BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

IN THE MATTER OF THE APPLICATION OF QUESTAR GAS COMPANY TO INCREASE DISTRIBUTION RATES AND CHARGES AND MAKE TARIFF MODIFICATIONS	Docket No. 16-057-03

DIRECT TESTIMONY OF

DAVID M. CURTIS FOR

QUESTAR GAS COMPANY

July 1, 2016

QGC Exhibit 2.0

TABLE OF CONTENTS

I. INTRODUCTION

Q. Please state your name and position.

A. David M. Curtis. I am employed by Questar Corporation as Vice President and Controller. I also serve as Vice President and Controller for Questar Gas Company (Questar Gas or the Company) and all other Questar Corporation subsidiaries.

Q. What are your primary duties as Vice President and Controller?

A. I am responsible for all accounting, tax and payroll functions including: implementing internal control systems; recording transactions; collecting from customers; paying vendors and employees; reporting financial results to management, regulators and investors; complying with tax regulations; analyzing financial results; and advising management on financial decisions.

Q. Please describe your qualifications and experience testifying before regulatory commissions.

A. My qualifications and experience are provided in QGC Exhibit 2.1. To summarize, I have worked for Questar Corporation, its subsidiaries or predecessor, for 33 years in a variety of financial positions. Prior to that time I worked in public accounting. I have a BA degree in accounting and a MBA degree. I have filed testimony in a number of cases before the Utah Public Service Commission (Commission) and the Public Service Commission of Wyoming and have worked with federal regulators on issues impacting Questar Pipeline Company.

Q. Attached to your written testimony are QGC Exhibits 2.1 – 2.11. Were these prepared by you or under your direction?

A. Yes.

Q. What is the purpose of your testimony?

A. I will provide testimony supporting the Company's requested rate of return (cost of capital) in this general rate case. The components of a just and reasonable rate of return include: (1) investors' expected return on equity, (2) cost of long-term debt, and (3) capital structure.

My testimony will discuss the models and factors used in supporting the Company's requested rate of return including: regulatory framework and financial implications, proxy group, discounted cash flow model, capital asset pricing model, analysis of authorized returns and 10-year interest rates, actual returns of companies in the proxy group, allowed returns on equity for the proxy companies, recent allowed returns in other jurisdictions, cost of long-term debt; and capital structure.

Q. Please summarize your recommendation for an authorized return on equity in this case.

A. I recommend an authorized return on equity of 9.85% based on the results of my financial models and comparisons with authorized and actual returns for other natural gas distribution companies. I believe that my recommendation is just and reasonable and is supported by the evidence.

II. RETURN ON EQUITY

A. Regulatory Framework and Financial Implications

Q. Please describe the guiding principles to be used in establishing the authorized return on equity for a regulated utility.

A. The United States Supreme Court definitively established the guiding principles to be used by regulatory commissions in setting the appropriate authorized return on equity in two cases commonly referred to as *Hope* and *Bluefield*.[1]

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

In *Bluefield* the Court said:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise money necessary for the proper discharge of its public duties. 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. (*Bluefield*, at 692-93)

In *Hope* the Court said:

> From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. By that standard the return to the equity owner should be commensurate with returns on investment in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and attract capital. (*Hope*, at 603)

In these cases, the Court unequivocally has determined that returns to investors should be: (1) adequate to assure confidence in the financial soundness of the utility, (2) adequate to support its credit and enable it to raise capital, (3) reasonable in light of current financial market conditions, and (4) commensurate with returns on investments having corresponding risks.

The United States Supreme Court did not specify a means of arriving at a fair rate of return, but determined that the end result must be "just and reasonable." (*Hope*, at 602)

Q. How do these guiding principles impact your approach to recommending an authorized return on equity?

A. I have recommended an authorized return on equity that would be appropriate to an investment having risks commensurate with Questar Gas' risks. I have utilized several different models to calculate a "just and reasonable" authorized return on equity for a group of companies in the same business as Questar Gas with risks similar to those faced by Questar Gas (proxy companies). These models are used in Utah and in many jurisdictions throughout the United States. I compared the results of each of these models with investor expectations as measured by actual returns on equity for the proxy companies, allowed returns on equity for the proxy companies and recent allowed returns for natural gas utilities throughout the United States. It is not mandated that any particular model be used, rather, it is important that the end result is "just and reasonable."

