BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

IN THE MATTER OF THE APPLICATION OF QUESTAR GAS COMPANY TO INCREASE DISTRIBUTION NON-GAS RATES AND CHARGES AND MAKE TARIFF MODIFICATIONS	Docket No. 07-057-13

DIRECT TESTIMONY OF ROBERT B. HEVERT

FOR QUESTAR GAS COMPANY

December 19, 2007

QGC Exhibit 3.0

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I. INTRODUCTION

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

A. My name is Robert B. Hevert and I am President of Concentric Energy Advisors, Inc. (Concentric), located at 293 Boston Post Road West, Suite 500, Marlborough, Massachusetts 01752.

Q. On whose behalf are you submitting this testimony?

A. I am submitting this testimony on behalf of Questar Gas Company (Questar Gas or the Company), a wholly owned subsidiary of Questar Corporation.

Q. Please describe your experience in the energy and utility industries.

A. I have served as an executive and manager with other consulting firms (REED Consulting Group and Navigant Consulting, Inc.), and as a financial officer of Bay State Gas Company. I have provided testimony regarding strategic and financial matters, including the cost of capital, before state utility regulatory agencies as well as the Federal Energy Regulatory Commission, and have advised numerous energy and utility clients on a wide range of financial and economic issues including both asset and corporate-based transactions. Many of those assignments have included the determination of the cost of capital for valuation purposes. A summary of my professional and educational background is attached as QGC Exhibit 3.1.

Q. Please describe Concentric's activities in energy and utility engagements.

A. Concentric provides financial and economic advisory services to a large number of energy and utility clients across North America. Our regulatory economic and market analysis services include utility ratemaking and regulatory advisory services; energy market assessments; market entry and exit analysis; and energy contract negotiations. Our financial advisory activities include merger, acquisition and divestiture assignments; due diligence and valuation assignments; project and corporate finance services; and transaction support services.

II. PURPOSE AND OVERVIEW OF TESTIMONY

Q. What is the purpose of your testimony?

A. The purpose of my Direct Testimony is to present evidence and provide a recommendation regarding (1) the Company's cost of equity, and (2) the appropriate capital structure to be used for ratemaking purposes. My testimony also presents evidence as to whether or not the continuation of the Conservation Enabling Tariff (the CET) affects investors' return requirements such that there should be an adjustment to the Company's Return on Equity (ROE). My analysis and conclusions are supported by the data presented in QGC Exhibit 3.2 through QGC Exhibit 3.15, which have been prepared by me or under my direction in connection with my Direct Testimony.

Q. What are your conclusions regarding the appropriate cost of equity and capital structure for the Company?

A. My analyses indicate that the Company's cost of equity currently is in the range of 10.25 percent to 11.50 percent. Based on the quantitative and qualitative analyses discussed throughout my Direct Testimony, I conclude that an ROE of 11.25 percent is reasonable and appropriate. In addition, based on an analysis of the capital structures of the proxy group companies, I conclude that the Company's projected capital structure as of the midpoint of the projected test period ending June 30, 2009, which includes a 52.30 percent equity ratio and a 47.70 percent long-term debt ratio, is reasonable.

As to the effect, if any, of the CET on the Company's cost of equity, the central issue is not investors' perceptions of the Company's risk profile with the CET vis-à-vis its risk profile absent the CET; rather the appropriate basis of comparison is investors' perceptions of the Company's risk with the CET relative to the proxy group used in my analysis to determine the Company's cost of equity. Given the breadth of revenue stabilization structures in place at the proxy group companies, there is no basis to assume that investors would consider the Company so less risky than the proxy group that they would reduce their return requirements. Consequently, there is no reason to reduce the Company's ROE in connection with the continuation of the CET.

In addition, I have found no market-based evidence, either qualitative or empirical, to suggest that equity investors reduce their return requirements as the direct result of the

implementation of decoupling mechanisms. As discussed later in my Direct Testimony, there is a significant and growing number of natural gas utilities that have implemented some form of revenue decoupling. The implication of that trend, for the purposes of assessing the effect of decoupling structures on the Company's ROE, is that the financial community effectively views such mechanisms as the *status quo*. As I discuss later in my Direct Testimony, that perspective (*i.e.*, that the implementation of a decoupling mechanism does not render the subject company materially less risky than its peers) is consistent with the results of empirical analyses of market data. Accordingly, I conclude that no adjustment to the Company's ROE is warranted as a result of the continuation of the CET.

Q. Please provide a brief overview of the analysis that led to your ROE recommendation.

A. As I discuss in more detail later in Section V, in light of recent market conditions, and given the fact that equity analysts and investors tend to use multiple methodologies in developing their return requirements, it is extremely important to consider the results of several analytical approaches in determining the Company's ROE. Therefore, in order to develop my recommended ROE, I employed several approaches including the Constant Growth form of the Discounted Cash Flow (DCF) model and the Capital Asset Pricing Model (CAPM). I also used an additional Risk Premium model to assess the reasonableness of my DCF and CAPM results. Consistent with my past practice and with the Commission's approach in prior cases, my specification of the DCF model is based on a variety of analysts' growth projections, current indicated annual dividends, and actual stock price information. Similarly, my CAPM model is specified with actual and projected market data with respect to Treasury yields, Beta estimates from Value Line and Bloomberg, and market risk premia data from Ibbotson & Associates.

In assessing the results of my DCF and Risk Premium analyses, I considered several specific risk trends, including the effect of a potential rise in interest rates. While I did not include any explicit adjustments to my ROE estimates for those risks, I did take them into consideration in arriving at my recommendation. In my view, this approach

appropriately balances methodological concerns regarding certain underlying assumptions associated with the DCF approach with actual capital market practices.

Q. Did you consider other factors, in addition to the analyses described above, in order to determine the appropriate ROE for Questar Gas?

A. Yes, in addition to the analyses discussed above, I considered the following additional factors: (1) the financial risks associated with the Company's capital expenditure plan; (2) the incremental risks associated with the Company's relatively small size; and (3) the analyses and conclusions of my colleague, John J. Reed, regarding the Company's operating performance. While I did not include any explicit adjustments to my ROE estimates for these factors, I did take them into consideration when determining where, within a reasonable range of analytical results, the Company's required ROE rightly falls.

Q. Please provide a brief overview of the analysis that led to your conclusions regarding the effect of the CET on the Company's cost of equity.

A. My analysis begins with a qualitative review of the revenue stabilization mechanisms (RSMs) in place at each of the proxy group companies. It is important to note that this analysis was not limited strictly to revenue decoupling mechanisms. In that regard, based on my experience in corporate valuation and due diligence activities, it is my view that investors do not associate specific increments of their return requirements with specific rate structures. Rather, investors are more inclined to look at the totality of rate structures in place relative to those in place at comparable companies when assessing risk. Consequently, my review of RSMs includes a variety of rate mechanisms.

I then considered the perspective of rating agencies (particularly Moody's Investors Service) regarding the effect of decoupling structures on credit ratings. At issue is whether or not the implementation of decoupling structures so differentiates the implementing companies that their credit ratings are increased (and therefore, their cost of capital is decreased). My research indicates that rather than generally increasing the credit ratings of companies with decoupling structures, rating agencies view companies without some form of revenue decoupling as less likely to maintain their credit ratings under adverse circumstances.

My quantitative analyses are premised on the expectation that if investors find the decoupling structures so risk mitigating that they actually reduce their return requirements in response to the implementation of those structures, such reduced requirements would be reflected in increased relative valuation multiples and reduced return volatility. To determine whether or not changes in valuation multiples are associated with the implementation of decoupling mechanisms, my first quantitative analysis calculated the relative Price/Book ratio[1] for the companies in my proxy group that implemented such structures. For each of those companies I then calculated the average relative Price/Book ratio for the ninety days before and after the implementation date, and found no difference in the ratios. That analysis found no meaningful difference in relative valuation multiples between the pre and post-implementation periods.

My second quantitative analysis is premised on the hypothesis that if the proxy companies are sufficiently similar, the periodic returns (*e.g.*, weekly or monthly) of a given company should be highly related to the proxy group average returns. If investors perceive significantly lower risks for those companies with decoupling mechanisms, those companies' returns would be less volatile than the proxy group average and therefore would have a lower statistical relationship over the sample period. Moreover, if investors view a given company as less risky post-implementation, the relationship between that company's returns and the proxy group average returns should be lower in the post-implementation period than it was in the pre-implementation period (due to the relatively lower volatility). My analyses indicate that for the vast majority of implementing companies, there was no decrease in the relationship between company-specific returns and the proxy group average return. As with my analysis of relative valuation multiples, those analytical results are consistent with the qualitative evidence suggesting that decoupling structures have become the *status quo*, and investors do not reduce their return requirements for those companies that implement such structures.

[1] As discussed in Section III, the relative Market/Book is the ratio of the company-specific Market/Book to the proxy group average Market/Book. Using the relative ratio enables us to control for exogenous effects that otherwise may affect the company-specific ratio.

Q. How is the remainder of your Direct Testimony organized?

A. The remainder of my Direct Testimony is organized into seven sections. In Section III, I discuss the regulatory guidelines and financial considerations pertinent to the development of the cost of capital. Section IV explains my selection of a proxy group of gas distribution utilities. Section V explains my analysis and the analytical basis for the recommendation of the appropriate ROE for Questar Gas. Section VI provides a discussion of specific factors that have a direct bearing on the ROE to be authorized for the Company in this case including the risks associated with its capital expenditure plan and its historically aggressive and effective cost management practices. In addition, Section VI discusses the results of the benchmarking analysis performed by Mr. Reed and the implications for the Company's ROE. Section VII provides a discussion of the CET in the context of the cost of equity. Section VIII addresses the Company's proposed capital structure, and Section IX summarizes my conclusions and recommendations.

III. REGULATORY GUIDELINES AND FINANCIAL CONSIDERATIONS

Q. Please describe the guiding principles to be used in establishing the cost of capital for a regulated utility.

A. The United States Supreme Court's precedent-setting *Hope* and *Bluefield* cases established the standards for determining the fairness or reasonableness of a utility's allowed ROE. Among the standards established by the Court in those cases are: (1) consistency with other businesses having similar or comparable risks; (2) adequacy of the return to support credit quality and access to capital; and (3) that the means of arriving at a fair return are not important, only that the end result leads to just and reasonable rates.[2]

Q. Does the Public Service Commission of Utah provide similar guidance?

A. Yes. The Commission has adopted both the comparable return and capital attraction standards for determining the reasonableness of a utility's allowed ROE. In the

[2] *Bluefield Waterworks & Improvement Co., v. Public Service Commission of West Virginia,* 262 U.S. 679 (1923); *Federal Power Commission v. Hope Natural Gas Co.,* 320 U.S. 591 (1944).

Company's most recent rate proceeding, the Commission stated that a utility's allowed ROE

> should give investors the opportunity to earn a return on investment in the Company comparable to the return the investor might earn in other investments of similar risk, and it should be a return sufficient to attract capital on reasonable terms and to maintain a financially viable utility.[3]

At the same time, the Commission rightly pointed out that, notwithstanding the quantitative approaches used in estimating the cost of equity, the selection of the appropriate cost rate requires the use of informed judgment and objectivity:

> In prior rate-of-return decisions, this Commission has been concerned to state that rate-of-return analysis is a subjective exercise, even though use of financial models conveys an appearance of objectivity. Applying these models requires judgment at each important step and with this role for judgment comes the possibility of bias.
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> Considered in this light, financial model analysis will provide a good framework for analysis and a useful means of organizing relevant information, but not objective cost-of-equity estimates. Assessment of other, including qualitative information is necessary. (*Bluefield*, directing the Commission to "exercise . . . fair and enlightened judgment, having regard to all relevant facts. . . ," and stating that, "A rate of return may be reasonable at one time, and become too high or too low by changes affecting opportunities for investment, the money market, and business conditions, generally.").[4]

As discussed in more detail throughout my Direct Testimony, the results of certain ROE estimation techniques, most notably the DCF method, render mean (or, for that matter, median) results that are incompatible with current capital market conditions and inconsistent with the results of other widely used methodologies. Accordingly, consistent with the Commission's position in prior cases, it is extremely important to consider DCF

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[3] Docket No. 02-057-02 – Report and Order Issued 12/30/02, p. 13.

[4] Ibid.

results in the context of other commonly used analytical techniques, relevant qualitative information, prevailing market conditions, and reasoned judgment.

Q. Why is it important for a utility to be allowed the opportunity to earn a return adequate to attract equity capital at reasonable terms?

