine the cost of equity.

A.44 The details of my use of the Risk Premium approach and the evidence in support of my conclusions are set forth in Appendix H. 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.

Q.45 What long-term public utility debt cost rate did you use in your risk premium analysis?

A.45 In my opinion, 6.00% represents a reasonable estimate of the prospective yield on long-term A-rated public utility bonds. As I will subsequently show, 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 2 of Schedule 10. For the twelve months ended January 2008, the average monthly yield on Moody's A-rated index of public utility bonds was 6.08%. For the six and three-month periods ended January 2008, the yields were 6.11% and 6.05%, respectively. During the twelve-months ended January 2008, the yields on A-rated public utility bonds ranged from 5.85% to 6.30%.

Q.46 What forecasts of interest rates have you considered in your analysis?

A.46 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 G. 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 February 1, 2008, and the yield spread of 1.50%. For the past year, A-rated public utility bonds have yielded more than Treasury bonds by 1.56% as the three month average, 1.42% as the six month average, and 1.22% as the twelve months average. 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 for 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
2008	1st	5.2%	6.3%	4.2%	1.50%	5.70%
2008	2nd	5.1%	6.2%	4.1%	1.50%	5.60%
2008	3rd	5.2%	6.3%	4.2%	1.50%	5.70%
2008	4th	5.3%	6.4%	4.3%	1.50%	5.80%
2009	1st	5.5%	6.5%	4.5%	1.50%	6.00%
2009	2nd	5.6%	6.6%	4.6%	1.50%	6.10%

Q.47 Are there additional forecasts of interest rates that extend beyond those shown above?

A.47 Yes. Twice yearly, Blue Chip provides long-term forecasts of interest rates. In its December 1, 2007 publication, the Blue Chip published forecasts of interest rates are reported to be:

	Blue Chip Financial Forecasts				
	Corporate		30-Year	A-rated Public Utility	
Averages	Aaa-rated	Baa-rated	Treasury	Spread	Yield
2009-13	6.0%	7.0%	5.2%	1.50%	6.70%
2014-18	6.1%	7.0%	5.3%	1.50%	6.80%

Given these forecast interest rates, a 6.00% yield on A-rated public utility bonds represents a reasonable expectation.

Q.48 What equity risk premium have you determined?

A.48 Appendix H 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 Pipeline Group.

Q.49 What equity risk premium for the S&P Public Utilities have you determined for this case?

A.49 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 11, the indicated risk premiums for the various time periods analyzed are 5.37% (1928-2006), 6.40% (1952-2006), 5.61% (1974-2006), and 5.83% (1979-2006). 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.50 Do you have further support for the selection of the time periods used in your equity risk premium determination?

A.50 Yes. First, the terminal year of my analysis presented in Schedule 11 represents the returns realized through 2006. Second, the selection of the initial year of each period was based upon the events that I described in Appendix H. 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. As such, additional data are merely added to the earlier results when they become available, clearly showing that the periods chosen were not driven by the desired results of the study.

Q.51 What conclusions have you drawn from these data?

A.51 Using the summary values provided on page 2 of Schedule 11, the 1928-2006 period provides the lowest indicated risk premium, while the 1952-2006 period provides the highest risk premium for the S&P Public Utilities. Within these bounds, a common

equity risk premium of 5.72% (5.61% + 5.83% = 11.44% ÷ 2) can be calculated from data covering the periods 1974-2006 and 1979-2006. Therefore, 5.72% 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 Pipeline 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 Pipeline 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, business risks and betas. In my opinion, these differences indicate that 6.50% represents a reasonable common equity risk premium in this case. This represents approximately 114% (6.50% ÷ 5.72% = 1.136) of the risk premium of the S&P Public Utilities and is reflective of the risk of the Pipeline Group compared to the S&P Public Utilities.

Q.52 What common equity cost rate would be appropriate using this equity risk premium and the yield on long-term public utility debt?

A.52 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*"). To that cost must be added an adjustment for common stock financing costs ("*flot.*"). The Risk Premium approach provides a cost of equity of:

	i	+	*RP*	=	*k*	+	*flot.*	=	*K*
Pipeline Group	6.00%	+	6.50%	=	12.50%	+	0.34%	=	12.84%

Capital Asset Pricing Model

Q.53 Have you used any other methods to measure the cost of equity in this case?

A.53 I have used the Capital Asset Pricing Model ("CAPM") in addition to my other methods. 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 Pipeline Group. In contrast, my Risk Premium approach also considers industry- and company-specific factors because it is not limited to measuring just systematic risk.

Q.54 What betas have you considered in the CAPM?

A.54 For my CAPM analysis, I initially considered the Value Line betas. As shown on page 1 of Schedule 12, the average beta is .86 for the Pipeline Group.

Q.55 What betas have you used in the CAPM determined cost of equity?

A.55 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 betas have been unleveraged and releveraged for the common equity ratios using book values. This adjustment has been made with the formula:

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

where βl = 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 their market values, the beta would become .62 for the Pipeline Group if they employed no leverage and were 100% equity financed. With the unleveraged beta as a base, I calculated the leveraged beta of 1.24 for the Pipeline Group associated with book value capital structure.

Q.56 What risk-free rate have you used in the CAPM?