Q. Is Questar Gas's current allowed return on equity in Utah just and reasonable?

A. Yes, the current allowed return on equity of 9.85% is consistent with the results of my analysis. I am recommending that the Commission retain the allowed return of 9.85%.

B. Proxy Group

Q. Why have you used a group of proxy companies to help estimate the cost of equity for Questar Gas?

A. As a wholly-owned subsidiary of Questar Corporation, Questar Gas' common stock is not publicly traded, so equity-market data does not exist for Questar Gas. Therefore, it is not possible to measure investor expectations of returns for Questar Gas directly. Since the return on equity is a market-based concept, it is necessary to use a group of companies with similar risks that are publicly traded as a proxy for investor expectations for Questar Gas. It would not be appropriate to use the return expected by the market for Questar Corporation since Questar Gas constitutes only a portion of Questar Corporation's business. The risks and investor expectations for Questar Corporation, as a

whole, are different from the risks and investor expectations for the natural gas distribution business.

In addition, even if Questar Gas' common stock were publicly traded, it would be necessary to use a proxy group to assure the return on equity authorized for Questar Gas is commensurate with returns on investments of similar risks and to avoid any anomalies in the return expected by investors in Questar Gas. Therefore, the use of a group of publicly traded proxy companies is a common practice in Utah and in jurisdictions throughout the United States.

Q. How did you determine which companies to use in your list of proxy companies?

A. I started with the Yahoo! Finance "Gas Utility" list of natural gas utilities for a comprehensive universe of potential proxy companies. I excluded private companies, foreign companies, propane companies, transmission companies, gathering companies and storage companies because these companies would have significantly different risks than those of Questar Gas. The remaining 18 companies are shown on QGC Exhibit 2.2. I screened the companies to ensure they have risks that correspond to Questar Gas' risks. I used the following criteria for inclusion in the proxy group: (1) at least half of total operating income for the company must come from natural gas distribution operations, (2) the company must have an investment grade bond rating, (3) the company must be followed by at least two investment analysts, and (4) the company must not be in the process of being acquired or acquiring other companies. I utilized these criteria to ensure the proxy companies matched, as closely as possible, the risk profile of Questar Gas. Nine of the companies were eliminated for failing one or more of these criteria. I excluded AGL Resources and Piedmont from the proxy group because both companies are in the process of being acquired. In light of the fact that these companies are being acquired, the share price may include a control premium and the share price reflects the offer price and may not be consistent with current investor expectations.

The remaining nine companies in the proxy group have risks commensurate with those of Questar Gas. Each has at least one-half of its operating income from natural gas

distribution operations, has an investment grade bond rating, and is actively followed by investment analysts. None of these companies are in the process of being acquired or acquiring other companies. I believe that this group of companies constitutes the best available proxy group to measure investor return expectations.

Q. What are Questar Gas' current bond ratings?

A. Questar Gas' long-term debt is currently rated A2 by Moody's and A by Standard & Poor's.

Q. How do the regulatory risks of these proxy companies compare to Questar Gas?

A. The Commission and most other regulators throughout the United States have been adopting regulatory mechanisms that encourage energy conservation, promote customer safety through cost recovery mechanisms associated with infrastructure replacement, and that stabilize financial results. Each of the proxy companies has regulatory mechanisms similar to those of Questar Gas. The following table shows these common regulatory mechanisms for Questar Gas and the proxy companies:

	Commodity Balancing Account	Weather Normalization	Rate Stabilization	Infrastructure Replacement
Questar Gas	Yes	Yes	Decoupling	Yes (Utah)
Atmos Energy	Yes	Yes	Straight Fixed Variable	Yes
New Jersey Resources	Yes	Yes	Decoupling	Yes
Northwest Natural Gas	Yes	Yes	Decoupling	Yes
One Gas	Yes	Yes	Straight Fixed Variable	No
Piedmont Natural Gas	Yes	Yes	Decoupling	Yes
South Jersey Industries	Yes	No	Decoupling	No
Southwest Gas	Yes	Yes	Decoupling	Yes (Nevada and California)
Spire	Yes	Laclede – No Alagasco - Yes	Laclede – Modified Rate Blocks Alagasco – Revenue True Up	Laclede – Yes Alagasco - Yes
WGL Holdings	Yes	Yes	Decoupling	Yes

As noted in this table, all of the proxy companies have commodity balancing accounts and all of the proxy companies have rate stabilization mechanisms to offset the impact of customer conservation. These rate stabilization mechanisms can either be a decoupling mechanism like Questar Gas or a straight fixed variable rate design.