A. There is a long history of precedent regarding the allowed return on equity, the role of capital structure, and the resulting cost of capital in the establishment of just and reasonable rates for utility services. Among the themes common to many Supreme Court, other federal court, and state court and agency cases is the principle that a utility's cost of capital (including its capital structure and allowed return on common equity) must be reflective of other enterprises having comparable risks acting independently in the financial markets. As noted elsewhere in my Direct Testimony, a return that is adequate to attract capital at reasonable terms enables the Company to provide safe, reliable natural gas service while maintaining its financial integrity. That return should be commensurate with the returns expected elsewhere in the market for investments of equivalent risk. The consequence of the Commission's order in this case, therefore, should be rates that provide the Company with the opportunity to earn a return on equity that is: (1) adequate to attract capital at reasonable terms, thereby enabling it to provide safe, reliable natural gas service; (2) sufficient to ensure its financial integrity; and (3) commensurate with returns on investments in enterprises having corresponding risks. To the extent the Company is provided the opportunity to earn its market-based cost of capital, neither customers nor shareholders should be disadvantaged.

Q. Please discuss the importance of the allowed rate of return from the perspective of the capital markets.

A. The financial community continues to put the utility industry under intense scrutiny. There is little question, for example, that financial analysts remain focused on financial profiles and business risks for all utility companies that drive the utility's credit rating and, ultimately, its cost of capital. In a recent report, for example, Bear Stearns noted that:

> Looking ahead, we believe that financial metrics may come under some pressure given the potential for regulatory lag (as the sector is in

> the midst of a large capex [i.e., capital expenditures] cycle), operating cost pressures and volatile commodity markets. This puts regulatory risk at the forefront of potential challenges for the sector. Timely and reasonable rate treatment will be necessary to sustain current financial metrics.[5]

Similarly, in an article regarding liquidity adequacy in the power and gas sectors, FitchRatings discussed several sources of liquidity stress including "Unfavorable Regulatory Action":

> As regulatory risk increased during the last several years, so has Fitch's use of stress cases to capture the impact of potential credit negative regulatory decisions. Stress scenarios could include changes to existing rates, recovery mechanisms, allowed returns, or the disallowance of costs.[6]

Thus, the allowed rate of return should take into consideration capital market concerns and expectations relative to earnings, cash flow and risk.

Q. How does the regulatory environment in which a utility operates affect its access to and cost of capital?

A. The regulatory environment is among the key factors in a ratings agency's assessment of business risk in determining a utility's credit rating. Commission decisions or policy changes can profoundly affect the financial performance of a utility. There is little question that rating agencies consider the regulatory environment, including the extent to which the presiding regulatory commission is supportive of issues addressing credit quality, to be an important determinant of a given utility's credit profile. As noted by Standard & Poor's (S&P):

> Indeed, Standard & Poor's views the regulatory and political environment in which a utility operates as one of the most significant factors in assessing the creditworthiness of regulated utilities. Frequently, rate decisions pending before state commissions, or the

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[5] Bear Stearns, "Fixed Income Research/High Grade," *Utilities: 1Q07 Financial Update* (15 June 2007) at 1. [Clarification added.]

[6] FitchRatings, *Evaluating Liquidity in the Power and Gas Sector*, November 13, 2007, at 3.

> evolving dynamics of a specific political situation, are of such consequence to a particular utility that the financial markets expect regular updates from us to clarify how these developments ultimately will affect the utility's creditworthiness.[7]

According to S&P, in order for a regulatory scheme to be considered supportive of credit quality, commissions must limit uncertainty in the recovery of a return on the utility's investment. Commissions must also eliminate, or at least greatly reduce, the issue of rate-case lag, especially when a utility engages in a sizable capital expenditure program.[8] In the case of a company that has aggressively managed its operating costs, such as Questar Gas, the ability to increase internally generated funds through incremental efficiency improvements is inherently limited. Consequently, the ability to fund capital investments will be, at the margin, dependent on the ability to access external capital on reasonable terms.

As with rating agencies, equity analysts follow regulatory proceedings on a case-by-case basis in an effort to project the implications of regulatory decisions and policies on a company's financial profile. The presiding commission not only has the responsibility for setting an ROE that is reasonable, but also for developing policies and creating an environment supportive of credit quality. As S&P noted in its *U.S. Utilities and Power Commentary*:

> As frequently postulated in prior years, our evaluation of regulation focuses on the willingness and ability of regulation to provide cash flow and earnings quality adequate to meet investment needs, earnings stability through timely recognition of volatile cost components such as fuel and satisfactory returns on invested capital and equity. Regulators' authorization of high rates of return is of little value unless returns are realistic and achievable.

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[7] Standard & Poor's, *Criteria: Influence of Regulatory and Policy Decisions on Utility Credit Quality Deepens, Demanding Timely Assessments From Standard & Poor's*, May 15, 2007.

[8] Standard and Poor's, *Assessing Vertically Integrated Utilities' Business Risk Drivers*, U.S. Utilities and Power Commentary, November 2006, at 10.

The Commission's treatment of the Company's projected test year is one specific example of a decision at hand in this proceeding that will send a distinct message to the financial community regarding the realities and ongoing issues associated with access to capital and ROE. That is particularly so in light of the substantial capital requirements associated with the Company's feeder-line replacement program. I discuss this issue in detail in Section VI of my Direct Testimony.

Q. What are your conclusions regarding regulatory guidelines and capital market expectations?

A. Simply that the authorized ROE should take into consideration capital market concerns and expectations relative to earnings and risks, and that the Company should be afforded a reasonable opportunity to earn its authorized return.

IV. PROXY GROUP SELECTION

Q. Please explain why you have used a group of proxy companies to determine the cost of equity for Questar Gas.

A. First, it is important to bear in mind that the cost of equity for a given enterprise depends on the risks attendant to the business in which that enterprise is engaged. According to financial theory, the aggregate risk of a given company is equal to the market value weighted average of the constituent business units. In this proceeding, we are focused on estimating the cost of equity for Questar Gas, which as a subsidiary of Questar Corporation, is not publicly traded. Since the ROE is a market-based concept, and given that Questar Gas is not publicly traded, it is necessary to establish a group of companies that are both publicly traded and comparable to Questar Gas in certain fundamental respects to serve as its "proxy" in the ROE estimation process. In that regard, the use of proxy groups is routinely employed in Utah as a means of estimating the ROE for non-publicly traded utilities (*see*, for example, the Commission's Order in Docket No. 02-057-02).

Even if Questar Gas were a publicly traded entity, it is possible that transitory events could bias its market value in one way or another over a given period of time. A significant benefit of using a proxy group, therefore, is that it serves to attenuate the

effects of anomalous events that may be associated with any one company. As discussed later in my Direct Testimony, the proxy companies used in my analyses all possess a set of operating and risk characteristics that are substantially comparable to Questar Gas, and thus provide a reasonable basis for the derivation and assessment of ROE estimates.

The importance of selecting a proxy group that is similar in overall financial and business risk to the subject company also was recently endorsed by the United States Court of Appeals for the District of Columbia (the Court of Appeals) in the *Petal Gas Storage* decision. In that decision, the Court of Appeals acknowledged that in developing a proxy group, the goal is to rely on companies that are of similar risk to the subject company for the determination of cost of equity:

> That proxy group arrangements must be risk-appropriate is the common theme in each argument. The principle is well-established. *See Hope Natural Gas Co.*, 320 U.S. at 603 ("[T]he return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks."); *CAPP I*, 254 F.3d at 293 ("[A] utility must offer a risk-adjusted expected rate of return sufficient to attract investors."). The principle captures what proxy groups do, namely, provide market-determined stock and dividend figures from public companies comparable to a target company for which those figures are unavailable. *CAPP I*, 254 F.3d at 293–94. Market determined stock figures reflect a company's risk level and, when combined with dividend values, permit calculation of the "risk-adjusted expected rate of return sufficient to attract investors."[9]
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> What matters is that the overall proxy group arrangement makes sense in terms of relative risk and, even more importantly, in terms of the statutory command to set "just and reasonable" rates, 15 U.S.C. § 717c, that are "commensurate with returns on investments in other enterprises having corresponding risks" and "sufficient to assure confidence in the financial integrity of the enterprise . . . [and] maintain its credit and . . . attract capital," *Hope Natural Gas Co.*, 320 U.S. at 603.[10]

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[9] *Petal Gas Storage v. FERC*, 496 F.3d 695, 699 (D.C. Cir. 2007)

[10] Ibid at 700.

Thus, regulatory commissions and analysts alike recognize the importance of developing a proxy group that adequately represents the ongoing risks and prospects of the subject company.

Q. Does the rigorous selection of a proxy group suggest that analytical results will be tightly clustered around average (*i.e.*, mean) results?

A. Not necessarily. As I will discuss in greater detail in Section V, the DCF approach is based on the theory that a stock's current price represents the present value of all future expected cash flows for a given company. The Constant Growth form of the DCF model is defined as the sum of the expected dividend yield and projected long-term growth. Notwithstanding the care taken to ensure risk comparability, market expectations with respect to future risks and growth opportunities will vary from company to company. Therefore, even within a group of similarly situated companies, it is not uncommon for analytical results to reflect a seemingly wide range. At issue, then, is how to select an ROE estimate in the context of that range. As discussed throughout my Direct Testimony, that determination necessarily must be based on the informed judgment and experience of the analyst.

Q. How did you select the companies included in your proxy group?

A. The proxy group was selected based on the following criteria:

1. I began with the group of 12 companies that currently are classified as Natural Gas Utilities by Value Line. Those companies are AGL Resources, Atmos Energy, Laclede Group, New Jersey Resources, NICOR, Inc., Northwest Natural Gas, Piedmont Natural Gas, South Jersey Industries, Southern Union, Southwest Gas, UGI Corp., and WGL Holdings, Inc.
2. I eliminated the companies that are not covered by at least two utility industry equity analysts.
3. I eliminated proxy companies that did not have senior bond and/or corporate ratings of BBB- to AA by Standard and Poor's.
4. I eliminated companies that have a recent history of not paying dividends or do not have positive earnings growth projections because such characteristics are incompatible with the DCF model.

5. As discussed later in my Direct Testimony, one widely recognized measure of risk is Beta (*i.e.*, the extent to which a company's stock price is related to the totality of macroeconomic forces in the general economy). I excluded companies with Betas that were not within one standard deviation of the group average.
6. To incorporate companies that are primarily regulated gas distribution utilities, I have only included companies with at least 60 percent of total net income derived from regulated natural gas utility operations.

Q. Has the Commission used similar criteria in its evaluation of proxy groups in prior dockets?

A. Yes. In Docket No. 02-057-02, the Commission cited dividend payment, credit quality and the percentage of revenues derived from gas distribution operations as relevant and important screening criteria. While the criteria noted above are somewhat more stringent than those noted by the Commission, the intent is the same; both seek to develop a proxy group that reasonably "mirrors Questar Gas' risk characteristics."[11]

Q. Based on those criteria, what was the composition of your proxy group?

A. Strict adherence to the criteria discussed above resulted in a proxy group of the following seven companies:

- AGL Resources
- New Jersey Resources
- Northwest Natural Gas
- Piedmont Natural Gas
- South Jersey Industries
- Southwest Gas Corp.
- WGL Holdings, Inc.

[11] Docket No. 02-057-02, Report and Order Issued December 30, 2002.

Q. Does this constitute your final proxy group?

A. No, it does not. The DCF analysis produces a mean return for WGL Holdings, Inc. (WGL) of 7.50 percent, which is approximately 123 basis points above the 30 day average yield of the Moody's Baa Utility Index (as of November 30, 2007). Over the long term, the average premium has been approximately 354 basis points, nearly three times greater than WGL's current premium based on the DCF result. Importantly, that average does not take into consideration the negative relationship between the level of interest rates and the risk premium;[12] 354 basis points, therefore, is a conservative estimate of the current risk premium. On that basis alone, it is clear that the DCF results for WGL are well below what investors reasonably would require as an equity return. In fact, risk premium-based methodologies produce ROE estimates for WGL that are in the 11.00 percent range (*see* QGC Exhibit 3.2).[13] (As shown in QGC Exhibit 3.2 and QGC Exhibit 3.7, the average Beta coefficient for WGL is 0.94, while the proxy group average is 0.90, indicating that WGL has incrementally greater systematic risk than the proxy group. Here again, the extraordinarily low DCF results for WGL are incongruous with the results of other methodologies.) In light of the company's untenable DCF results, I have excluded WGL from my proxy group for the cost of equity analysis.

I also should point out that strict adherence to the screening criteria discussed above would have resulted in eliminating Atmos Energy Corp. and Nicor, Inc. on the basis of the percentage of net income derived from regulated natural gas distribution operations. While both of those companies failed to meet that screen, they only narrowly did so.[14] Based on my review of the most recent SEC Form 10-Q for each of the companies,

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[12] The relationship between the equity risk premium and long term interest rates is discussed in more detail in Section V.