A.56 For reasons explained in Appendix G, I have employed the yields on 20-year Treasury bonds using both historical and forecast data to match the longer-term horizon associated with the ratesetting process. As shown on pages 2 and 3 of Schedule 12, I provided the historical yields on Treasury notes and bonds. For the twelve months ended January 2008, the average yield was 4.86%, as shown on page 3 of that schedule. For the six- and three-months ended January 2008, the yields on 20-year Treasury bonds were 4.69% and 4.49%, respectively. During the twelve-months ended January 2008, the range of the yields on 20-year Treasury bonds was 4.35% to 5.29%. As shown on page 4 of Schedule 12, forecasts published by Blue Chip on February 1, 2008 indicate that the yields on long-term Treasury bonds are expected to be in the range of 4.1% to 4.6% during the next six quarters. The longer term forecasts described previously show that the yields on

Treasury bonds will average 5.3% from 2009 through 2013 and 5.3% for 2014 to 2018. Hence, I have used a 4.50% risk-free rate of return for CAPM purposes, which reflects the recent easing of monetary policy by the Federal Open Market Committee.

Q.57 What market premium have you used in the CAPM?

A.57 As developed in Appendix I, the market premium is developed by averaging historical market performance (i.e., 6.5%) and the forecasts (i.e., 10.10%). For the historically based market premium, I have used the arithmetic mean. The resulting market premium is 8.30% (6.5% + 10.10% = 16.60% ÷ 2), which represents the average market premium using historical and forecast data.

Q.58 What CAPM result have you determined using the CAPM?

A.58 Using the 4.50% risk-free rate of return, the leverage adjusted beta of 1.24 for the Pipeline Group, the 8.30% market premium, and the flotation cost adjustment developed previously, the following result is indicated.

	Rf	+	β	x (	$Rm-Rf$) =	k	+	$flot.$	=	K
Pipeline Group	4.50%	+	1.24	x (	8.30%) =	14.79%	+	0.34%	=	15.13%

Comparable Earnings Approach

Q.59 How have you applied the Comparable Earnings approach in this case?

A.59 The technical aspects of the Comparable Earnings approach are set forth in Appendix J. Because regulation is a substitute for competitively-determined prices, the returns realized by non-regulated firms with comparable risks to a gas pipeline 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 gas pipeline 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 gas pipeline 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. As such, this approach to Comparable Earnings avoids the circular reasoning implicit in the use of the achieved earnings/book ratios of other regulated firms. 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.60 How have you implemented the Comparable Earnings approach?

A.60 As noted above, non-regulated companies were selected from the Value Line Investment Survey for Windows that have six categories of comparability designed to reflect the risk of the gas pipeline industry. The identities of companies comprising the Comparable Earnings group and their associated rankings within the ranges are identified on page 1 of Schedule 13.

Value Line data were relied upon as providing 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 14 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. Finally, 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 their returns, it is, therefore, an appropriate database for measuring comparable return opportunities.

Q.61 What data have you used in your Comparable Earnings analysis?

A.61 I have used both historical realized returns and forecast returns for non-utility companies. As noted previously, I have not used returns for utility companies so as 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 14.7% using the median value as shown on page 2 of Schedule 13. The forecast rates of return as published by Value Line are shown by the

14.0% median values also provided on page 2 of Schedule 13.

Q.62 What rate of return on common equity have you determined in this case using the Comparable Earnings approach?

A.62 The average of the historical and forecast median rates of return is:

	Historical	*Forecast*	*Average*
Comparable Earnings Group	14.70%	14.00%	14.35%

Conclusion

Q.63 What is your conclusion concerning the Company's cost of equity?

A.63 Based upon the application of a variety of methods and models described previously, it is my opinion that the Company should be allowed the opportunity to earn of 13.00% to 15.00% rate of return on common equity. In addition, it is my opinion that it is better to use a variety of techniques to measure the Company's cost of equity because of the limitations/infirmities inherent in each method. I have based my recommendation upon the results of the methods/models applied with data for the Pipeline Group as explained throughout my testimony and appendices and the detailed financial data set forth in Exhibit No. PNG-12. To reflect its higher than average risk profile. Mr. Haag has selected a return towards the top of the range, in recognition of the Company's higher risk profile. In addition, the rate of return on common equity that the Company has proposed is close to the 13.90% median return for the two-stage DCF that I have developed in my testimony.

Q.64 Does this conclude your prepared direct testimony?

A.64 Yes.

GLOSSARY OF ACRONYMS AND DEFINED TERMS

ACRONYM	DEFINED TERM
AFUDC	Allowance for Funds Used During Construction
B	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
DCF	Discounted Cash Flow
EIA	Energy Information Administration
FERC	Federal Energy Regulatory Commission
Flot.	Flotation costs
FOMC	Federal Open Market Committee
G	Growth rate
GDP	Gross Domestic Product
GI	Global Insight
IDR	Incentive Distribution Rights
IGF	Internally Generated Funds
Lev	Leverage modification
PUC	Public Utility Commission
R	represents the expected rate of return on common equity
Rf	Risk-free rate of return
Rm	Market risk premium
S	Represents the new common shares expected to be issued by a firm
SSA	Social Security Administration
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