Q. Would it be appropriate to reduce Questar Gas's allowed return on equity below those of the proxy group because of its regulatory mechanisms?

A. No, an allowed return on equity based on the proxy group should not be reduced since the companies in the proxy group have the same regulatory mechanisms as Questar Gas. In *Hope*, the Supreme Court said that "the return to the equity owner should be commensurate with returns on investment in other enterprises having corresponding risks." (*Hope,* at 603) The companies in the proxy group and Questar Gas have corresponding risks. A further reduction in return would not be appropriate. These regulatory mechanisms are also used broadly throughout the United States and the impact of these mechanisms are reflected in the results of the financial models and in the comparisons with actual and authorized returns for other natural gas distribution utilities. Additionally, most of these mechanisms are risk neutral as they protect both the company and the customer from fluctuations in commodity prices, weather and changes in customer usage, and in the case of rate stabilization mechanisms, incentivize the companies to promote energy efficiency.

C. Discounted Cash Flow Model

Q. Describe the discounted cash flow model for measuring investor expectations.

A. The discounted cash flow model (DCF) starts with the assumption that a company's stock price is the present value of future expected cash flows discounted at the required return on equity. This model is represented by the following formula:

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \frac{D_3}{(1+k)^3} + \ldots + \frac{D_\infty}{(1+k)^\infty}$$

Where P_0 represents the current stock price, $D_1 \ldots D_\infty$ represent the expected stream of future dividends, and k is the discount rate or required return on equity. If you assume that the dividend growth rate is constant, then this equation can be rearranged and simplified to give the following equation:

$$k = \frac{D_0(1+g)}{P_0} + g$$

This formula is 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 in dividends.

I have included two versions of the discounted cash flow model in QGC Exhibit 2.3, pages 1 and 2 because of deficiencies in the model, as described below.

Q. What are the deficiencies in the Discounted Cash Flow model?

A. Though this model is straightforward and easy to understand, it is based on significant assumptions that are not always accurate over time. For example, this model assumes dividends grow at a constant rate in perpetuity, the dividend payout ratio remains constant, investors require a constant return in perpetuity, and the growth assumption is knowable.

The main problem with this model is that we really do not know what investors expect in future growth rates. Sometimes a version of this model is prepared using different growth rates. For example, a published analyst earnings growth forecast could be used for the first five years, then a long-term economic growth forecast for year six through perpetuity. However, we still do not know if this or other growth assumptions were used by investors in setting their target buy or sell prices.

Because of the weaknesses in this model, it should not be used alone. Instead, this model should be considered in context with the results of other models and capital market conditions.

Q. How did you calculate the expected dividend yield?

A. The dividend yield is calculated based on the 50-day moving average stock prices and dividend payments. Data on QGC Exhibit 2.3 shows the current dividend yields. For each of the proxy group companies, I obtained the current annual dividend per share. I also obtained the 50-day moving average stock price. I used an average price over the last 50 trading days to even out short-term fluctuations in the stock market. I divided the current dividend per share by the 50-day moving average stock price to arrive at a current dividend yield. Since the model uses a dividend yield at the end of the first year, I multiplied this dividend yield by one plus the growth rate. The average adjusted dividend yield for these nine proxy companies is 3.04% (QGC Exhibit 2.3, page 1, column G, line 10) using analyst growth estimates and 3.06% (QGC Exhibit 2.3 page 2, column G line 10) using historical and company forecast growth estimates.

Q. How did you determine the growth rates?

A. The growth-rate assumption has the largest impact on this model, yet it is the assumption that has the least certainty.