[13] It is interesting to note that a settlement approved by the Virginia State Corporation Commission (VASCC) on September 19, 2007 for WGL allowed for a base ROE of 10.00% with an earnings sharing mechanism that enables WGL to retain all earnings up to an earned ROE of 10.5%. (Case No. DUE-2006-00059) Although somewhat low relative to my recommended range of 10.25% to 11.50%, the ROE approved by the VASCC is 250 to 300 basis points above the mean DCF result of 7.50%.

[14] Net income derived from natural gas utility operations for Atmos Energy Corp. and Nicor, Inc. were 59.93% and 59.57%, respectively.

however, I believe that it is not unreasonable to assume that both companies will meet the 60 percent threshold by year-end 2007. Therefore, I have included both of those companies in my proxy group.

V. COST OF EQUITY ESTIMATION

Q. Please briefly discuss the ROE in the context of the regulated rate of return.

A. Regulated utilities primarily use common stock and long-term debt to finance their permanent property, plant and equipment. The rate of return (ROR) for a regulated utility is based on its weighted average cost of capital, in which the cost rates of the individual sources of capital are weighted by their respective book values. While the costs of debt and preferred stock can be directly observed, the cost of equity is market-based and, therefore, must be inferred from market-based information.

Q. How is the required ROE determined?

A. The required ROE is estimated by using one or more analytical techniques that use market-based data to quantify investor expectations regarding required equity returns, adjusted for certain incremental costs and risks. I then apply my informed judgment, based on the results of those analyses, to determine where within the range of results the cost of equity for Questar Gas should rightly fall. The resulting adjusted cost of equity serves as the ROE for ratemaking purposes.

Q. What methods did you use to determine the Company's ROE?

A. I have used the DCF model as the initial approach; I then considered the results of the Capital Asset Pricing Model and an alternative Risk Premium approach in assessing the reasonableness of the DCF results and developing my ROE recommendation.

Q. Do you believe it is important to use more than one analytical approach?

A. Yes, I do. As noted above, the cost of equity is not directly observable and therefore must be estimated based on both quantitative and qualitative information. As a result, a number of models have been developed to estimate the cost of equity. As a general proposition, when faced with the task of estimating the cost of equity, analysts are inclined to gather and evaluate as much relevant data as reasonably can be analyzed. It is

for that reason, in fact, that Concentric uses multiple approaches to estimate the cost of equity used in performing valuations in the context of our financial advisory and transaction practices. In addition, as a practical matter all of the models available to estimate the cost of equity are subject to limiting assumptions or other methodological constraints. For example, while the Constant Growth DCF model uses market-derived dividend yield data, it also assumes that the dividend payout ratio, earnings growth rate, and market valuation multiples (*e.g.*, Price/Earnings ratio) remain constant in perpetuity; and that investors will require the same equity return (*i.e.*, a constant ROE) in every year. Those assumptions are not likely to hold in most market environments; as discussed later in my Direct Testimony, they clearly do not apply under recent market conditions. Consequently, many finance texts recommend using multiple approaches when estimating the cost of equity. Copeland, Koller and Murrin,[15] for example, suggest using the CAPM and Arbitrage Pricing Theory model, while Brigham and Gapenski[16] recommend the CAPM, DCF and "bond yield plus risk premium" approaches.

In essence, analysts and academics understand that ROE models simply are tools to be used in the ROE estimation process and that strict adherence to any single approach or the specific results of any single approach can lead to flawed and irrelevant conclusions. The Commission recognized that key point when it noted that financial models "provide a framework for analysis" and are a "useful means of organizing relevant information."[17] That position is consistent with the *Hope* and *Bluefield* finding that it is the result, as opposed to the approach that is controlling in arriving at ROE determinations. Thus a reasonable ROE estimate must consider alternate methodologies and the reasonableness of their individual and collective results.

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[15] Tom Copeland, Tim Koller and Jack Murrin, Valuation: Measuring and Managing the Value of Companies, 3rd ed. (New York: McKinsey & Company, Inc., 2000) 214.

[16] Eugene Brigham, Louis Gapenski, Financial Management: Theory and Practice, 7th Ed. (Orlando: Dryden Press, 1994) 341.

[17] Docket No. 02-057-02, Report and Order Issued 12/30/02, p. 13.

Notwithstanding the subjective elements of ROE analyses, the underlying methodologies all seek to address the same fundamental question: how do you quantify unobservable investor expectations and return requirements? One means of addressing that question is to understand the methodologies used by the analysts currently active in equity markets and investments. In that regard, a 1998 article in *Financial Practice and Education,*[18] among other findings, presented a survey demonstrating that the CAPM model is the predominant basis of valuation analysis and cost of equity calculation within corporate finance departments and by professional financial analysts, as well as in academic textbooks. To develop the cost of equity, 85 percent of companies utilize the CAPM or a modified CAPM as the primary method. Eighty percent of financial advisors utilize the CAPM as their primary method, and all textbooks covered CAPM as the primary determinant of the cost of equity. Other models covered by textbooks included the dividend growth and the arbitrage pricing models.

Thus, although we cannot directly observe the cost of equity, we can observe the methods frequently used by analysts to arrive at their return requirements and expectations. While investors and analysts tend to use multiple approaches in developing their estimate of return requirements, each methodology requires certain judgment with respect to the reasonableness of assumptions and the validity of proxies in its application. In my view, therefore, it is both prudent and appropriate to use multiple methodologies in order to mitigate the effects of assumptions and inputs associated with relying exclusively on any single approach. Based on the Commission's past consideration of the DCF model and in light of the capital market practices discussed above, I believe that the Constant Growth form of the DCF model, together with the CAPM and other risk premium based approaches, should be considered in determining the Company's cost of equity.

[18] Robert F. Bruner, Kenneth M. Eades, Robert S. Harris, and Robert C. Higgins, "Best Practices in Estimating the Cost of Capital: Survey and Synthesis," *Financial Practice and Education* (Spring/Summer 1998).

A. Constant Growth DCF Model

Q. Please describe the DCF approach.

A. The DCF approach is based on the theory that a stock's current price represents the present value of all expected future cash flows. In its most general form, the DCF model is expressed as follows:

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + ... + \frac{D_\infty}{(1+k)^\infty} \quad [1]$$

Where P_0 represents the current stock price, $D_1 \ldots D_\infty$ are all expected future dividends, and k is the discount rate, or required ROE. Equation [1] is a standard present value calculation that can be simplified and rearranged into the familiar form:

$$k = \frac{D(1+g)}{P_0} + g \quad [2]$$

Equation [2] is often referred to as the "Constant Growth DCF" model in which the first term is the expected dividend yield and the second term is the expected long-term growth rate.

While the straightforward nature of the Constant Growth DCF model has certain intuitive appeal, as with any economic or financial model, it is subject to a set of assumptions that may limit its applicability under certain circumstances. As noted earlier, the model assumes that earnings and dividends grow at the same, constant rate in perpetuity; that the dividend payout ratio remains constant; that valuation multiples such as the Price/Earnings ratio remain constant; and that investors will require the same return (*i.e.*, the calculated ROE) every year in perpetuity. In light of such assumptions, it is extremely important to view DCF results relative to the results of other methodologies, and in the context of long-term capital market conditions and relationships.

B. Dividend Yield for the DCF Model

Q. What market data did you use to calculate the dividend yield in your DCF model?

A. The dividend yield in my DCF model is based on the proxy companies' current dividend and average closing stock prices over the 30 and 180-trading days ended November 30, 2007.

Q. Why did you use both a 30-day and a 180-day averaging period?

A. I believe it is important to use an average of recent trading days to calculate the term P_0 in the DCF model to ensure that the calculated ROE is not skewed by anomalous events that may affect stock prices on any given trading day. In that regard, the averaging period should be reasonably representative of expected capital market conditions over the long term. Over the past several months, however, certain market relationships have deviated noticeably from their long-term norms. For example, from January 2000 through November 2007, the difference between the yield on the 30-year Treasury Bonds and the proxy group average dividend yield (*i.e.*, the yield spread) averaged approximately 0.91 percent (*i.e.*, 91 basis points). Over the most recent 180-trading days ended November 30, 2007, the yield spread averaged 136 basis points, while the 30-day average yield spread was approximately 88 basis points.

Similarly (as discussed in more detail below), over the past 180-days the proxy group average Price-to-Earnings (P/E) ratio relative to the market P/E ratio (as measured by the S&P 500) was substantially above the long-term average. Over the most recent 30-day period, however, the average has moved considerably closer to its long-term norm (although it is still noticeably higher). Whether the 180-day or 30-day average is used, the relative valuations clearly are well above the long-term average indicating that a fair amount of judgment must be exercised when reviewing the DCF results.

Q. Putting aside the issue of the averaging period, did you make any adjustments to the dividend yield to account for periodic growth in dividends?

A. Yes. Since utility companies tend to increase their quarterly dividends at different times throughout the year, it is reasonable to assume that dividend increases will be evenly distributed over calendar quarters. Given that assumption, it is reasonable to apply one-

half of the expected annual dividend growth for purposes of calculating the expected dividend yield component of the DCF model. This adjustment ensures that the expected dividend yield is, on average, representative of the coming twelve-month period, and does not overstate the aggregated dividends to be paid during that time. Accordingly, the DCF estimates provided in QGC Exhibit 3.3 reflect one-half of the expected growth in the dividend yield component of the model.

C. Growth Rates for the DCF Model

Q. Is it important to select appropriate measures of long-term growth in applying the DCF model?

A. Yes. In its constant growth form, the DCF model (i.e., Equation [2]) assumes a single growth estimate in perpetuity. Accordingly, in order to reduce the long-term growth rate to a single measure, (as noted earlier) one must assume a constant payout ratio, and that earnings per share, dividends per share and book value per share all grow at the same constant rate. Over the long run, however, dividend growth can only be sustained by earnings growth. Consequently, it is important to incorporate a variety of measures of long-term earnings growth into the constant growth DCF model. This can be accomplished by averaging those measures of long-term growth that tend to be least influenced by capital allocation decisions that companies may make in response to near-term changes in the business environment. Since such decisions may directly affect near-term dividend payout ratios, estimates of earnings growth are more indicative of long-term investor expectations than are dividend growth estimates. Therefore, for the purposes of the Constant Growth form of the DCF model, growth in earnings represents the appropriate measure of long-term growth.

566 **Q. Is it conventional analytical practice to rely on analysts' forecasts as the basis of**
567 **growth rate projections?**

568 A. Yes. The cost of equity is a forward-looking concept that focuses on investors' return
569 expectations and requirements. The estimation of such returns, therefore, should be
570 based on forward-looking data. Indeed, substantial academic research has demonstrated
571 the relationship between analysts' forecasts and stock price performance.[19] Other
572 academic research has pointed to the use of both consensus earnings forecasts, and Value
573 Line in particular, as widely-used sources of analysts' growth forecasts. Therefore, I
574 have selected Value Line and Zacks[20] as appropriate sources of analyst growth estimates.

575 **Q. Please describe the Retention Growth estimate as applied in your Direct Testimony.**

576 A. The Retention Growth model, which is a generally recognized and widely taught method
577 of estimating long-term growth,[21] is an alternative approach to the use of analysts'
578 earnings growth estimates. In essence, the model is premised on the proposition that a
579 firm's growth is a function of its expected earnings, and the extent to which it retains
580 earnings to invest in the enterprise. In its simplest form, the model represents long term
581 growth as the product of the retention ratio (*i.e.*, the percentage of earnings not paid out
582 as dividends, referred to below as "b") and the expected return on book equity (referred
583 to below as "r"). Thus the simple "b x r" form of the model projects growth as a function

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[19] In an article focused on utility cost of capital, Brigham, Shome and Vinson noted that ". . . evidence in the current literature indicates that (i) analysts' forecasts are superior to forecasts based solely on time series data, and (ii) investors do rely on analysts' forecasts." (*See* "The Risk Premium Approach to Measuring a Utility's Cost of Equity," Financial Management, Spring 1985, p.33.) Similarly, in a review of literature regarding the extent to which analyst forecasts are reflected in stock prices, Harris noted: ". . . Vander Weide and Carlton recently compare consensus financial analyst forecasts of earnings growth to 41 different historical growth measures. They concluded that "there is overwhelming evidence that the consensus analysts' forecast of future growth is superior to historically-oriented growth measures in predicting the firm's stock price. . . consistent with the hypothesis that investors use analysts' forecasts, rather than historically-oriented growth calculations, in making stock buy and sell decisions." (*See* Robert S. Harris, *Using Analysts' Growth Forecasts to Estimate Shareholders Required Rates of Return*, Financial Management, Spring 1986, at 66.) The Vander Weide and Carlton analysis was updated in 2004 under the direction of Dr. Vander Weide. The results of this updated study are consistent with the Vander Weide and Carlton's original conclusions.