I prepared a version of this model using expected growth rates from various sell-side investment analysts. I averaged growth rates as reported by Yahoo! Finance, Zacks, US Capital Advisors, Bloomberg and CNN Money. Yahoo! Finance uses growth estimates as reported by Thompson Financial Network. This version of the DCF model is one that has often been considered in setting rates of return. However, these growth rates typically only look out five years, while the DCF model requires a growth rate for perpetuity. The results of this model as shown on QGC Exhibit 2.3, page 1 show a mean required return on equity of 8.65%, with a low of 7.39% and a high of 10.09%.

Q. Do you have concerns with these results?

A. I believe there may be some downward bias in analyst growth expectations. It is important to note that these sell-side analysts are not investors making buy and sell

decisions. There is no incentive to overstate expected results and there may be some incentive to understate growth forecasts. On average, the sell-side analysts are forecasting a 5.61% (QGC Exhibit 2.3 page 1, column L) earnings growth for the proxy companies over the next five years.

Given the widely discussed need to replace aging natural gas infrastructure, I believe the natural gas distribution industry will continue to see earnings growth rates of 6% or higher. Federal regulations from the Department of Transportation are requiring that all natural gas distribution companies make significant investment in integrity management and infrastructure. Earnings will grow as this increase in rate base is reflected in rates. Investors in natural gas distribution companies are well aware of the earnings growth potential, in spite of the lower growth forecasts published by sell-side analysts.

For this reason, I prepared a second DCF model in QGC Exhibit 2.3, page 2 using an average of the actual compound earnings growth rate for each proxy company over the last four years and the midrange of the company forecasts of earnings growth. Each company's forecast of earnings growth was from its most recent company presentation to investors.

The average of the actual historical growth rates and the company forecast of future growth rates results in reasonable sustainable growth forecasts that I believe reflect investor expectations.

This DCF model resulted in a mean investor return expectation of about 9.30% with a low of 6.67% and a high of 12.16%.

Q. How have you considered the results from the discounted cash flow model in your recommended allowed return on equity?

A. I have included the results of both discounted cash flow models in arriving at my recommendation. I believe the discounted cash flow models, together with additional models discussed below, provide strong evidence supporting the Company's proposed return on equity.

D. Capital Asset Pricing Model

Q. Describe the capital markets line.

A. QGC Exhibit 2.4 shows the capital markets line as derived from the Duff & Phelps 2016 Valuation Handbook. The vertical axis shows the average return to investors for various asset classes for the years 1926 through 2015. The horizontal axis shows the annual standard deviation of returns for these asset classes. This graph illustrates the financial assumption that investors require higher rates of return for asset classes that have more risk. The level of risk can be measured by the variability of returns.

The underlying data supporting this graph is as follows:

	Annual Return	Standard Deviation
Small Company Stocks	16.5%	32.0%
Mid-Cap Stocks	13.8%	24.5%
Large Company Stocks	12.0%	20.0%
Long-term Corporate Bonds	6.3%	8.4%
Long-term Government Bonds	5.0%	2.6%
Intermediate Government Bonds	4.5%	2.9%
Treasury Bills	3.5%	3.1%

The capital markets line in QGC Exhibit 2.4 makes intuitive sense because of the different risks associated with each asset class. Smaller companies are riskier than larger companies because of smaller market share of the various goods and services, fewer economies of scale and less ability to weather economic uncertainty. Common equity is riskier than long-term debt because of residual risk of loss and debt investors have a priority claim on the assets of the company. Long-term debt is riskier than short-term debt because of interest rate risk and longer exposure to credit risk. Corporate debt securities are riskier than US government debt securities because of credit risk.

Q. How can this theory be used in estimating the cost of equity capital?

A. Various models have been developed that estimate the cost of equity capital based on the risk premium for equity over debt. Investors insist on being paid for risk. The higher the

level of risk, the higher the required return. The relationships between required returns tend to be relatively stable over time.

Q. Describe the Capital Asset Pricing Model.

A. The Capital Asset Pricing Model (CAPM) estimates the cost of equity for a given company using the risk-free rate of return and a risk premium to compensate the investor for additional risks associated with the company. This is calculated as follows:

$$k = rf + \beta(r_m - rf)$$

where:

k = the required return on equity

β = Beta of an individual security

rf = the risk free rate of return

r_m = the required return on a market as a whole

.

In this formula, the term (r_m – rf) represents the risk premium of the United States stock market over the risk free rate of return. The risk free rate of return commonly used is the yield on U.S. government 30-year Treasury bonds.

Beta is a measure of the risk of an individual security relative to the market as a whole. Beta is defined as:

$$\beta = \text{Covariance}(r_e, r_m) / \text{Variance}(r_m)$$

The variance of the market return is a measure of the uncertainty of the market. The covariance between the return of a specific security and the market as a whole is a measure of the extent to which the return on a security will respond to a change in the market.

Q. Is the CAPM a reasonable approach to help establish a utility's return on equity?

A. The CAPM has been a measure considered by the Commission as well as commissions in many other jurisdictions throughout the United States. The CAPM is used by investors

and analysts. It is commonly used in other applications such as asset valuations for levying property taxes. The underlying principles of risk premium and risk-free rate of return are sound.

However, as with the DCF, the CAPM is not an exact tool. The assumption that the risk of an individual security can be measured by the Beta of that security relative to the market as a whole is theoretical at best. Many items not directly related to risk can influence the Beta, such as how active the security is traded in the market and size of the company.

The accuracy of the CAPM has also been significantly influenced by recent changes in the capital markets. Each of the components of the CAPM has declined since the crisis in the capital markets began in mid-2008. The yield on the 30-year Treasury bond is near historical lows because of relaxed monetary policy used to stimulate the economy, including the Federal Reserve's quantitative easing programs to actively repurchase government bonds. The dramatic declines in the stock market during 2008 had a significant influence on the market risk premium even though 2008 was only one out of 90 years. Paradoxically, years like 2008 will cause investors in equity investments to demand higher returns over fixed income investments because the risk of investing in equity investments has proven to be much higher after the capital market performance in 2008. Also the natural gas distribution utilities' stock prices did not decline as significantly as the overall market, so the Betas for the proxy companies declined.

Q. Discuss the results of your CAPM.

A. My calculations of the required return on equity using the CAPM is shown on QGC Exhibit 2.5.

The adjusted Beta (Column C) used in the model was calculated by Value Line using historical market trading data for each of the companies in the proxy group. Value Line adjusts the raw Beta by averaging the historical result with 1.0 to reflect the tendency of the Beta to regress to the market mean of 1.0 over time. Value Line weights the raw Beta by 0.67 and the market (or 1.0) by 0.33. Failure to adjust the raw Beta will underestimate

the cost of capital for relatively low raw Beta companies such as regulated utilities. Value Line also rounds the Beta result to the nearest 0.05.

I used the yield on the 30-year Treasury bond (Column D) as the risk free rate of return. Because the rate-effective period for this general rate case begins in 2017, I used a 2017 forecast yield on the 30-year Treasury bond to align with the IHS Global Insight April 2016 forecast for the 2017 30-year Treasury bond yield was 3.20% and Wells Fargo US Economic May 11, 2016 forecast for the 2017 30-year Treasury bond yield was 2.92%. An average of these two forecasts was 3.06%. On May 13, 2016, the yield on the 30-year Treasury bond was 2.58%.

The market risk premium (Column E) was taken from Duff & Phelps data using returns from 1926 through 2015. Large company common stocks had an average return over this same time period of 12.0%. Long-term government bonds had an average annual yield of 5.0% from 1926 to 2015. The market risk premium is therefore 7.0%.

The overall result from this first version of the CAPM shows a minimum required return on equity of 7.96%, a mean of 8.57% and a maximum of 9.36%.