[20] Zacks is a consensus earnings forecasting service.

[21] *See*, for example, Brealey, Meyers and Allen, Principles of Corporate Finance, 8th Ed. 2006.

of internally generated funds which, as a practical matter, is a reasonable basis for estimating future growth. That form of the model is limiting, however, in that it does not provide for growth funded from external equity.

The "br + sv" form of the Retention Growth estimate used in my DCF analysis is meant to reflect growth from both internally generated funds (i.e., the "br" term) and from issuances of equity (i.e., the "sv" term). The first term, which is the product of the retention ratio (i.e., "b", or the portion of net income not paid in dividends) and the expected return on equity (i.e., "r") represents the portion of net income that is "plowed back" into the Company as a means of funding growth. The "sv" term can be represented as:

$(\frac{m}{b} - 1)$ x Common Shares growth rate [3]

where:

$\frac{m}{b}$ = the market to book ratio.

In this form, the "sv" term reflects an element of growth as the product of (a) the growth in shares outstanding and (b) that portion of the market-to-book ratio that exceeds unity. As shown in QGC Exhibit 3.4, all of the components of the Retention Growth Model can be derived from data provided by Value Line.

Q. Are you aware that the Commission declined to use the Retention Growth approach in Docket No. 02-057-02?

A. Yes, although I understand that the Commission's concern related, at least in part, to its unfamiliarity with the approach. In addition, I recognize that there was an element of circularity inasmuch as the model calls for an estimate of earned return on book equity. In other jurisdictions, in which the presiding commission's past practice is to rely on some measure of Retention Growth (sometimes referred to as "sustainable growth"), I

have included the version described above in my Direct Testimony.[22] Thus, like all models, the Retention Growth model has some shortcomings. Nonetheless, properly applied it is a reasonable approach. Moreover, as discussed in more detail below, current capital market conditions are such that the Constant Growth DCF results using only projected earnings growth rates are so low as to be of no analytical value. As a practical matter, therefore, to the extent that this Commission chooses to rely on the Constant Growth DCF model in this proceeding, it is reasonable to consider the Retention Growth estimate as a factor in establishing the range of results.

D. Results for Constant Growth DCF Model

Q. Please summarize your inputs to the constant growth DCF model.

A. I applied the DCF model to the proxy group of eight gas distribution companies (*i.e.*, the original group, including Atmos and Nicor, and excluding WGL) using the following inputs for the price and dividend terms:

1. The average daily closing prices for both the 30-trading days and 180-trading days ended November 30, 2007 for the term P_0;
2. The annualized dividend per share as of November 30, 2007 for the term D_0.

I then calculated the DCF results using each of the following growth terms:

1. The Zacks consensus long-term Earnings growth estimates;
2. The Value Line Earnings Per Share growth estimates; and
3. The projected Retention Growth estimate.

Q. How did you calculate the high and low DCF results?

A. I calculated the mean high DCF result using the maximum growth rate (*i.e.*, the maximum of the Value Line and Zack's EPS growth rates, and the Retention Growth rate) in combination with the dividend yield for each of the proxy group companies. Thus, the mean high result reflects the average maximum DCF result for the proxy

[22] *See*, for example, Direct Testimony of Robert B. Hevert, Before the Arkansas Public Service Commission, Docket No. 06-161-U.

group. I used a similar approach to calculate the mean low results, using the minimum growth rate for each proxy group company.

Q. What are the results of your DCF analysis?

A. As noted in Table 1 (below), the unadjusted mean DCF results for my proxy group are 9.67 percent and 9.48 percent for the 30 and 180-trading day periods, respectively (including Retention Growth). The mean high DCF result for the 30 and 180-day averaging periods (including the Retention Growth estimate) were 10.70 percent and 10.50 percent, respectively.

Table 1: Mean DCF Results

	Mean Low	Mean	Mean High
30-Day Average	8.63%	9.67%	10.70%
180-Day Average	8.44%	9.48%	10.50%

E. Dividend Yield Analysis

Q. Does the range of DCF results presented in Table 1 (above) necessarily result in an appropriate estimate of the cost of equity for Questar Gas?

A. No, I do not believe so. As discussed below, current market conditions are inconsistent with certain of the fundamental assumptions (discussed earlier) underlying the Constant Growth DCF model. Consequently, the DCF results are less reliable than they otherwise would be. As discussed in more detail in Section IX, the mean DCF results are well below the results of other analytical approaches and are inconsistent with the prevailing level of gas utility authorized ROEs.

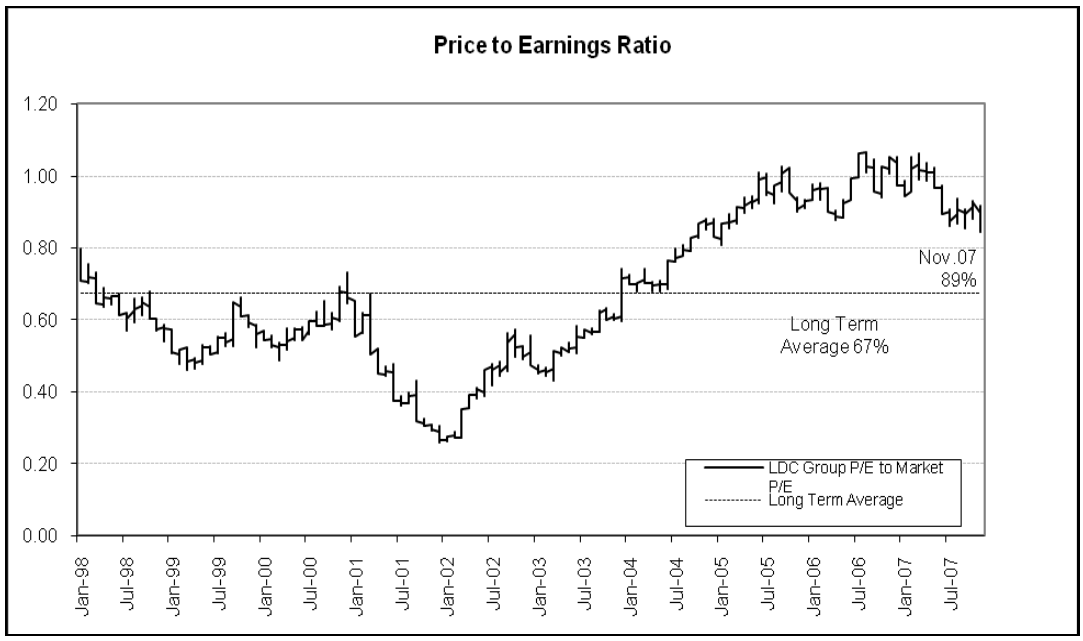
Q. Are there specific market relationships that currently appear to be inconsistent with long-term trends and that would bias the DCF results?

A. Yes. I have identified two relationships that are inconsistent with long-term trends: (1) the combined proxy group average P/E ratio has increased as a percentage of the overall market P/E (as measured by the S&P 500 Index); and (2) the relationship between the proxy group average dividend yield and the 30-year Treasury Bond is currently wider than the historical average.

Q. Please explain your analysis of the proxy group P/E ratio and the implications for interpreting the DCF results.

A. As shown in Chart 1 (below) over the last 10 years (since January 1998) the proxy group average P/E ratio has been approximately 67 percent of the S&P 500 P/E ratio. As of November 30, 2007, the proxy group average P/E was approximately 89 percent of the S&P 500 P/E, indicating that utility stock earnings multiples are high relative to their historical norms. As a consequence, current utility dividend yields are unusually low. In such circumstances, wherein near-term valuation measures are considerably above long-term norms, the constant growth assumption of the DCF model does not hold and the model may understate cost of equity results relative to other analytical approaches.

Chart 1: Proxy Group P/E Relative to Market

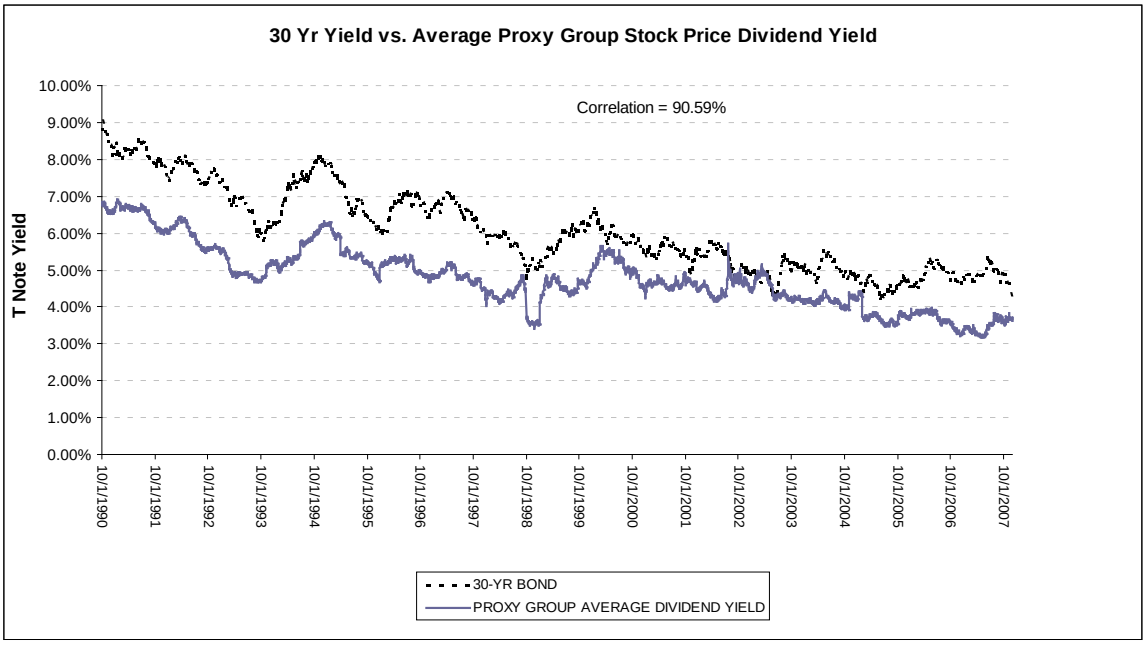


Q. Please explain your analysis of the proxy group yield spread.

A. First, it is well established that utility stock prices and dividend yields are strongly related to long-term interest rates. In fact, utility analysts often analyze the difference between the yield on long–term treasury bonds and utility dividend yields (that difference generally is referred to as the yield spread). To the extent that current measures of the yield spread are substantially greater than long-term averages, the stocks may be considered "expensive" relative to alternative investments. QGC Exhibit 3.5 presents the

results of an analysis examining the relationship between the average dividend yield for the proxy group companies and the average five-year, ten-year, and thirty-year Treasury yields. This analysis demonstrates that the average proxy group dividend yield is highly positively correlated with long-term Treasury yields. Chart 2 (below, also included in QGC Exhibit 3.5) provides the long-term relationship between the proxy group companies' average dividend yield and the yield on 30-year Treasury Bonds (on a daily basis) since 1990. As shown on Chart 2, other than during the sector-wide credit contraction in mid-2002 through mid-2003, there has been a strong, positive relationship between Treasury yields and the proxy group average dividend yield.

Chart 2: Proxy Group Dividend Yields vs. 30-Yr. Treasury Yields

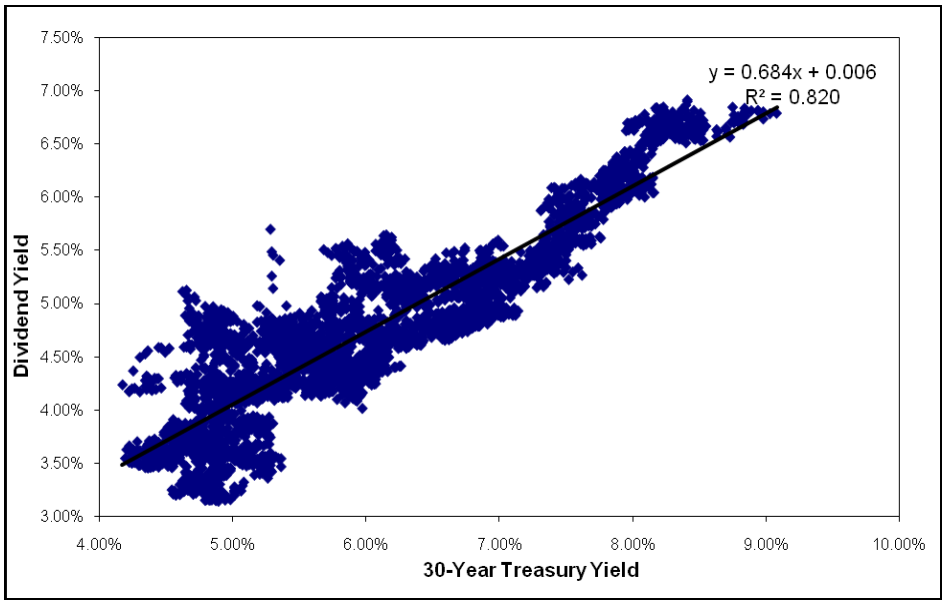


Q. Did you conduct any quantitative analyses to address the current yield spread disparity?

A. Yes. I developed a regression equation to capture the relationship between Treasury yields and dividend yields on a daily basis for the period October 1990 through November 2007. I used a simple linear form, resulting in the equation provided in Chart

3 (below). The regression equation and estimated coefficients all were statistically significant, suggesting that changes in dividend yields are strongly associated with changes in interest rates.[23]

Chart 3: Regression Results



I then used the results of the regression analysis to estimate the average dividend yield over a variety of interest rate scenarios. As a first step, I tested the equation based on the recent 30 trading-day average of the 30-year Treasury yield. As of November 30, 2007, the 30-day average 30-year Treasury yield was 4.57 percent and the 180-day average was 4.88 percent. Applying the 180-day average Treasury yield of 4.88 percent to the coefficients provided in Chart 3 (and QGC Exhibit- 3.6) produces an estimated dividend yield of approximately 3.97 percent ([0.0488 x 0.6843] +0.0063). This is the same as the dividend yield based on the long-term mean yield spread of 91 basis points (4.88 - 0.91=3.97) discussed earlier and is well within the range of actual dividend yields for the proxy group.