Q. Is the result of the CAPM reasonable in your opinion?

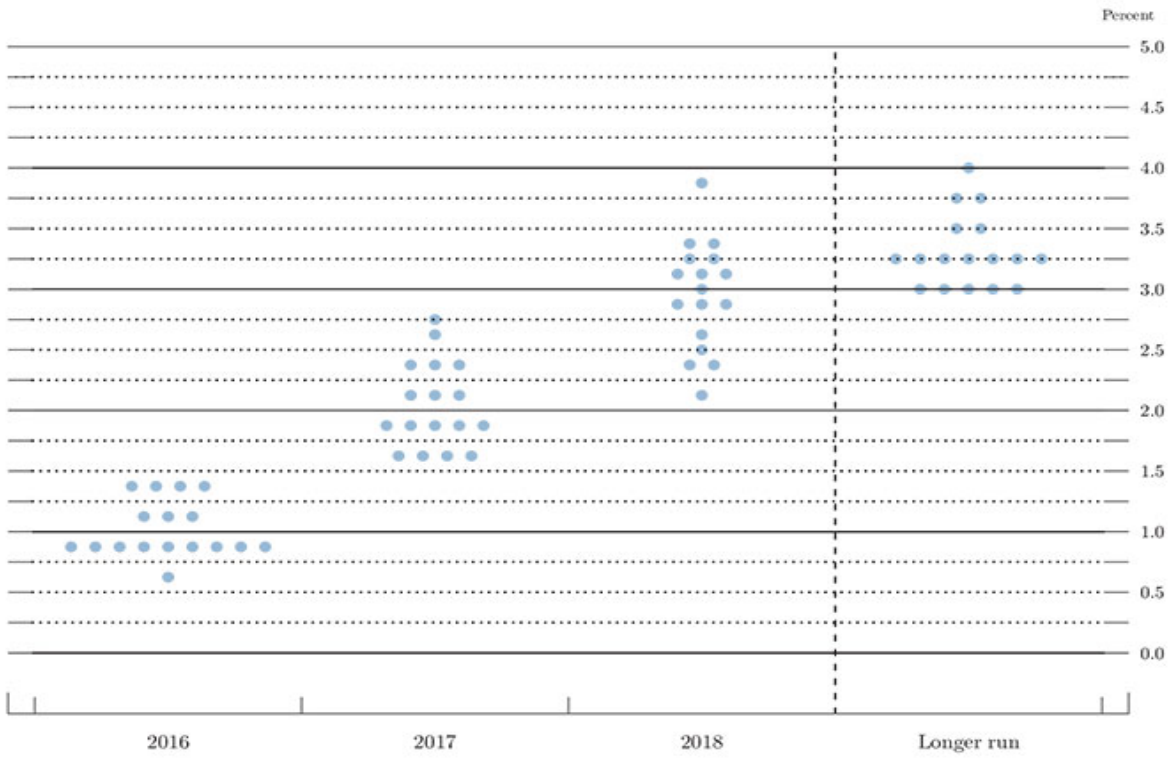
A. No, I have included the first version of the CAPM in my testimony because it is commonly shown in rate-setting testimony. However, I have not used the CAPM in my recommendation. I do not believe that the current yield on the long-term government bonds or the forecast yield for 2017 is reflective of long-term investor expectations.

Since the Great Recession that began in 2008, the Federal Reserve has had a very expansionary monetary policy. Short-term interest rates have been held at near zero. The Federal Reserve has had quantitative easing programs under which it purchased significant government bonds that had a dramatic impact on the market yield.

The Federal Reserve acknowledges that interest rates are being held significantly lower than the longer term expectations. Following is a graph from the minutes of the Federal

Reserve meetings held on March 15-16, 2016. This "Dot Plot" shows the expectations of each of the individual members of the Federal Reserve Board on the appropriate monetary policy now and into the future.

Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate*



*Note: Each shaded circle indicates the value (rounded to the nearest 1/8 percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run.

The longer run expectation of the Federal Reserve Board is that the federal funds rate will continue to increase from the current 0.25% to about 1.0% by the end of 2016 and going forward in the longer run average about 3.25%. As shown on the capital assets pricing line in QGC Exhibit 2.4, long-term government bonds have averaged a yield of 1.5% higher than treasury bills. This would imply that the longer run 30-year treasury would have a yield of about 4.75%.

The Normalized CAPM using this longer run 30-year treasury bond yield would show a result of: (Beta of 0.79 * Market Risk Premium of 7.00%) + Risk Free Rate of 4.75% = Normalized CAPM Investor Expectation of 10.26%. This result is much more consistent with long-term investor expectations. See QGC Exhibit 2.5, page 2.

An analysis of real interest rates provided another indication that interest rates are being held below investor expectations. The Core Consumer Price Index currently stands at a 2.2% annual inflation rate. As of May 17, 2016, the yield on a 3-month treasury bill was 0.27%. This means than an investor who owns a treasury bill has a negative 2% real return. This interest rate environment is clearly not sustainable in the long run.

E. Analysis of Authorized Returns and Interest Rates

Q. How have authorized returns on equity for natural gas distribution companies been influenced by the changes in interest rates?

A. Included in this testimony as QGC Exhibit 2.9, page 8, is a graph of authorized returns for natural gas distribution companies derived from QGC Exhibit 2.9, pages 1 through 7. It is apparent from this graph that authorized returns for natural gas distribution companies have been generally declining over this period. Also displayed on the same graph is monthly yield on the 10-year Treasury bond over this same period. The decline in authorized returns appears to be related to the decline in the yield on the 10-year Treasury bond. Note that I compared the yield on the 10-year Treasury bond instead of the yield on the 30-year Treasury bond since the US Government did not issue 30-year bonds continuously through this period.

Q. Do authorized returns on equity have a relationship to the yield on treasury bonds?

A. Yes, QGC Exhibit 2.6 is a regression analysis of the relationship between authorized returns and the yield on the 10-year Treasury bond. The average quarterly yield was used on the 10-year Treasury bond as the independent variable and the average quarterly authorized return on equity for natural gas distribution companies as the dependent variable.

This analysis shows there is a statistically significant relationship between the authorized returns on equity and the yield on the 10-year Treasury bond. The adjusted R squared factor for this regression analysis was 0.50, meaning that 50% of the variability in the average authorized return on equity can be explained by changes in the yield on the 10-year Treasury bond. The t statistics for the intercept and the relationship with the 10-year treasury yield were also statistically significant. With 49 degrees of freedom, the t statistic is significant at a 95% confidence level if the t statistic is 2 or higher. The t statistic was 58.2 for the intercept and 7.0 for the 10-year treasury yield.

This regression analysis provides an equation that can be used to estimate the appropriate authorized return on equity given a forecast yield on the 10-year Treasury. This equation estimates that the appropriate authorized return on equity should be 9.09% plus 31.75% of the yield on the 10-year Treasury bond. The equation results in a mean authorized return of [or "return on equity of"] 9.86% with a range of 9.33% to 10.40% at a 95% confidence level using a forecast 2017 10-year Treasury yield of 2.44%. The range of estimates is included in my recommendation.

F. Actual Returns Earned by Proxy Companies Having Corresponding Risks

Q. What actual returns on equity have the proxy companies earned?

A. QGC Exhibit 2.7 is a summary of actual financial returns on equity earned by each of the nine proxy companies from 2011 through 2015. The returns are averaged by both company and by year. The average annual return on equity earned by the proxy companies was 10.01% over this 5-year period. By year this ranged from a low of 9.21% in 2013 to a high of 10.65% in 2011. The 5-year average by company ranged from a low of 7.62% for One Gas to a high of 14.29% for New Jersey Resources.

Q. What implication does an analysis of actual financial returns on equity have in setting an allowed rate of return?

A. *Hope* and *Bluefield* hold that "just and reasonable" returns should be commensurate to returns earned by companies that have risks commensurate with the subject utility. QGC

Exhibit 2.7 shows the proxy companies, all of which have risk profiles similar to Questar Gas, are earning returns consistent with or higher than the requested allowed return on equity of 9.85%. An allowed return significantly lower than 10.01% would lead to financial results significantly worse than the proxy group and would not be just and reasonable.

G. Proxy Companies Allowed Returns on Equity

Q. What are the authorized returns on equity for the proxy companies?

A. Exhibit 2.8 is a summary of authorized returns on equity for each of the proxy companies and each of the jurisdictions in which they provide service. This information was obtained from company annual reports on Form 10K or investor presentations. The results were weighted by jurisdiction and by the number of customers in each jurisdiction or the net plant by jurisdiction depending on investor disclosures.

As shown in this exhibit, the proxy companies have an average authorized return on equity of 9.86% with a low of 9.57% and a high of 10.30%.

This summary of authorized returns for the proxy companies is an important check of the results of the models used to estimate an appropriate authorized return. The proxy companies were selected because they have risks similar to those of Questar Gas.