[23] See QGC Exhibit 3.6. This analytic approach and finding is not uncommon among equity analysts: e.g., Citigroup Smith Barney Equity Research: Global Utilities, "Global Utilities Update", June 6, 2005, page 26, and 32-34.

In order to calculate the effect of the currently low dividend yields on the DCF results, I combined the estimated (or "normalized") mean dividend yield of 3.97 percent with the mean growth rate of 5.88 percent (*see* Exhibit QGC 3.6), which produced a normalized DCF estimate of 9.97 percent. Since the growth rates remain constant, the difference between the 9.97 percent DCF estimate and the Mean DCF estimate of 9.67 percent reported in Table 2 is the adjustment to the mean dividend yield (approximately 30 basis points after adjusting for one-half year growth).

I then used the equation to estimate the dividend yield and therefore, the DCF result under a Treasury yield forecast scenario. As noted earlier, the Blue Chip consensus forecast projects the 30-year Treasury yield to be 4.62 percent for the forecast period 2008. That forecast Treasury yield results in a normalized dividend yield of 3.79 percent and a DCF result, assuming a mean growth rate of 5.88 percent, of 9.78 percent (*see* QGC Exhibit 3.6). In order to determine the upper end of the range of normal results,[24] I applied the normalized dividend yields calculated under the three scenarios noted above to the mean high growth rate of 6.89 percent, resulting in a range of 10.77 percent to 11.00 percent.

Table 2: Normalized DCF Estimates

"Normalized" DCF Estimate	30-Day Average	180-Day Average	Blue Chip Forecast
30-Year Treasury Yield	4.57%	4.88%	4.62%
Mean Growth Rate (5.88%)	9.75%	9.97%	9.78%
Mean High Growth Rate (6.89%)	10.77%	11.00%	10.81%

[24] Given the extremely low mean low results reported in Table 1, there is no need to calculate normalized mean low results.

Q. Please summarize your conclusions regarding the DCF results.

A. There is little question that the proxy group yield spreads and relative P/E ratio indicate valuation levels that are inconsistent with long-term relationships. Since the DCF model assumes constant valuation multiples, the results should be carefully considered in the context of other analytical results and available information. By adjusting the dividend yield component, the mean and mean high results, while still somewhat low relative to the methodologies discussed below, begin to move toward a more reasonable range.

F. CAPM Analysis

Q. Please briefly describe the Capital Asset Pricing Model.

A. The CAPM is a risk premium approach that estimates the cost of equity for a given security as a function of a risk-free return plus a risk premium (to compensate investors for the non-diversifiable or "systematic" risk of that security). As shown in Equation [4], the CAPM is defined by four components, each of which theoretically must be a forward-looking estimate:

$$k_e = rf + \beta(r_m - rf) \qquad [4]$$

where:

k_e = the required market ROE

β = Beta of an individual security

rf = the risk free rate of return

r_m = the required return on the market as a whole.

In this specification, the term $(r_m - rf)$ represents the market risk premium. According to the theory underlying the CAPM, since unsystematic risk can be diversified away, investors should be concerned only with systematic or non-diversifiable risk. Non-diversifiable risk is measured by Beta, which is defined as:

$$\beta = \frac{Covariance(r_e, r_m)}{Variance(r_m)} \qquad [5]$$

The variance of the market return is a measure of the uncertainty of the general market, and the covariance between the return on a specific security and the market reflects the

extent to which the return on that security will respond to a given change in the market return. Thus Beta represents the risk of the security relative to the market.

Q. Is the CAPM a reasonable methodology to use in establishing a utility's ROE?

A. Yes, I believe so. As noted earlier, an important standard established in *Hope* and supported by this Commission is the principle that the authorized return should be comparable to the returns earned on investments of similar risk. The CAPM represents a methodological framework that enables the measurement of relative risk via the Beta coefficient. Moreover, the cost of equity defined and derived by the CAPM is the return prevailing in capital markets and, properly structured, would satisfy the capital attraction standard also supported by the Commission. Finally, as noted earlier, the CAPM is frequently used by investors and analysts to establish the cost of equity. As such, the use of the CAPM is supported by the Hope and Bluefield standards and is consistent with prevailing industry practice.

Q. Are you aware of the Commission's concerns regarding the CAPM?

A. Yes, I understand that in Docket No. 02-057-02, the Commission noted its concern with the statistical significance of Beta estimates. In that regard, I have reviewed the statistical significance of the Beta estimates provided by Bloomberg[25] and, based on the data presented in Table 3 (below), found that the Betas for my proxy group are statistically significant. (Generally speaking, a t-statistic greater than approximately 2.00 suggests a sufficient level of statistical significance.)

[25] As discussed below, Bloomberg is one of the two Beta sources used in my CAPM analysis; the other service, Value Line, did not provide the descriptive statistics for its Beta estimates. Please note that Bloomberg does not provide Durbin-Watson statistics for its Beta regressions.

Table 3: Bloomberg Beta Test of Statistical Significance

	Raw Beta[26]	Standard Error[27]	T-statistic
ATO	0.7730	0.0880	8.7841
ATG	0.8190	0.0970	8.4433
NJR	0.9200	0.1200	7.6667
GAS	0.8970	0.1060	8.4623
NWN	0.9760	0.1560	6.2564
PNY	0.9200	0.1420	6.4789
SJI	1.1900	0.1530	7.7778
SWX	1.1220	0.1280	8.7656

In addition, as noted earlier, it is clear that investors continue to rely on the CAPM in practice. In fact, in our work as financial advisors on the buy and sell side of both asset and corporate transactions, Concentric often uses the CAPM as a means of estimating the cost of equity. Moreover, in light of the extraordinarily low DCF results discussed earlier (and as noted in Section IX, in comparison to currently authorized utility returns for gas utilities), it is important to consider other analytical approaches in addition to the DCF model. Therefore, while I recognize the Commission's concern, I have used the CAPM as an alternative cost of equity estimation technique.

Q. What did you use for the risk-free rate in your CAPM model?

A. Since the DCF and CAPM models both assume long-term investment horizons, I used the yield on long-term Treasury securities as my estimate of the risk-free rate. In order to ensure that my CAPM results were not biased by my risk-free rate estimate, I used three different measures of long-term Treasury yields. First, I used the actual yield on 30-year

[26] Raw Betas are prior to adjustment made by Bloomberg, as discussed below.

[27] The Standard Error measures the extent to which an individual observation differs from the value estimated by the regression equation, *i.e.*, it is a measure of sampling error. It is interesting to note that the Standard Errors presented in Table 3 are highly consistent with the range of standard errors reported by Morningstar in the 2007 Yearbook. *See* Stocks, Bonds, Bills, and Inflation 2007 Valuation Yearbook, Morningstar, Inc., 2007, at 115.

Treasury Bonds as the risk-free rate. To ensure that the results were not unduly influenced by market events, I used the average yield over a 30-day time period, which resulted in a risk-free rate of 4.57 percent and a 180-day time period, which resulted in a risk-free rate of 4.88 percent. In addition, I used the projected yield on 30-year Treasury Bonds of 4.62 percent, as provided by the Blue Chip Financial Forecast.[28]

Q. Why is it important to use the long-term Treasury rate as the measure of the risk-free rate?

A. For the purpose of the CAPM, it is important to select the term that best matches the life of the underlying investment. As noted by Ibbotson Associates:

> The horizon of the chosen Treasury security should match the horizon of whatever is being valued. . . If an investor plans to hold stock in a company for only five years, the yield on a five-year Treasury note would not be appropriate since the company will continue to exist beyond those five years.[29]

Because natural gas distribution companies represent long-duration investments, it is appropriate to use yields on long-term Treasury bonds as the risk-free rate component of the CAPM.

Q. Please discuss your estimate of the expected market risk premium.

A. The calculation of the risk premium should be based on the longest period possible to avoid giving undue consideration to unusual market conditions. When historical risk premiums are used, the arithmetic mean, which recognizes market uncertainty, should be used as the relevant long-term average. Ibbotson Associates data (from 1926 through 2006) indicates that the equity risk premium of the total return on large company stocks over the income only portion of long term government bonds is 7.10 percent.[30]

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[28] Blue Chip Financial Forecasts, Vol. 26, No. 12 December 1, 2007, at 2.

[29] See Ibbotson Associates, Stocks, Bonds, Bills and Inflation Valuation Edition, 2007 Yearbook, at 59.

[30] Ibbotson, *Risk Premia Over Time Report: 2007,* Table A-1 (page 2 of 6).

Q. Why do you use the arithmetic mean, as opposed to the geometric mean, as the relevant long-term average?

A. The arithmetic mean, as compared to the geometric mean, is the simple average of single period rates of return. The geometric mean is the compound rate that equates a beginning value to its ending value. The important distinction between the two methods is that the arithmetic mean assumes that each periodic return is an independent observation and, therefore, incorporates uncertainty into the calculation of the long-term average. In his review of literature on the topic, Cooper noted the following rationale for using the arithmetic mean:

> Note that the arithmetic mean, not the geometric mean is the relevant value for this purpose. The quantity desired is the rate of return that investors expect over the next year for the random annual rate of return on the market. The arithmetic mean, or simple average, is the unbiased measure of the expected value of repeated observations of a random variable, not the geometric mean.…[The] geometric mean underestimates the expected annual rate of return.[31]

For the purposes of my CAPM analysis, therefore, I have used the long-term arithmetic mean risk premium as reported by Ibbotson Associates.

Q. What source did you use for proxy group Betas?

A. When considering alternative sources of Beta estimates, it is important to recognize that such estimates are based on historical data. In theory, Betas that are far removed from the market Beta of 1.0 may reflect temporary events that may be mitigated over time. That is, over time, Betas will tend to regress toward the market mean of 1.0. Consequently, I have used Betas from Value Line and Bloomberg, both of which adjust their Beta estimates based on an average of the raw, historical Beta and 1.0. This adjustment addresses the tendency of the CAPM to underestimate the cost of capital for companies with "unadjusted" or "raw" Betas significantly less than 1.0. For relatively

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[31] Ian Cooper, *Arithmetic versus geometric mean estimators: Setting discount rates for capital budgeting,* European Financial Management 2.2, (1996): 158.

low raw Beta companies such as regulated utilities, failure to take such adjustments into consideration will result in an understatement of required returns.