H. Allowed Return in Other Jurisdictions

Q. What allowed returns on equity have other jurisdictions been authorizing for natural gas distribution companies?

A. QGC Exhibit 2.9 pages 1 through 7 is a summary of rate cases completed for natural gas distribution companies from December 2003 through March 2016 as compiled by the American Gas Association (AGA) and SNL. A total of 328 cases during this time period had a return on equity identified in the rate-case order. The authorized returns for January 2015 through March 2016 as shown on QGC Exhibit 2.9 page 7 ranged from

9.00% to 10.50% with a mean of 9.62%. The requested allowed return on equity of 9.85% is consistent with the returns authorized in other jurisdictions in recent rate cases.

I. Recommendation

Q. Summarize your analysis of allowed return on equity.

A. QGC Exhibit 2.10 summarizes the results of my analysis for an appropriate authorized return on equity.

A summary of QGC Exhibit 2.10 is as follows:

Summary of Return on Equity Recommendation

	Minimum	Mean	Maximum
Discounted Cash Flow Model			
Analyst growth expectations	7.39%	8.65%	10.09%
Historical & Company forecast growth	6.67%	9.30%	12.16%
Capital Asset Pricing Model			
2017 Forecast 30-year treasury yield	7.96%	8.57%	9.36%
Normalized	9.65%	10.26%	11.05%
Regression Analysis			
10-Year Treasury Yield / Authorized Returns	9.33%	9.86%	10.40%
Proxy Companies - Actual Earned Returns - 2011 through 2015	9.21%	10.01%	10.65%
Proxy Companies - Current Weighted Allowed Returns on Equity	9.57%	9.86%	10.30%
Recently Authorized Returns - January 2015 to March 2016	9.00%	9.62%	10.50%

Q. What is your recommendation for an authorized return on equity?

A. Based on my analysis, I recommend the Commission authorize a return on equity of 9.85%.

III. COST OF LONG-TERM DEBT

Q. What is Questar Gas' cost of long-term debt?

A. QGC Exhibit 2.11, shows the cost of debt at the end of 2015. Questar Gas expects to issue $100 million of new long-term debt during 2016. The expected interest rate on this new long-term debt, assuming a 10-year life is 2.75% (line 28). Questar Gas will update

this schedule with the actual cost and terms of the 2016 debt issue once it is finalized. Questar Gas's overall cost of long-term debt is a weighted average of all issues currently outstanding, including amortization of debt issuance costs and loss on reacquired debt. This cost of debt is expected to be 4.84% in 2017.

IV. CAPITAL STRUCTURE

Q. What is Questar Gas' expected capital structure?

A. QGC Exhibit 2.11 also shows Questar Gas capital structure as of December 31, 2015. This capital structure is 46.92% long-term debt and 53.08% common equity (column E). With the issuance of $100 million of new long-term debt and an equity contribution of $50 million, Questar Gas' capital structure is expected to be 46.39% long-term debt and 53.61% common equity by the end of 2017 (column O).

Q. Is this capital structure reasonable?

A. Yes, I believe that Questar Gas' capital structure is reasonable, consistent with previous Commission orders, and in line with the capital structure of the proxy group.

V. RATE OF RETURN RECOMMENDATION

Q. What is your overall recommendation for rate of return?

A. I am recommending an average of the 2016 and 2017 capital structures shown on QGC Exhibit 2.11. The following table summarizes my recommendation:

	Percent of Capital	Cost of Capital	Weighted Cost of Capital
Long-term debt	47.28%	4.86%	2.30%
Common shareholder's equity	52.72%	9.85%	5.19%
Rate of return			7.49%

Q. Does this conclude your testimony?

A. Yes.

State of Utah)
) ss.
County of Salt Lake)

I, David M. Curtis, being first duly sworn on oath, state that the answers in the foregoing written testimony are true and correct to the best of my knowledge, information and belief. Except as stated in the testimony, the exhibits attached to the testimony were prepared by me or under my direction and supervision, and they are true and correct to the best of my knowledge, information and belief. Any exhibits not prepared by me or under my direction and supervision are true and correct copies of the documents they purport to be.

_____
David M. Curtis

SUBSCRIBED AND SWORN TO this 1st day of July 2016.

_____
Notary Public