Q. Please summarize the results of your CAPM analysis.

A. As presented in Table 4 (*see also* QGC Exhibit 3.7), my mean CAPM estimates are 10.96 percent (based on the 4.57 percent risk free rate, averaged over 30-days), 11.27 percent (based on the 4.88 percent risk free rate, averaged over 180-days), and 11.01 percent (based on the 4.62 percent risk free rate).[32]

Table 4: CAPM Results

Risk Free Rate	Mean Low	Mean	Mean High
4.57% (30-Day Average)	10.36%	10.96%	11.55%
4.88% (180-Day Average)	10.68%	11.27%	11.86%
4.62% (2008-2009 Forecast)	10.42%	11.01%	11.60%

G. Bond Yield Plus Risk Premium Analysis

Q. Please describe the bond yield plus risk premium approach you employed.

A. In general terms, this approach is based on the fundamental principal that equity investors bear the residual risk associated with ownership and therefore require a premium over the return they would have earned as a bondholder. That is, since returns to equity holders are more risky than the returns of bondholders, equity investors must be compensated to

[32] It is interesting to note that the assumptions and data sources used in my CAPM analysis are highly consistent with those proscribed by Utah Administrative Code R884-24P-62, "Valuation of State Assessed Unitary Properties Pursuant to Utah Code Ann. Section 59-2-201" (the Rule), which states in part: 'The cost of equity is estimated using standard methods such as the capital asset pricing model (CAPM), the Risk Premium and Dividend Growth models, or other recognized models. The CAPM is the preferred method to estimate the cost of equity. More than one method may be used to correlate a cost of equity, but only if the CAPM is weighted at least 50% in the correlation." Rule R884-24P-62.E.2.a)(2)(b) and (b)(i). Speaking to the actual specification of the CAPM, the Rule states that: "The risk free rate shall be the current market rate on 20-year Treasury Bonds. The beta should reflect an average of value-weighted average of comparable companies and should be drawn consistently from Value Line or an equivalent source. The risk premium shall be the arithmetic average of the return on stocks and the income return on long-term bonds for the entire historical period contained in the Ibbotson Yearbook." Ibid. R884-24P-62.E.2.a)(2)(b)(ii).

bear that risk. Risk premium approaches therefore estimate the cost of equity as the sum of the equity risk premium and the yield on a particular class of bonds. Since the equity risk premium is not directly observable, it typically is estimated using one of a variety of approaches some of which incorporate an *ex-ante*, or forward-looking estimate of the cost of equity. Given that any *ex-ante* method necessarily introduces an additional element of estimation error, an alternative approach is to use the actual authorized returns for natural gas utilities as the historical measure of the cost of equity to determine the equity risk premium. Since both authorized returns and Treasury yields are directly observable, this approach substantially mitigates the estimation error that otherwise would be included in the analysis.

Q. Are there other analytical considerations that should be addressed in conducting this analysis?

A. Yes. In my view, it is important to recognize both academic literature and market evidence indicating that the equity risk premium (as used in this approach) is inversely related to the level of interest rates. That is, as interest rates increase (decrease), the equity risk premium decreases (increases). Consequently, it is important to develop an analysis that (1) reflects the inverse relationship between interest rates and the equity risk premium and (2) is based on more recent market conditions. Such an analysis can be developed based on a regression of the risk premium as a function of Treasury yields. If we let authorized natural gas utility ROEs serve as the measure of required equity returns and define the yield on ten-year Treasury securities as the relevant measure of interest rates, the risk premium simply would be the difference between those two points.[33]

[33] See, e.*g.*, S. Keith Berry, *Interest Rate Risk and Utility Risk Premia during 1982-93*, Managerial and Decision Economics, Vol. 19, No. 2 (March, 1998), in which the author used a methodology similar to the regression approach described below, including using allowed ROEs as the relevant data source, and came to similar conclusions regarding the inverse relationship between risk premia and interest rates. *See also* Robert S. Harris, *Using Analysts' Growth Forecasts to Estimate Shareholders Required Rates of Return*, Financial Management, Spring 1986, at 66.

Q. What did your bond yield plus equity risk premium analysis reveal?

A. As shown on Chart 4, from 1992 through the third quarter of 2007 there was, in fact, a strong negative relationship between risk premia and interest rates. To estimate that relationship, I conducted a regression analysis using the following equation:

$$RP = a + b(T_{10}) \quad [6]$$

where:

RP = Risk Premium (difference between allowed ROEs and 10-year Treasury yield)

a = Intercept term

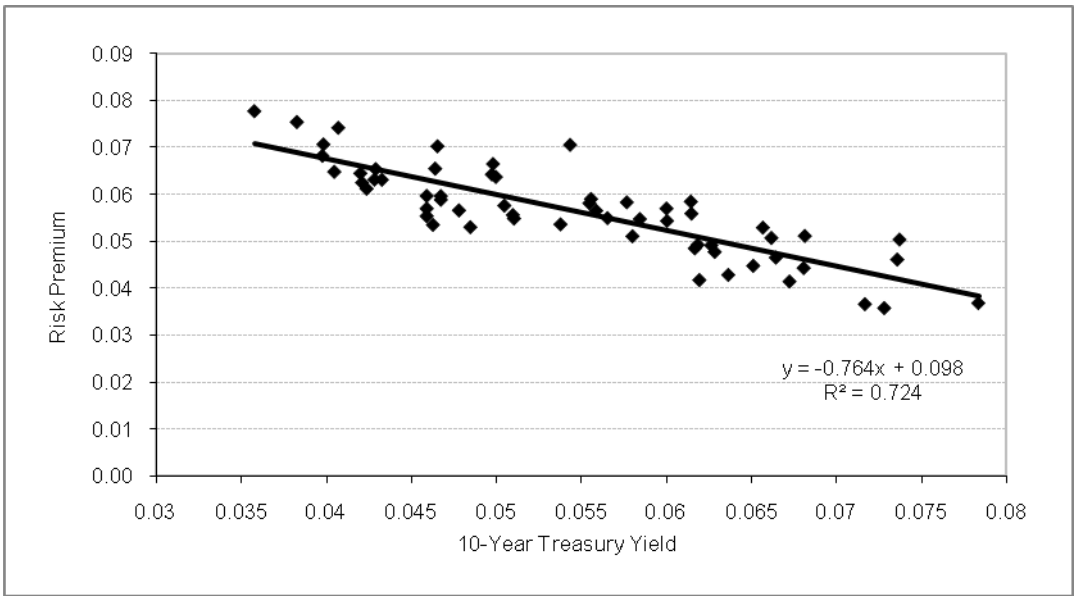
b = Slope term

T_{10} = 10-year Treasury Bond Yield

Data regarding allowed ROEs was derived from 286 rate cases from 1992 through the third quarter of 2007 as reported by Regulatory Research Associates. This equation's coefficients were statistically significant at the 99 percent level.[34]

[34] In order to ensure that the regression coefficients were not biased as a result of serially correlated error terms, the equation presented in QGC Exhibit 3.8 was estimated using the Prais-Winston corrective routine. That equation continues to produce a negative slope coefficient and an ROE estimate of approximately 10.94 percent.

Chart 4: Risk Premium vs. Interest Rates[35]



As shown on QGC Exhibit 3.8, from 1992 through the third quarter of 2007 the average risk premium was approximately 5.64 percent. In a period of relatively low interest rates, however, simply applying that average risk premium to the Treasury yield would understate the required equity return. For example, the average 10-year Treasury yield for the 30 trading days ended November 30, 2007 was approximately 4.22 percent. Simply adding the average risk premium of 5.64 percent would result in an ROE of 9.86 percent. That simple application, however, would understate the ROE; based on the regression coefficients, the risk premium would be 6.59 percent,[36] resulting in an ROE of 10.81 percent. As shown in QGC Exhibit 3.8, using historical measures of the 10-year Treasury yield and the consensus forecasts of the 10-year Treasury yield, the ROE would range from 10.81 percent to 11.00 percent; that range is quite consistent with the results of my CAPM analyses. It is important to note, however, that this estimate does not

[35] Source: Regulatory Research Associates, *SNL Database*, accessed October 29, 2007; Yahoo! Finance.

[36] It is interesting to note that, based on the proxy group average Beta of 0.90, the risk premium of 6.93 percent is equivalent to a market risk premium (as used in the CAPM) of 7.10 percent (*i.e.*, 0.0624/0.90).

include the effect of the Company's relatively small size, or other specific risk factors discussed later in my Direct Testimony.

Q. Did you back-test your Risk Premium model relative to the ROE authorized in Docket No. 02-057-02?

A. Yes, I did. As shown on Table 5 (below) during June, July and August 2002, the average yield on 10-year Treasury Notes was 4.61 percent.[37] Based on that average Treasury yield, the implied ROE would be 10.91 percent, or 29 basis points below the Company's authorized ROE of 11.20 percent. Thus, while the Risk Premium model slightly under-estimates the authorized ROE, the model appears to be quite accurate on an *ex-post* basis.

H. Macroeconomic Indicators

Q. Are the macroeconomic indicators cited by the Commission in Docket No. 02-057-02 materially different in the current environment?

A. In several cases they are. In its Order, for example, the Commission pointed to both short and long-term interest rates, and the rate of inflation (as measured by the Consumer Price Index) as measures of general macroeconomic conditions. The Commission noted that such macroeconomic factors were "positive for the Company".[38] As shown on Table 5 (below), those factors generally have deteriorated since 2002, suggesting a less favorable macroeconomic climate than that which prevailed at the time the Company's 11.20 percent ROE was authorized.

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[37] In its Order in Docket No. 02-057-02, the Commission pointed to those months in its review of capital market conditions.

[38] Docket No. 02-057-02, Report and Order Issued December 30, 2002.

Table 5: Selected Macroeconomic Indicators[39]

	June – August 2002	September – November 2007
Federal Funds Rate (Target)	1.75%	4.50%
2-Year Treasury Yield	2.56%	3.77%
10-Year Treasury Yield	4.61%	4.40%
Annual Change in CPI	1.60%	2.40%

Q. What observations can be made from this data?

A. First, I note that the Federal Funds Rate, the two-year Treasury yield and the Consumer Price Index all are considerably higher in the current market than in 2002; the ten-year Treasury yield is 21 basis points lower. Based on that data, it is difficult to rationalize the extremely low mean DCF results with the change in macroeconomic data since the Company's last rate authorization. That is, given that inflation and short-term interest rates are substantially higher, and long-term interest rates are essentially unchanged from the time of the Company's last rate award, it is difficult to assume that investors have *lowered* their return requirements by 160 to 170 basis points as the mean DCF results would suggest, especially when the average long-term Treasury yield is only 21 basis points lower.[40] In my view, the Risk Premium analysis discussed above, which explicitly considers long-term interest rates and which on an *ex-post* basis reasonably approximates the Company's last ROE authorization, is a reasonable and reliable means of establishing the general level of current required returns.

[39] Source: Federal Reserve Statistical Release H.15 (Selected Interest Rates); Federal Reserve Bank of New York (Federal Fund Target Rates); Federal Reserve Bank of Minneapolis (Consumer Price Stock).

[40] 11.20% authorized ROE less 9.67% and 9.48%, respectively (*see* Table 1).

VI. BUSINESS RISKS AND OPERATING PERFORMANCE

Q. Do the mean DCF, CAPM, and Risk Premium results for the proxy group provide an appropriate estimate of the cost of equity for Questar Gas?

A. No, the mean results do not necessarily provide an appropriate estimate of the Company's cost of equity. In my view, there are several factors that must be taken into consideration when determining where the Company's cost of equity falls within the range of results. Factors that reflect both business and financial risks include the Company's substantial capital expenditure plans and the Company's relatively small size. These risks factors, which are discussed below, should be considered in terms of their overall effect on the Company's business risk. Finally, as is discussed in detail by Mr. Reed, the implications of the Company's operating performance for the Company's ROE should be considered.

A. Capital Expenditures

Q. Please summarize the Company's capital expenditure plans.

A. As Mr. Allred explains in his Direct Testimony, the Company is replacing feeder lines originally constructed in the 1920's and reconditioned and re-installed in the 1940's and 1950's. These capital expenditures, which are required both to maintain system reliability and to support customer growth, represent an incremental $40 million per year or $200 million over five years. As Mr. Allred explains, the effect of these additional investments is to further dilute the Company's earnings and cash flows.

Q. Does the financial community recognize risks associated with increased capital expenditures?

A. Yes, it does. As noted earlier in my Direct Testimony, for example, rating agencies have been aware of financial risks associated with aggressive capital expenditures. In effect, the additional pressure on cash flows exerts corresponding pressure on credit metrics and, therefore, credit ratings.

Equity investors also recognize the pressure on cash flows associated with relatively high levels of capital expenditures. As shown in QGC Exhibit 3.9, I examined the relationship between capital expenditures as a percentage of cash flows and market/book ratios over the seven years 2000 through 2006 for a proxy group of eight companies. That analysis

revealed a statistically significant negative relationship between those two variables. That is, as the ratio of capital expenditures to cash flows increases, the market/book value decreases. That analysis confirms that investors perceive greater risks for those companies for whom capital expenditures represent a significant portion of cash flows.

Q. Have you compared the Company's capital expenditures to the proxy group companies?

A. Yes, I have. In order to make an appropriate comparison, I calculated the ratio of expected capital expenditures to net assets for each of the proxy group companies. For the year 2007, I performed that calculation at the operating company level for Questar Gas using capital expenditure projections provided in a Company investor presentation (*see* QGC Exhibit 3.10). Additionally, I collected data on a consolidated basis using capital expenditure projections developed by Value Line for the years 2003 – 2008 (*see* QGC Exhibit 3.10). It is clear from these analyses that Questar Gas and Questar Corporation's relative level of capital expenditures is materially greater than the proxy group average.

Q. What are your conclusions regarding this issue?

A. First, it is clear that on a relative basis, Questar Gas has a very aggressive capital expenditure program. As Mr. Allred notes, that program, which is necessary both to maintain system reliability and support future growth, likely will materially dilute the Company's current earnings and cash flows. It also is clear that investors recognize the additional risks associated with substantial capital expenditures and that those risks are reflected in market valuation multiples. Taken together, these factors suggest an ROE toward the upper end of the range of results.

B. Small Size Effect

Q. Please explain the risks associated with small size.

A. Both the financial and academic communities have long accepted the proposition that the cost of equity for small firms is subject to a "size effect." While empirical evidence of the size effect often is based on studies of industries beyond regulated utilities, utility

analysts also have noted the risks associated with small market capitalizations. Specifically, Ibbotson Associates noted:

> For small utilities, investors face additional obstacles, such as smaller customer base, limited financial resources, and a lack of diversification across customers, energy sources, and geography. These obstacles imply a higher investor return.[41]

Q. How does Questar Gas compare in size to the proxy companies?

A. Questar Gas is substantially smaller than the average for the proxy group companies both in terms of numbers of customers and market capitalization. QGC Exhibit 3.11 estimates the implied market capitalization for Questar Gas (i.e., the implied market capitalization if it were a stand-alone, publicly traded entity). That is, since the Company is a division of Questar Corporation, an estimated stand-alone market capitalization for Questar Gas must be calculated. This is done by applying the average market to book ratio for the proxy group of 1.89 to the Company's Stockholder's Equity of $377 million. The implied market capitalization based on that calculation is $711 million, which is far below any member of the proxy group. In fact, the median market capitalization for the proxy group would be greater than two times the size of Questar Gas.

Q. Have you considered the Company's relatively small size in arriving at your ROE recommendation?

A. Yes. While I have quantified the small size effect, rather than proposing a specific premium, I have considered the Company's relatively small size in my assessment of business risks in order to determine where within a reasonable range of returns the required ROE rightly falls.

Q. How did you estimate the size premium for Questar Gas?

A. In its Risk Premia over Time Report: 2007, Ibbotson Associates presents its calculation of the size premium for deciles of market capitalizations relative to the S&P 500 Index.

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[41] Michael Annin, *Equity and the Small-Stock Effect*, Public Utilities Fortnightly, October 15, 1995.

An additional estimate of the size premium associated with Questar Gas, therefore, is the difference in the Ibbotson size risk premia for the proxy group median market capitalization relative to the Company's implied market capitalization.

As shown in QGC Exhibit 3.11, according to recent market data, the median market capitalization of the proxy group was approximately $1.64 billion, which corresponds to the 6th decile of Ibbotson market capitalization data. Based on the Ibbotson analysis, that decile has a size premium of 1.67 percent (or 167 basis points). The implied market capitalization for Questar Gas is approximately $0.711 billion, which falls within the 8th decile and corresponds to a size premium of 2.28 percent (or 228 basis points). The difference between those size premia is 61 basis points (2.28 percent – 1.67 percent).

C. Mr. Reed's Benchmarking Analysis

Q. Please briefly describe Mr. Reed's benchmarking analysis.

A. Mr. Reed's analysis assesses whether Questar Gas has successfully achieved both its service and least cost obligations. Mr. Reed evaluates the Company's achievements in these areas based on economic efficiency metrics as well as customer service and customer satisfaction metrics as compared to a benchmarking group. Furthermore, Mr. Reed considers Questar Gas' responsiveness to regulatory policy objectives in the states in which the Company operates. Mr. Reed's benchmarking analysis measures Questar Gas' current performance based on several economic efficiency and customer oriented metrics as well as the trends in these metrics over time.

Q. What conclusions are drawn from Mr. Reed's analysis?

A. Mr. Reed concludes that the Company has demonstrated superior performance that has resulted in significantly lower operating costs than his comparison group. Mr. Reed notes that the all-in effect of Questar Gas' efficiencies is reflected across the board in its system average cost per Dth. Mr. Reed shows in QGC Exhibit 4.4 (page 1 of 20), that in 2006 the Questar Gas system average rate was $9.55/Dth compared with a mean value for the comparables group of $12.36/Dth. Mr. Reed concludes that the price differential as compared to the comparables group demonstrates significant savings to Questar Gas' customers in 2006 alone.

Q. Please explain why the Company's performance as measured by Mr. Reed's benchmarking analysis should be considered in establishing where within the range of results the Company's ROE should rightly fall.

A. As Mr. Reed discusses, Questar Gas has provided quantifiable benefits to customers related to economic efficiency and low cost, high quality service. It is consistent with both cost-based regulations and the long-standing latitude of regulators to recognize low-cost, efficient service in setting a compensating return. Moreover while the Company's past pursuit of operating efficiency has put the Company in the enviable position of a low cost provider, it will be increasingly difficult to extract future cash flow savings from incremental operating improvements. Given the Company's substantial capital investment plan, it will be important to set a return that will enhance internally generated funds and enable access to capital markets at reasonable terms.

VII. IMPLICATIONS OF THE CONSERVATION ENABLING TARIFF FOR THE COMPANY'S COST OF EQUITY

Q. Please briefly summarize the CET.

A. The CET is a pilot mechanism that allows the Company to collect the Commission-authorized non-gas related distribution revenue per customer from customers obtaining service under its GS-1 and GSS rates. The program was implemented on November 1, 2006, and was recently reauthorized by the Commission to continue through the remaining two years of its three year term. As described by the Commission in its recent order relating to the CET, "[T]he CET is a revenue decoupling mechanism in which Distribution Non-Gas (DNG) revenues received by the utility vary with the number of customers rather than customers' gas usage."[42] The mechanism works as a balancing account between the Commission-authorized per customer DNG revenue and the actual revenue received each month from the two subject rate classes. Using the CET, the Company may not accrue annually during any year of the pilot more than 5.0% of the

[42] Docket No. 05-057-T01, Order, Issued November 5, 2007.

most recent 12 month GS-1 and GSS DNG revenues. The Company must file monthly reports with the Commission, detailing "the amounts of accruals, amortizations, their respective limits, interest, and the accumulated balances."[43] Additionally, the Company is responsible for filing at least semi-annually with the Commission to amortize the balance of this account over the following year. The Company is limited from amortizing annual accruals in excess of 2.5% based on the most recent 12 month GS-1 and GSS DNG revenues during any year of the pilot program.

Q. Has the Commission commented on the relationship between the CET and the Company's cost of equity?

A. Yes. In its Order, the Commission noted that while the CET may reduce risk to the Company, it is unclear whether or not it does so to the extent that there should be an adjustment to the ROE:

> Risk to Company earnings are changed in at least two ways with the CET. First, the CET either reduces or removes the risk associated with the deterioration of earnings caused by declining use per customer, depending on *whether an accrual cap is included. For example, to the extent an accrual* cap is in place and shown to have a constraining affect, this risk is reduced rather than removed. Second, the variation in revenues is reduced because the number of customers is less variable and more predictable than customer usage. *However, this record is insufficient to determine the effect of these changes on the Company's cost of capital and consequently on DNG rates.*[44]

In my view, it is important to recognize that for the purpose of evaluating the effect, if any, of rate structures such as the CET on the cost of equity, the relevant basis of comparison is the subject company (in this case, Questar Gas) with the structures in place relative to the proxy group. The fact that the Company's earnings and cash flows may be affected by the CET has no bearing on the cost of equity unless it can be demonstrated that (1) the Company is materially less risky than the proxy group by virtue of the CET

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[43] Ibid.

[44] Docket No. 05-057-T01, Order Issued November 5, 2007. Emphasis added.

mechanism and (2) the financial markets recognize and react to the incremental effect of the mechanism.

Q. Do the proxy group companies generally have some form of revenue stabilization structure in place to address the financial implications of declining use per customer?

A. Yes, a variety of stabilization adjustment mechanisms have been implemented by the proxy group companies to address the difference between the billing determinants used to develop the rates and actual billing determinants experienced through a true-up mechanism. Seven of the eight expanded proxy group companies have such mechanisms. Many of the proxy group companies provide substantial service in more than one state. In some cases, they have mechanisms in place in some states, but not others. Five of the seven have mechanisms in place that affect greater than 50% of their operations (as measured by 2006 residential and commercial sales volumes, *see* Table 6, below).

Table 6: Percent of Revenue Subject to Revenue Stabilization Mechanisms

Company	Percent of Residential and Commercial Throughput Subject to RSM
AGL Resources	50% +
Atmos Energy	< 50%
New Jersey Resources	50% +
Nicor Inc	0%
Northwest Natural Gas	50%+
Piedmont Natural Gas	50% +
South Jersey Industries	50% +
Southwest Gas	< 50%

In addition to addressing declining use per customer through specific revenue stabilization mechanisms, some of the proxy group companies have addressed the issue through other rate design approaches. For example, to the extent that fixed costs can be recovered through fixed monthly customer charges that do not vary with demand levels, some of the risk associated with declining use per customer can be mitigated. All of the

proxy group companies have some level of fixed customer charge and in some cases, the fixed customer charge was increased more than the variable charges specifically to address the recovery of fixed costs. In Atmos-Tennessee's 2006 rate case, for example, a revenue-neutral change was made whereby the customer charges for residential and commercial customers were effectively doubled and that a corresponding decrease was made to the volumetric charges in order to more appropriately recover fixed costs. In another example, in a 2004 rate case, Southwest Gas Nevada was allowed to gradually increase the basic service charges in order to collect more of its fixed costs in an environment of declining customer use.

Also, the volumetric rate structure can be designed to mitigate risk due to declining use per customer. Typical volumetric rate structures involve charging a fixed per unit rate for each unit of gas used. An alternative rate design is the declining block rate structure, wherein the per unit rate associated with the first volume block of gas used is higher than the per unit rates for additional volume blocks. Under such a rate structure, more fixed costs are recovered through base load consumption, which is less likely to be affected by a decline in customer use.

As shown in QGC Exhibit 3.12, five of the eight proxy group companies employ declining block rate structures in the residential tariff of at least one of their jurisdictions to address the declining use per customer issue. The three companies, Northwest Natural, Piedmont and South Jersey Industries, that do not employ a declining block structure, incorporate comprehensive rate stabilization mechanisms and weather normalization clauses across the majority of their service areas and operations, which act in the place of a declining block structure.

Based on this analysis, all eight proxy companies employ tariff structures across the majority of their operations that mitigate declining use per customer either through specific decoupling programs, high demand or customer charges, or through a declining block structure rate design. The Company's use of the CET in this context places it well within the range of revenue stabilization structures used by the proxy group companies. Based on this analysis and as discussed below, I do not believe any reduction in risk vis-à-vis the proxy group is apparent and that a corresponding reduction in the Company's

ROE would be unreasonable and unwarranted. Questar Gas' risk profile for declining usage per customer is mirrored by revenue stabilization measures utilized by other members of its proxy group.

Q. How do the rating agencies view the implementation of revenue stabilization mechanisms?

A. Rating agencies have become increasingly focused on the issue of declining use per customer for LDCs and are looking to revenue stabilization mechanisms as a solution. As noted by Moody's:

> While [Revenue Decoupling] may have originally begun as a regional concept in certain jurisdictions, it has quickly become a nationwide phenomenon that will challenge regulators and gas utilities alike, as they seek to correct a structural imbalance in their rate design that has become increasingly difficult to ignore.[45]

Moreover, it appears that rating agencies will not necessarily upgrade the credit of a utility for the approval of a decoupling mechanism; however, a company without full revenue decoupling stands a greater risk of potential downgrade. For example, in a June 2006, Special Report on Revenue Decoupling and Local Gas Distribution Companies, Moody's stated that:

> LDCs that have, or soon expect to have, RD [Revenue Decoupling] stand a better chance than others in being able to maintain their credit ratings or stabilize their credit outlook in face of adversity. This difference between those companies that have RD and those that do not will tend to be further accentuated as the credit demarcation reflected through rating actions becomes more evident.[46]

Thus it is apparent that rating agencies view decoupling mechanisms as a means of maintaining the *status quo* in today's volatile utility environment. The implication is that

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[45] Local Gas Distribution Companies: Update on Revenue Decoupling and Implications for Credit Ratings, Moodys, June 2006, p. 6. [Clarification added.]

[46] Ibid.

some form of revenue stabilization is expected, and companies without such protection may be subject to negative actions from the rating agencies.

Q. Have you performed any analyses to determine whether equity investors react to the implementation of decoupling structures?

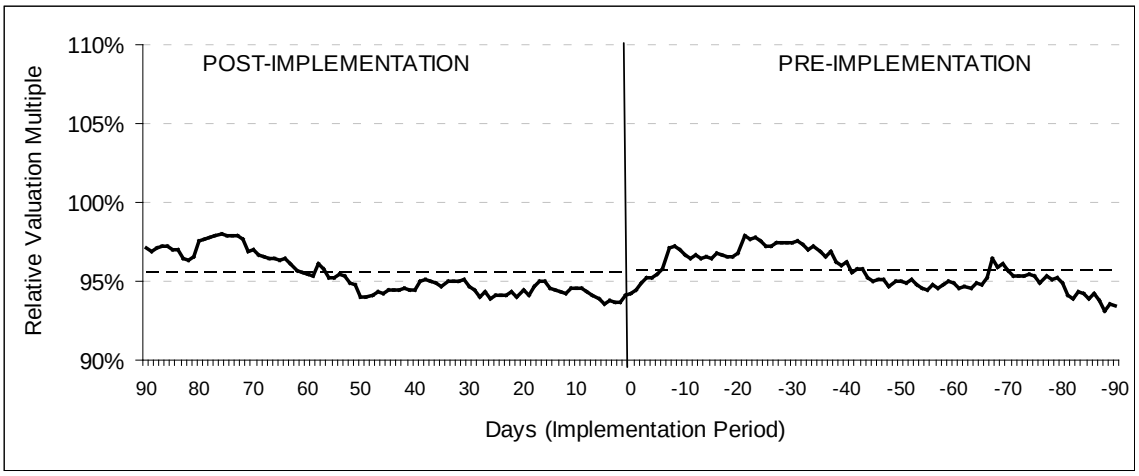
A. Yes, I have. My first analysis is premised on the expectation that if investors considered decoupling mechanisms to materially reduce risks, those expectations presumably would be manifested in higher valuation multiples. That is, all else remaining constant, lower risk expectations should result in higher Price/Book value ratios since lower risks would result in lower return requirements and corresponding higher prices. Therefore, if investors actually reduce their return requirements as a result of the incremental effects of decoupling structures, there should be a meaningful increase in Price/Book ratios for those companies that implement such structures subsequent to the implementation date.

In order to test whether or not the implementation of decoupling structures is associated with changes in valuation multiples, I calculated the Price/Book ratio for the five companies in my proxy group that have implemented such structures since 2003 for the ninety days before and after the implementation of their respective decoupling structures.[47] To control for other variables that could have affected prices during the event period (*i.e.*, the ninety days prior and subsequent to the implementation dates), I divided the individual company Price/Book ratio by the proxy group average Price/Book ratio for each day of the event period (I refer to that ratio as the "relative valuation multiple"). I then calculated the average relative valuation multiple for the five companies that implemented decoupling structures during the 180-day event period (*i.e.*, ninety days before and after implementation). The results of that analysis are presented in Chart 5, below. As Chart 5 demonstrates, there is virtually no difference between

[47] The proxy group companies that have implemented decoupling structures include Northwest Natural Gas, Southwest Gas., Piedmont Natural Gas, South Jersey Industries, and New Jersey Resources. While Northwest Natural, Piedmont and South Jersey Industries do not have declining block structures, these companies have implemented other forms of revenue stabilization mechanisms. The 90 day event period should be sufficient time for markets to react to the news of the implementation of decoupling structures.

average relative valuation multiples in the pre and post-implementation periods (denoted by the heavy dotted line); in fact, the average relative valuation multiple was approximately 96 percent in both periods.[48]

Chart 5: Relative Valuation Multiples Pre and Post-Implementation of Decoupling Structures



Q. What observations can be made from this analysis?

A. This analysis indicates that the implementation of decoupling structures does not appear to be associated with a meaningful change in relative valuation multiples. The results therefore suggest that investors do not necessarily reduce their return requirements as a result of the implementation of decoupling structures.

Q. Did you perform any other analyses to assess investors' reactions to the implementation of decoupling structures?

A. Yes. As discussed earlier in my Direct Testimony, the objective in developing a proxy group is to develop a group of companies that are fundamentally similar with respect to operating, financial and business risks. If the proxy companies are sufficiently similar,

[48] To ensure that my use of the proxy group to control for exogenous effects did not bias the results, I also calculated the relative valuation multiple using the entire Value Line Natural Gas Distribution group as denominator. The use of the broader control group does not change the result; there is no meaningful difference in average relative Price/Book ratios between the pre and post-implementation periods.

the periodic returns of any given proxy company should be strongly correlated with the periodic returns of the remaining proxy group. If investors perceive significantly lower risk for those companies that implement decoupling structures, the implementing companies' returns would be less volatile than they otherwise would be, and the correlation between the individual company returns and the proxy group returns would be lower. That is, if investors perceive lower risks for companies that implement decoupling structures, there would be a lower statistical relationship between the subject company and proxy group average returns.

In order to test whether there is a difference in returns for individual companies that have implemented decoupling structures, I first modeled the weekly returns based on the following specification:

$$r_{i,t} = a + b(r_{g,t}) + e_t \quad [7]$$

where:

$r_{i,t}$ = weekly return for company *i*

a = intercept term

b = slope term

$r_{g,t}$ = average weekly return for proxy group

e_t = error term for week *t*

If the proxy group is appropriately structured, the intercept term (a) should be zero, and the slope coefficient (b) should approach unity. The error term (e) should not be serially correlated, and the equation and slope coefficient should be statistically significant.

Based on Equation [7], I performed a regression analysis for each of the five proxy group companies (NWN, SWX, PNY, SJI, NJR) that implemented decoupling structures between 2003 and 2007. As shown on QGC Exhibit 3.13, over the period January 2003 through November 2007, the average slope coefficient is 0.948, and the intercept terms are insignificant (*i.e.*, are statistically equivalent to zero). In order to ensure that the error terms are not serially correlated, I ran the regression analyses using the Prais-Winsten correction routine. In all cases, the Durbin-Watson statistic indicates no serial correlation in the error terms.

As noted earlier, if investors believe that the effect of decoupling mechanisms so materially reduces risks relative to the proxy group, the return volatility and, therefore, the slope coefficient would decrease in the post-implementation period for those companies that implement decoupling structures. If, however, investors do not attribute significant risk reduction relative to the proxy group as a result of the structures, the slope coefficient should not decrease in the post-implementation period.

For the purposes of this analysis, I tested the hypothesis that decoupling structures cause investors to reduce return requirements relative to the proxy group by calculating Equation 7 in the pre and post-implementation periods for all five companies that implemented decoupling structures. As shown in QGC Exhibit 3.13 the slope coefficient decreased in only one (New Jersey Resources) of the five cases; in four of the five cases it actually increased. Consequently, I have concluded that investors do not reduce their return requirements relative to comparable companies specifically as a result of the implementation of decoupling structures.

Q. Please summarize your conclusions regarding the effect of the CET on the Company's cost of equity.

A. First, it is important to recognize that the relevant basis of comparison is not the Company's level of risk with the CET in place relative to its risk absent the CET. There is little question that the intent of the CET is to mitigate the near-certain erosion earnings and cash flow resulting from declining customer usage. At issue is not investors' perceptions of the Company's risk profile with the CET vis-à-vis its risk profile absent the CET; rather the appropriate basis of comparison is investors' perceptions of the Company's risk with the CET relative to the proxy group used in my analysis to determine the Company's cost of equity capital. As discussed above, given the breadth of risk-mitigation structures in place at the proxy group companies, there is no basis to assume that investors would consider the Company so less risky than the proxy group that they would measurably reduce their return requirements. Consequently, there is no reason to reduce the Company's ROE in connection with the continuation of the CET.

VIII. RECOMMENDED CAPITAL STRUCTURE

Q. Please describe the generally accepted approach to developing the appropriate capital structure for a regulated natural gas utility.

A. There are several approaches to developing the appropriate capital structure. The reasonableness of the approach depends on the nature and circumstances of the subject company. If for example, the subject company does not issue its own securities, it may be reasonable to look to the parent's capital structure or to develop a "hypothetical" capital structure based on the proxy group companies or other industry data. Regardless of the approach taken, however, it is important to consider the resulting capital structure in light of industry norms and investor requirements. That is, the capital structure should enable the subject company to maintain its financial integrity, thereby enabling access to capital at competitive rates.

Q. What is the Company's projected capital structure?

A. At the midpoint of the projected test year ending June 30, 2009, the Company's projected capital structure consists of 47.71 percent long-term debt and 52.29 percent common equity. The proportions of the capital structure are discussed in detail in the Direct Testimony of Mr. Curtis.

Q. Is the Company's proposed capital structure reasonable?

A. Yes, as I discuss below, the Company's capital structure is reasonably consistent with the capital structures of the proxy group companies and is within the range that has been established by rating agencies for gas utilities with similar credit ratings and business risk.

Q. Please discuss your analysis of the capital structures of the proxy group companies.

A. The capital components shown in QGC Exhibit 3.14, for each of the proxy group companies represent the midpoint of the proportions of long-term debt and equity over

the most recent four quarters.[49] The mean proportions of 45.68 percent long-term debt and 54.32 percent equity[50] and the range of results suggest that a capital structure that is comprised of 47.71 percent long-term debt and 52.29 percent equity is reasonable.

IX. CONCLUSIONS AND RECOMMENDATION

Q. What is your conclusion regarding a fair ROE for Questar Gas?

A. I believe that a rate of return in the range of 10.25 percent to 11.50 percent represents the range of equity investors' required rate of return for investment in gas distribution utilities in today's capital markets. My recommended ROE of 11.25 percent is reasonable taking into consideration the following: (i) increased risk due to the Company's aggressive capital expenditure plan; (ii) the Company's relatively small size; and (iii) the combination of quantifiable economic efficiency and customer service benefits that Questar Gas has achieved for its customers.

Table 7: Summary of Analytical Results

	Mean Low	Mean	Mean High
Constant Growth DCF – 30-Day Average	8.63%	9.67%	10.70%
Constant Growth DCF – 180-Day	8.44%	9.48%	10.50%
CAPM 4.57% (30-Day Average)	10.36%	10.96%	11.55%
CAPM 4.88% (180-Day Average)	10.68%	11.27%	11.86%
CAPM 4.62% (2008-2009 Forecast)	10.42%	11.01%	11.60%
Supporting Methodologies			
Risk Premium (Authorized ROE and Treasury Yields)	10.87%	10.94%	11.02%
DCF Normalized Dividend Yield		9.75%	10.77%
Estimated Size Premium	0.61%		

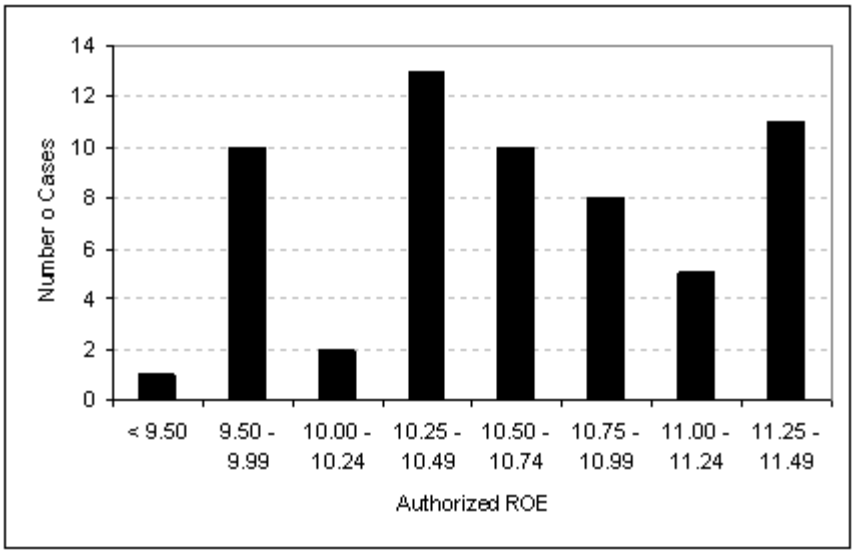
Q. Did you perform any checks on the reasonableness of your ROE recommendations?

A. Yes. I reviewed a reasonable sample of the recent history of authorized equity returns for natural gas rate cases to determine the reasonableness of my results. According to

[49] As available for each of the proxy group companies per fiscal year and filing deadlines.
[50] Excludes preferred equity and short term debt.

Regulatory Research Associates, from 2005 through the third calendar quarter of 2007, there have been 62 disclosed gas distribution utility ROE awards. As shown on Chart 6 and in QGC Exhibit 3.15, on a per Company basis, the vast majority of those awards (47 of 62) were within the range of 10.00 percent to 11.50 percent. As such, my recommended range of 10.25 percent to 11.50 percent is well within the bounds of prevailing rate awards.

Chart 6: Gas Distribution Utility ROE Awards 2005-Q3, 2007[51]



Q. Does this conclude your Direct Testimony?

A. Yes, it does.

[51] Source: Regulatory Research Associates